- Change of Adviser/Brokers
- Completion of Gold Point Energy Acquisition
- Award of Moroccan Oil Shale Exploration Project
- Issue of New Shares
- Additional Concessions Awarded in Poland
- Acquisition of new Italian licences
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- Tarfaya License - Morocco
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LATEST NEWS

Change of Adviser/Brokers

Appointment of Arbuthnot Securities and Fox Davies Capital.

Completion of Gold Point Energy Acquisition

Further to the announcement on 16 February 2009, San Leon Energy Plc is very pleased to announce that it has completed the acquisition, of Gold Point Energy Corp. ("Gold Point" or "GPE").

Award of Moroccan Oil Shale Exploration Project

San Leon Energy Plc is very pleased to announce that it has signed an agreement with ONHYM to employ proprietary In-Situ Vapour Extraction ("IVE") technology over the 6,000 km2 (1,482,626 acres) Tarfaya Oil Shale project.

Issue of New Shares

San Leon has issued 2,500,000 new ordinary shares to BWG

Additional Concessions Awarded in Poland

San Leon is pleased to announce that Gold Point has been awarded two additional concessions by the Polish Ministry of Environment.

Acquisition of new Italian licences

San Leon is pleased to announce that it has made five successful permit applications in Italy

Award of Moroccan Oil Shale Exploration Project

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Award of Moroccan Oil Shale Exploration Project

- Signed MOU for Tarfaya Oil Shale project in Morocco with National Office of Hydrocarbons and Mining ("ONHYM")
    - A total area of 6,000 km2 (1,482,626 acres)
    - 3 year project
    - First test completion mid to late 2010
    - Substantial potential oil reserves
- Moroccan oil shale and **exclusive** new technology
    - **Exclusive agreement** with Mountain West Energy LLC for their In Situ Vapor Extraction ("IVE") oil shale technology
    - Lab tests with Tarfaya oil shale proven **successful**: 62 litres of oil per tonne produced
    - IVE has **proved a success** in heavy oil project in Wyoming, North America
    - Considerably more **environmentally friendly** and cost effective when compared to mining and refining

San Leon Energy Plc is very pleased to announce that it has signed an agreement with ONHYM to employ proprietary In-Situ Vapour Extraction ("IVE") technology over the 6,000 km2 (1,482,626 acres) Tarfaya Oil Shale project. The agreement was signed with Mrs Amina Benkhadra, General Director of ONHYM and Moroccan Minister of Energy, Mines, Water, and Environment.

San Leon has been working with ONHYM for two years to explore the potential of the available and massive in-place oil shale opportunities. The company has therefore signed a three year Memorandum of Understanding with the Moroccan authorities which grants San Leon exclusivity to convert the area into a License. San Leon estimates reserves of billions of barrels of recoverable oil from the Tarfaya oil shale over the 6,000 km2 area.

To exploit this [potentially vast resource, San Leon has acquired an in-situ oil extraction technology through an agreement with the U.S. company Mountain West Energy (MWE). This technology is exclusive to San Leon in Europe, North Africa and the Middle East. The successful testing of this technology enabled San Leon to successfully apply for the rights to test the large oil shale concession in Morocco.

Laboratory and site testing in the U.S. has been completed and Moroccan site testing will begin later this year. The feasibility study, which includes a work programme, has been presented and agreed in Morocco by ONHYM.

The Tarfaya oil shale has successfully produced 62 litres per tonne in Mountain West Energy's Utah lab. This is similar to the yield reported by Shell when they were testing in the Tarfaya area from 1981 until 1986. Shell drilled 55 shallow boreholes, all of which were petrophysically logged, in 1982, encountering the Cretaceous and organic rich Tarfaya oil shale within the San Leon area. Shell established an open pit mine and heated the oil shale in a retort for oil production. They left the area in 1986 after oil prices had plunged to $10 per barrel.

IVE is an in-situ oil shale extraction technology that forces heated gas through a central injector well and into a high oil yielding and fractured oil shale. The oil is then produced from several extraction wells, equidistant from the central injection well. IVE was tested successfully in the Naval Petroleum Reserve #3 at the Tea Pot Dome Field in Wyoming, with assistance from the US government, in order to increase production from the existing heavy oil reserves permit applications in Italy.

The in-situ process of oil extraction is cleaner environmentally than the alternative technology, open pit mining, which is invasive. San Leon's IVE process "cooks" the oil shale in the ground (or in-situ) and the gases utilized in the process are recycled within a closed system.

San Leon conducted a detailed test study from August 2008 until January 2009 and produced an extensive report outlining the IVE technology and the prospectivity of the Tarfaya oil shale. On the basis of the Tarfaya Work Study, ONHYM and The Group signed the Tarfaya Oil Shale MOU, which gives San Leon 3 years to test the IVE process.

