

# borders southern



Darwin Discovery & Future Resource Growth

Key Messages – Q1 2013

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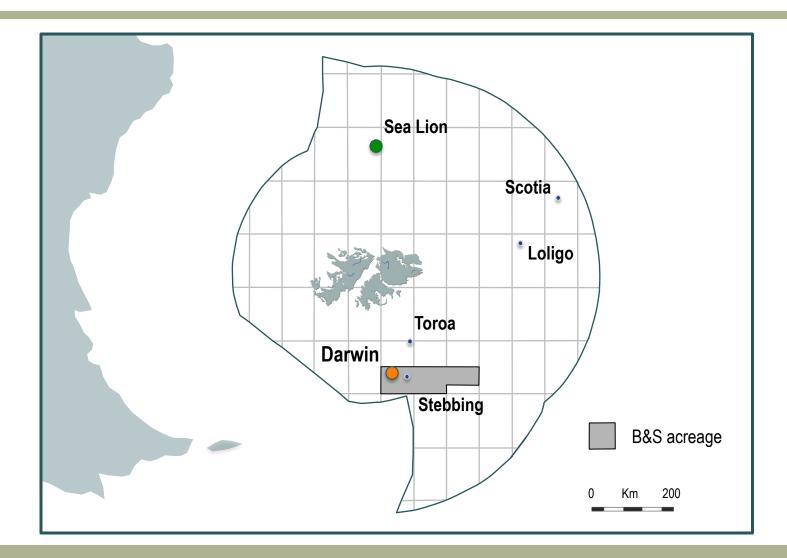
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### **Falkland Islands**





### **Falkland Islands Licences**



#### Licence details:

- B&S interest: 100% and operator
- Fiscal terms: 9% Royalty, 26% Corporation tax
- First Exploration Phase: 8 years from 1 November 2004
- Work commitment: 2,500 km 2D seismic; 750 sqkm 3D seismic; 1 well
- Work completed: 2,862 km 2D seismic; 1,492 sqkm 3D seismic; 2 wells
- 50% acreage relinquishment at end of first phase no impact on prospectivity
- Post relinquishment B&S holds 40 blocks, nearly 10,000 sqkm
- Second Exploration Phase: 5 years from 1 November 2012 (potentially extendable)
- Work programme commitment: 1 well

### 2012 Drilling Campaign



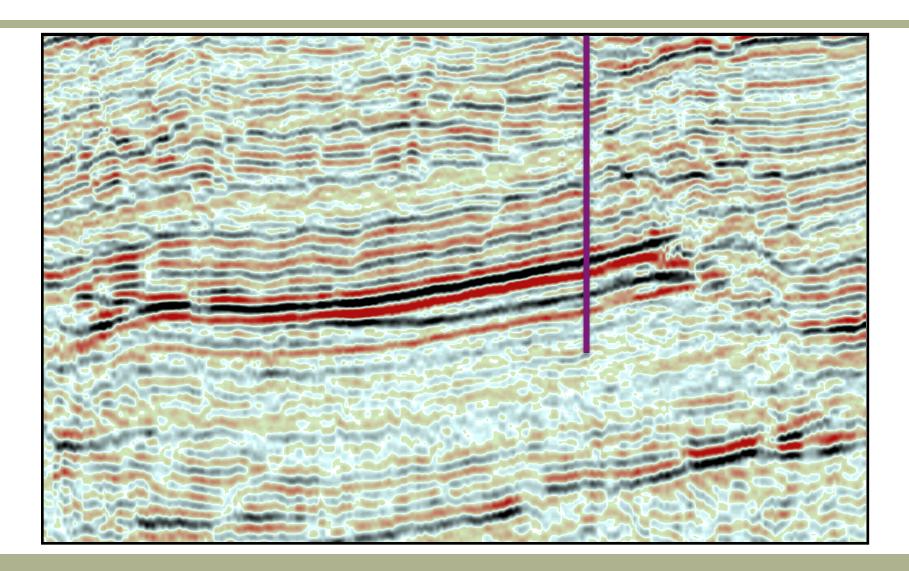
#### **Pre-drill objectives:**

- Execute a two well programme safely and with no impact on the environment
- Demonstrate that weather conditions do not adversely impact operations
- Prove a working petroleum system within B&S acreage
- Prove moveable hydrocarbons within B&S acreage
- Extract as much information as possible on the regional stratigraphy
- Assess the use of seismic attributes to predict reservoir and hydrocarbons
- Test two independent prospects and deliver a discovery

#### All drilling campaign objectives were achieved.

### **Darwin Discovery Well – 61/17-1**





### **Darwin Discovery**



#### Darwin Reservoir Analysis:

- Darwin is a gas condensate discovery
- Reservoir comprises Early Cretaceous shallow marine, quartz rich, sandstone
- Gross interval thickness: 84.5 m, Net pay: 67.8 m
- Average hydrocarbon saturation: 71.5%
- Reservoir porosity: up to 30%, average porosity: 22%
- Average Permeability: 337 mD
- The pre-drill geophysical attributes (flat spot, amplitude conformance to structure) proved to be correct indicators of hydrocarbons

## The Darwin discovery comprises a relatively simple, good quality reservoir that should not require many wells to fully appraise.

