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Shelburne Basin Venture 2013-2017 Exploration Drilling Project

Supplier and Infrastructure Assessment

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Summary

Supplier and Infrastructure Assessment – Condition 4 of the 2013-2017 Exploration Drilling Project Industrial and Employment Benefits Plan

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1.0 INTRODUCTION

Shell Canada Limited (Shell) submits the following Supplier and Infrastructure Assessment to the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) for the Shelburne Basin Venture (the Venture) 2013-2017 Exploration Drilling Project (the Project). The submission is in accordance with section 3.8.1 of the *Canada Nova Scotia Benefits Plan Guidelines - Supplier and Infrastructure Assessment and Development* and Condition 4 of the approval of the Industrial and Employment Benefits Plan for the Project. This submission provides an assessment of local capabilities for the work, in terms of both existing suppliers and infrastructure.

2.0 PROJECT BACKGROUND AND OVERVIEW

In 2011, Shell participated in a Call for Bids issued by the CNSOPB for deep water offshore Nova Scotia parcels. In March 2012, Shell was awarded four Exploration Licences (ELs) covering 13,675 km² (ELs 2423, 2424, 2425, 2426). Additional ELs 2429 and 2430 were acquired in the 2012 Call for Bids, and awarded January 2013.

Shell holds six contiguous ELs (ELs 2423, 2424, 2425, 2426, 2429, 2430) covering an area of 19,845 km². In acquiring the ELs, Shell holds the exclusive right to drill and test for potential hydrocarbons. Shell maintains a 50% working interest and is the Operator of the ELs with a 30% non-operating interest held by ConocoPhillips Canada East Coast Partnership and a 20% non-operating interest held by Suncor Energy Offshore Exploration Partnership.

3.0 PROJECT OPPORTUNITIES

Shell contracted Nova Scotian and other Canadian businesses and individuals for the provision of goods and services required for the Project.

Shell continues to follow the requirements of Section 45 of the *Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act* (Accord Act) and the *Canada-Nova Scotia Offshore Petroleum Board Canada Nova Scotia Benefits Plan Guidelines*, including:

- Providing manufacturers, consultants, contractors and service companies in the Province of Nova Scotia and other parts of Canada with a full and fair opportunity to participate on a competitive basis in the supply of goods and services required for the Project.
- First consideration on a competitive basis to qualified Nova Scotian businesses and residents for employment and training opportunities and the supply of goods and services.

4.0 SUPPLIER AND INFRASTRUCTURE ASSESSMENT

Contracting Strategy and Outcomes

Given the specialized nature of some services and drilling equipment, a comprehensive contracting and procurement strategy was developed to identify potential suppliers, both domestic and international. Opportunities were communicated through various media outlets to reach as broad an audience as possible. Shell developed bidders lists from responses to its Expression of Interests (EOIs) and subsequent contracts awarded on the basis of total cost of ownership.

Nova Scotian, other Canadian and international companies with operations in Canada were engaged to provide the required services. Additionally, non-Canadian companies based elsewhere were also contracted.

Close to 40 scopes of work were awarded on a competitive basis, resulting in over 60 contracts: 11 to Nova Scotian, 46 to Other Canadian and 4 to non-Canadian companies respectively. Many of the Canadian companies have operations based in Nova Scotia, and Newfoundland and Labrador.

The scopes of work included:

- Mobile Offshore Drilling Unit (MODU)
- Drilling Equipment and Components
 - Drilling Services
 - Wellhead Equipment
 - Oil Country Tubular Goods (OCTG)
 - Liner Hangers
 - Fishing and Milling Services
 - Casing and Cementing Accessories
 - Solids Control
 - Casing Tubing Running Services (CTRS)

