Technical Aspects of Hot Creek Valley Discovery

Annual General Meeting
19th June, 2015

Raddison Blu, St. Helens Hotel, Stillorgan Road, Blackrock, Co Dublin, Ireland
Mississippian Antler Foreland Basin

NEVADA
- Pine Valley Oil Fields
- US Oil & Gas
  Hot Creek
- Valley Prospect
- Railroad Valley Oil Fields
- Sevier fold-and-thrust belt

UTAH
- Convenant Oil Field
  896 million bbl
- Utah Wyoming Oil & Gas Fields
Location Map of Hot Creek Valley and Railroad Valley with boundary assumption of Chainman Shale Basins
Current USOIL Block 88 m² (2012)

Original Area
20 km³

New additional Area
68 km³
Data Integration – Maturing Prospects

In Exploration, Maturing Leads & Drillable Prospect

Mature Prospect

2D/3D Seismic

Passive Seismic

Satellite Hydrocarbon

Geological Study

Gravity

Geo-Chemistry
Correlation between RHI map on top, and Geochemical Z-Sum map in bottom over Initial 20 sq.km acreage.
3D reservoir Model, RHI, 2D seismic map with seismic lines over Initial 20 sq.km acreage.

3D Passive Seismic (RHI) Map

2D Seismic Map On top of Tertiary Volcanic
Eblana-1 (well status)

Eblana-1 Discovery well

Based on Geochemical maps identified Eb-1
New Geochemical–III survey results–2014

The results from the reconnaissance Geochemical & Gravity Surveys of US Oil's before un-surveyed wider lease area confirm that:

➢ The oil reservoir previously identified, and targeted by the Eblana-1 well, extends significantly further to South East & South West into the Company's acreage.

➢ The intersection of the two sets of fault lines shows stronger indications of the presence of hydrocarbons more than does anywhere else on the USOIL acreage.
Based on Geochemical-III Survey Results, produced the following Geochemical indicator Maps:

1. Magnetic Susceptibility (MS),
2. High Resolution Soil Spectral Analysis (HRSSA)
3. Conductivity (umhos)
4. Iodine,
5. Hydrocarbons by UV-Vis Spectroscopy
6. HRSSA components L Star
7. HRSSA components A Star
8. HRSSA components B Star
9. Soil Spectral map
10. Thermal Spectral-T
11. Thermatic Spectra
Current USOIL Block 88 m² (2012)

Total Area 88 km³
Five Hydrocarbon Potential prospects within USOIL Block
(Based on available Geochemical data)

Figure-3: Five Potential Hydrocarbon prospects Pool Areas
Based on USOIL (Geochemical-III & Passive Seismic –II Results)
Five Hydrocarbon Potential prospects within USOIL Block (Based on available Geochemical data)

Figure-12: Geochemical “BinSum” Map of Hot Creek Valley with proposed well locations
Hydrocarbon Potential prospects within USOIL Block (Based on available Technical data), possible well locations

2 major Faults

USOIL Block Area is 88 km² (21,750 Acres)

Initially proposed three well locations, subject to VSP, 2D/3D, Passive Seismic survey data

Current Hydrocarbon Potential Based on new Geochemical results
Hydrocarbon Potential prospects within USOIL Block (Based on available Technical data), possible well locations

HC-2
HC-3
HC-4
HC-5
3D Geological Model, 2D Seismic, RHI, Geochemical & Gravity surveys

Gravity Map

RHI-Logarithmic

Geochem-Iodine

Extended block area

Basin Surface

Path of oil migration

Path of oil migration
3D Geological Model, 2D Seismic, RHI, Geochemical & Gravity surveys

- Oil migration from south basin
- Oil migration from north basin
USOIL ran several Gravity, Geochemical, Geophysical and Geological Surveys to optimize the results and reduce the drilling risk.
Gravity & Geochemical and RHI 3D Map of Hot Creek Valley

Passive Seismic RHI

Geochemical BinSum

Path of oil migration

Bouguer Gravity

Path of oil migration
Generalized South-North Cross-section of Hot Creek Valley - Eblana Field

Well Eb1

Eblana-1

Tertiary Sediments & Volcanic Tuff

Paleozoic Carbonates

Valley Fill
Reservoir Evaluation of Eb1 Well Logs, with main perforation producing reservoir zones.