### **Darwin Fluid Analysis & Reservoir Modeling**

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#### Initial Reservoir Modeling:

- Laboratory analysis indicates a relatively rich initial condensate yield: **123** to **140** stb/MMscf
- Condensate API: 44.5 to 49 degrees
- Modeling suggests achievable individual sustained well flow rates of up to 70 MMscf/d (gas)
- Achievable individual sustained well flow rates of up to 9,500 bbl/d (condensate)
- Modeling indicates that Darwin East & West could be developed with 6 producer and 4 gas re-injector wells
- Estimated recoverable condensate volumes are: 130 to 250 million barrels
- Mid case recoverable resource: **190** million barrels (potential for upward revision)

# Darwin is a significant gas condensate discovery. Initial reservoir modeling suggests achievable liquids production of up to 56,600 barrels per day

### **Darwin Screening Feasibility Study**



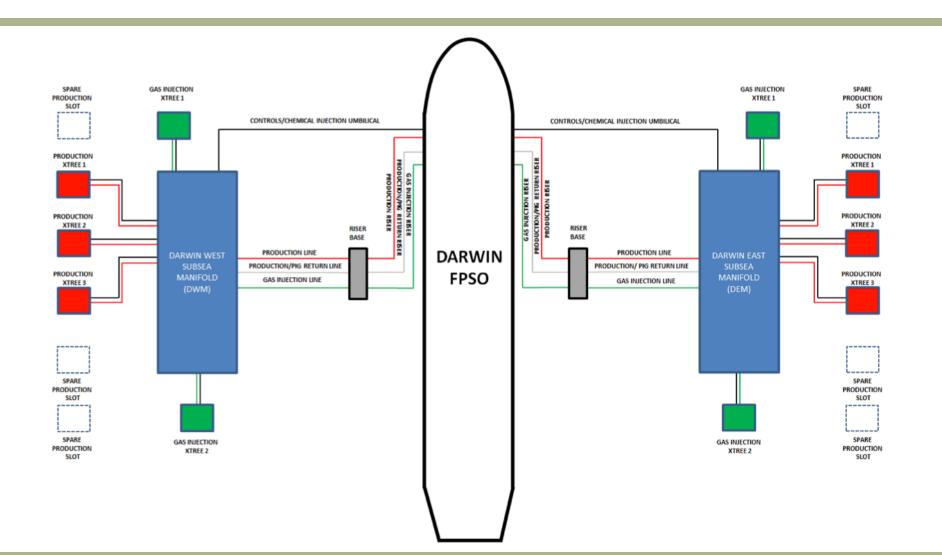
- The study concluded that a Darwin gas condensate development was technically feasible
- There is sufficient confidence in current proven technology to develop the discovery
- The most likely development option would be subsea wells tied back to an FPSO
- The FPSO would provide processing and storage of the condensate, along with gas re-injection
- Condensate would be offloaded to shuttle tankers for export
- A development of this type is likely to take three years from project sanction to first production
- Facilities capex estimates:

	FPSO Leased	FPSO Purchased
stand alone Darwin East (approx. 100 mmbbl):	\$1.585 billion*	\$2.73 billion*
Darwin East & West (approx. 200 mmbbl):	\$2.435 billion*	\$3.77 billion*

\* Includes 40% contingency

### **Subsea Architecture**





### Marketing



- The Darwin East condensate, with an API of 49°, is typical of an ultra light crude oil
- It is heavier than most condensates which would generally have API gravities in excess of 55°
- A comparative product would be Equatorial Guinea produced Alba condensate (53° API)
- Darwin East product yield:

LPG	5.3%	
Naphtha	46.0%	
Kerosene	19.8%	
Gasoil	16.8%	
LSWR	10.4%	
Fuel Oil	1.7%	

- Closest potential buyers for Darwin East condensate are South America, South Africa and Caribbean
- Based on the trading value of Alba condensate during 2012, Darwin East condensate might trade at a discount of between \$1/bbl to \$6/bbl to Brent

### **Economics**



- Fiscal terms: 9% Royalty, 26% Corporation Tax
- Darwin East & West development (approx. 200 mmbbl) is likely to commercial at an oil price of \$65/bbl
- Darwin East only development (approx. 100 mmbbl) requires an oil price of \$85/bbl for commerciality
- Assuming an oil price of \$100/bbl, a \$1/bbl price discount and including 40% contingency on capex and opex, a 200 mmbbl development would have a value of NPV(10) \$1.7 billion

Studies have shown that a 200 million barrel development in the South Falkland Basin is both technically and commercially viable. In order to demonstrate the commerciality of Darwin, the Company needs to a prove up the resource estimates and confirm the predicted well flow rates by appraisal drilling.