- Tubulars and Handling Equipment
 - Remote Operated Vehicle (ROV)
- Supply Base and Stevedoring
- Supply and Standby Vessels
- Marine Fuel
- Helicopter Services
- Waste Management
- Support Services
 - Weather Forecasting and Wave Buoy
 - Blow out Preventer (BOP) Surveyor
 - Well Control / Relief Well Planning
 - Oil Spill Response Planning
 - Certification and Inspection
 - Marine Mammal Observation (MMO)
 - Transportation and Freight Forwarding
 - Helicopter Transit Suits and Helicopter Underwater Emergency Breathing Apparatus (HUEBA) equipment
 - Environmental Impact Assessment Services
 - Technical Manpower Agency

Other services contracted in support of Shell's activities in Nova Scotia included:

- Safety Training Services
- Medical Services
- Ground transportation
- Hotel accommodations
- Restaurants

Due to the specialized nature of exploratory drilling, it was necessary for Shell to award select single source contracts for some services. These services included the MODU, BOP testing services and equipment, oil spill response services and materials.

Shell Contractors also tendered for goods and services resulting in approximately 30 sub-contracts being awarded to local and Canadian vendors for catering services, safety training, chemicals, shipping containers, inspection services, construction, facilities and others.

Shell contracted four supply vessels and one standby vessel over the course of the Project. Vessels underwent rigorous inspections and training to meet Shell and regulatory requirements. Partnerships were established between foreign vessel owners and local companies for the provision of three vessels. Shell encourages other parties to consider

this type of arrangement, not just for vessels, but for general services as well, as it allows for knowledge sharing from experienced offshore global operators to be accessed and applied to the Project through local contractors.

Supplier Assessment

Many companies contracted have their base of operations in Newfoundland and Labrador, which is strategic for the demand of the offshore energy sector in that province. It was mentioned to Shell by some contractors that if Nova Scotia offshore exploration activity gained momentum, they would consider establishing (or re-establishing) operations in the province. Should this expansion of the industry occur, contractors' transportation costs and the associated health, safety and environmental (HSE) exposure of extra travel to Nova Scotia could be reduced.

Variations across suppliers in the maturity and sophistication levels of safety management systems were observed over the course of the Project. Shell worked closely with its contractors to implement Shell's global safety standards. This is perhaps an area for further review and investment by the Nova Scotian government and local supply sector to incentivize continuous enhancement in these areas.

Nova Scotia companies must build and maintain their global competitiveness to be successful during these challenging economic times. Shell too must maintain its competitiveness and manage the high cost of exploratory drilling programs amidst a global portfolio that offers differing operational and regulatory costs across jurisdictions. There is a risk that reliance on local content legislation by either suppliers or regulatory bodies could undermine a region's success in the long term, making Nova Scotia a less attractive investment than other jurisdictions globally.

Infrastructure Assessment

Marine Infrastructure

Nova Scotia's developed port infrastructure and marine facilities were fully able to support the needs of the Project after some upgrading.

Several ports in the province offer deep water and ice free access suitable for heavy industry use, further adding to Nova Scotia's strategic advantage for potential future projects. Recent redevelopment of the Pier 9 Richmond Terminals and extension of the Halterm Limited terminals in the Port of Halifax are evidence of infrastructure investment.

The Dartmouth Blue Water Group supply base / wharf was used as the primary site supply base to support drilling operations throughout the duration of the program, with the Pier 9 Richmond Terminal used for overflow operations. The terminals were used to support refueling, equipment transfer and replenishment.

Air Transportation Infrastructure

Multiple airports allowed for flexibility with offshore transport by dedicated Shell helicopters, including Halifax, Yarmouth and others. Crew changes for the Project were completed from the Project's heliport at Halifax Stanfield International Airport.

Road Transportation Infrastructure

Having access to wharf locations in Dartmouth and Halifax reduced the level of required road transportation through providing optionality to ship large loads from either the Halifax or Dartmouth side of the port. Accessing Highway 111 from Pier 9 to Woodside reduced HSE exposure through minimizing transport through urban roads.

Shell worked closely with its contractors to promote road safety, including seatbelt compliance and heightened awareness of pedestrians. For example, Shell implemented slower speeds for all vehicles to minimize risks to pedestrian safety due to the lack of sidewalks between the Woodside Ferry Terminal and Pleasant Street near the Woodside terminal.