Tertiary Volcanic & Valley fill deposit Porous Reservoir zones

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Oil Following zone
Eb-1 penetrated & oil discovered in Tertiary Reservoirs only

Eb-2 Smart well objective is to penetrate Paleozoic Reservoirs & Source Rock
Eblana–2 (Smart well Design)

- Upper, Middle and Lower Assembly
- Infinitely Variable Choke

Sensor Actuator Module (SAM)

Position Sensor Assembly (PSA)

Infinitely Variable choke (IV-ICV) shown open

StatoilHydro
Development plan for Smart multi-lateral wells
Oil Recoverable Resources & Prospective OIP Estimation (MM-Bbl)

Based on (CPR) FORREST A. GARB & ASSOCIATES, INC. (2013) after drilling Eb-1 & Acquired additional Acreage

Improved Oil Recoverable Resources by new Geochemical & Gravity Survey

Recoverable Oil
Prospective OIP

88 Sq.Km 5/2013
Conclusions

✓ We are improving our understanding Nevada oil system by reducing technical uncertainties
✓ USOIL during the last one year; performed successfully ten studies and surveys,
✓ Identified and delineated new extensional potential areas within 88 sq.km
✓ Improved & increased current oil recoverable resources within 88 sq.km
✓ To finalize the 3D earth Mode, plan to run Well VSP, Passive Seismic, 2D/3D Seismic
✓ The Plan is to drill three smart wells
✓ Confirmed that the oil system exists in Hot Creek Valley (Cap Rock, Source Rock, Reservoir Rock and Traps).
✓ Based on Eb-1 well results & new surveys, we have better understanding Hot Creek valley – Nevada geology and reservoir modelling, production and fluid behaviour.
✓ The new technical data and results will help to reduce uncertainties, minimize risk & reduce cost $/B. Lead to build full field development plan.
✓ We moved oil resources from Prospective Resources to Contingent Resources classification

This step is adding value to the project economy and also to shareholder value.
**Eblana–1 (Well History)**

**Conductor foundation and Surface Hole**

Surface rocks are unconsolidated with formation water flow

- **14’ cond. Pipe @ 40 ft**
- **Best at 180 ft**
- **9 5/8” Casing Shoe @ 764 ft**
- Better to set future surface casing deep – 3000 ft
- Will avoid lots of complications faced
- **No need for more casings, Only liner is OK**
EB – 1 Drilling History

- 14’ cond. Pipe @ 40’
- 9 5/8” Casing Shoe @ 764’

HC Shows while drilling and logs - From 2,948” down 8,550 ft

Oil flow zone 6,377 – 6,436 ft (33 API)

Oil Flow zone 7,010 – 7,066 ft (28.5 API)

Open Hole test at 7200 ft showed 18 BBL/hr flow Crude oil collected at surface

Total depth @ 8,550 ft
Plan for new Wells

- Conductor @ 180 ft
- Perforation & Testing based on OH Logs
- Smart well design to produce from all horizons
- Surface casing @ 3000ft

Liner to Paleozoic @ TD
EB-1 Location & New Planned Wells

EB-1

EB-2

??? expected

320 ft

Paleozoic

Oil

Water
Why EB – 1 did not flow as expected

- Compartments blocking HC flow
- Fault crushed and re-crystallized
- Drilled at the OWC edge
- We barely touched the HC zone
**EB -1 Location & New Planned Wells**

**EB – 1 WHP**

- WHCIP = 20 psi
- This is resulted from 4-5 days build up
- It confirms oil seeping via faults though weak
New Planned Wells, Surveyed Structure
Thanks for your attention