### Stebbing



#### Well results:

- The well encountered very strong gas shows (C1 to C5) whilst drilling
- Analysis indicates the gasis largely thermogenic and oil-associated
- Hydrocarbons were encountered in the Tertiary over a gross interval of 151 m
- Net : Gross was 36%, average porosity: 19%
- The reservoir comprised finely laminated siltstones and claystones
- Petrophysical analysis was unable to determine the hydrocarbon type or the hydrocarbon saturation
- Drilling had to be ceased early due to anomalous high pressure
- The well did not reach all reservoir targets part of the stratigraphy (Late Cretaceous) remains untested

Stebbing has received a hydrocarbon charge, but due to the absence of a good quality reservoir at the well location it is not considered currently commercial. Further evaluation will be put on hold whilst short term focus concentrates on the Early Cretaceous Darwin play.

### **Exploration**

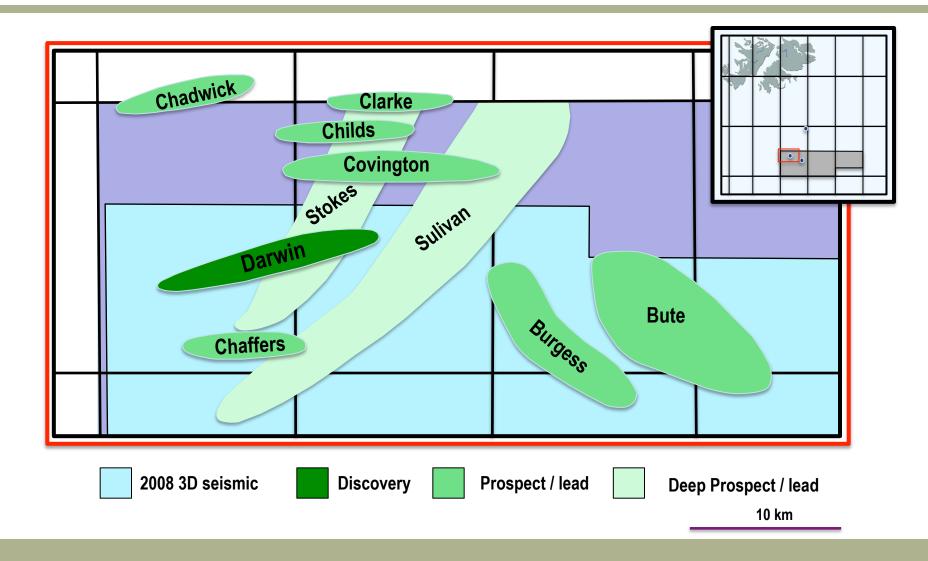


- In the short term, exploration is likely to concentrate on Early Cretaceous reservoirs
- B&S acreage contains numerous Early Cretaceous "Darwin play" prospects
- Prospect proximity may allow the possibility of a cluster development
- Future exploration targets could yield oil, condensate or gas
- B&S portfolio holds:
  - several Darwin look-a-likes relatively low risk tilted fault blocks
  - two large Early Cretaceous, stratigraphically trapped fans moderate risk, potentially high volume
  - deep reservoir potential below the Darwin reservoir moderate risk, potentially high volume
- New 3D seismic may reveal further Early Cretaceous prospects
- Individual prospect recoverable resource estimates range 120 to 720 million barrels
- Additional prospectivity: large folds (up to 150 sqkm) with Late Cretaceous reservoir targets

#### **B&S** holds a very attractive, low to moderate risk prospect inventory

### **Early Cretaceous Prospects & Leads**





### Conclusions



- The Darwin discovery is a very significant first step for the Company
- Work completed to date indicates that a 200 million barrel condensate discovery in the South Falkland Basin is both technically and commercially viable
- The Company needs to substantiate the resource estimates through appraisal drilling
- The Company has a portfolio containing an attractive discovery and a prospect inventory of quality, depth with an acceptable risk profile
- Our objective now is to mature this portfolio into a major development area
- **B&S** has a clear vision on how to achieve this