General Infrastructure

Extensive residential and hospitality infrastructure exist in multiple urban centres across the province to support planning and execution of the Project. Shell representatives travelled to Cape Breton, the South Shore and central Nova Scotia on many occasions to conduct engagement sessions, using local hotels, event centres and restaurants.

5.0 SKILLED LABOUR

Skilled labour was critical to the success of the Project. Nova Scotians and other Canadians were employed and trained by Shell and its contractors for technical operations and onboard the MODU and supply vessels.

The Canadian Government Temporary Foreign Worker (TFW) legislation necessitated a rigorous advertisement campaign to identify qualified Canadians to work onboard the

MODU. Thousands of applications were submitted to Shell’s rig contractor, Stena Drilling (Stena). Following an extensive review and selection process, approximately 50% of the crew complement were residents of Canada, and approximately half of that number were Nova Scotia residents. The Stena IceMAX crew was not replaced entirely by Canadians for operational continuity and safety reasons, but all positions were advertised. Stena made additional applications to Service Canada for work permits and labour market impact assessments for certain non-Canadian workers once it was clear that the Project timeline required an extension.

Two vessel operators were required to apply for permit extensions due to the extended Project timeline for the loss of the lower marine riser in March 2016 during a severe winter storm. The vessel operators faced a Coasting Trade Act (CTA) challenge when a Canadian flagged full-duty paid vessel became available. The CTA emphasizes selection of full-duty paid vessels over other vessels for work in Canada. Shell pursued full compliance with the CTA and ultimately released a non-full-duty paid vessel. Portions of the CTA guidelines appear to operate contrary to Accord Act requirements.

Examples of crewing positions filled by Nova Scotians include:

Vessel Crew	Rig Crew	Technical
Master	Driller	Pilots
Chief Mate / First Officer	Floorman	Marine Mammal Observer
Second Mate / Second Officer	Storeman	Rig Positioning
Junior Mate	Medic	HSSE Representative
Chief Engineer	Radio Room Admin	
Second Engineer	Roustabout	
Third Engineer	Painter	
Junior Engineer / Fourth Engineer	Chief Cook	
Cook	Night Cook / Baker	
Banksman	Assistant Cook	
Deck Rating	Lead Steward	
Able Seaman	Steward	
Rigger		

There is potential for Nova Scotian and Canadian individuals who gained the relevant training and certification, and experience during Shell's program to work on future drilling programs in Nova Scotia and elsewhere.

In support of building a skilled labour force, there is a well-established and well regarded post-secondary education system: Nova Scotian colleges and universities are producing diversely skilled and educated Nova Scotians, Canadians, and students from overseas choosing to study in the province.

6.0 SUMMARY AND GENERAL REFLECTIONS

Nova Scotia has an abundance of skilled labour and infrastructure resources to support offshore exploratory drilling programs. Nova Scotian and other Canadian team members brought important local knowledge and abilities that contributed to the safe execution of the Project. The availability of training and education through local institutions allows residents and other individuals to position themselves for potential employment opportunities.

Variations in the maturity and sophistication levels of suppliers' safety management systems were observed over the course of the Project. Shell worked closely with its contractors to implement Shell's global safety standards. This is an area that could benefit from further review and investment by the province and local supply sector to facilitate continuous growth in safety culture and capabilities.

The Accord Act legislation can support the inclusion of qualified suppliers and individuals in an offshore exploration campaign, but it is important to align the intent of the Accord Act with other legislation, such as that for Temporary Foreign Workers and the CTA. This alignment can help maximize opportunities for Canadians, while maintaining operational integrity.

The Nova Scotian offshore supply and infrastructure community has an opportunity to attract future investment by energy companies via enhancing its global competitiveness on an ongoing basis. Examples of world class companies exist in Nova Scotia, and elements of those examples may serve to aid other local businesses in achieving similar standards. This notion of a global rather than local competitive outlook is increasingly important in the 'lower for longer' price environment facing the energy industry where global energy companies are directing investment to jurisdictions where the regulatory regime is timely, transparent and predictable.