The first test project is now in the planning stage and The Group expects this to be completed in the first half of 2010. The test site will be selected in a location approximately 200m above the high oil yielding zone within the Tarfaya oil shale. It could take at least a year to mobilize all the essential equipment for San Leon's first test site.

In a similar transaction, Petrobras has recently signed an MOU with ONHYM for the Tarfaya oil shale, neighbouring the San Leon acreage. Petrobras also has the Timhadit oil shale MOU, which lies in the northern part of Morocco.

Philip Thompson, CEO of San Leon commented:

"***This is a monumental achievement for our company to add the potential to access huge recoverable oil reserves from the Tarfaya shale through our oil shale technology. We are delighted with this accomplishment as it represents a major step in the development of San Leon. We are particularly pleased to note the strong support given by ONHYM in our negotiations and trials process and look forward to working together to develop the burgeoning Moroccan oil and gas environment***"

Mrs Amina Benkhadra, General Director of ONHYM and Moroccan Minister of Energy, Mines, Water, and Environment commented

"*We are delighted that San Leon has decided to join with international super majors in exploring the potential of our oil shale. Morocco remains committed to developing its oil and gas industry to the highest of international standards and will continue to provide positive support to foreign direct investment, be it through the provision of technical data, or working in co-operation to upgrade the logistical systems in country to allow efficient development*"

June 1st 2009

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Qualified person

Philip Thompson has over twenty five years experience in the oil & gas industry. He has an M.Sc. in Geophysics from Southern Methodist University and a B.Sc. in Geophysics from Texas A&M University.

Technical information on In-Situ Vapor Extraction and Oil Shale

Mountain West Energy (MWE) has developed In-situ Vapor Extraction (IVE) for low cost, environmentally friendly production of oil from unconventional oil resources, such as oil shale, oil sands, and heavy oil. IVE combines readily available technologies from the oil and gas industry in a unique and innovative process that overcomes the technical, environmental, and economic barriers preventing wide-spread development of these resources.

Figure 3.1 shows a simplified schematic diagram of IVE. The basic concept is to inject hot gas into the target oil formation where it forms a high pressure, high temperature bubble, heating the formation by convection, and breaking-down the kerogen, bitumen, or heavy oil into lighter oil fractions and natural gas. The vaporized oil, natural gas, and carrier gas are swept through the formation to an extraction well. The vapours are condensed at the surface and separated from the gas. The gas is then re-compressed, re-heated, and re-injected back into the formation, in a closed-loop (i.e. the gas is repeatedly re-circulated through the formation).

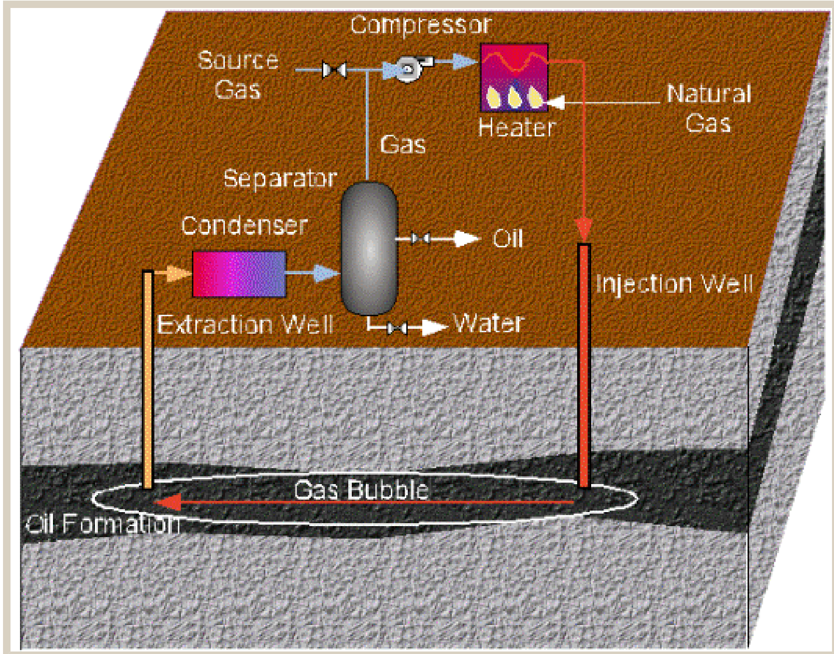

Figure 3.1: In-situ Vapor Extraction (IVE).

MWE has also developed the “well-within-a-well” concept where a proprietary well completion places the injection and extraction points within a single well. The vertical orientation of the technique makes it best suited for thick, uniform hydrocarbon containing formations with excellent vertical permeability.

MWE has demonstrated IVE in the laboratory, completed Phase 1, non-thermal, computer modeling of IVE with the Petroleum Research Center (PERC) at the University of Utah, and performed Phase 1, non-thermal, field testing with the Department of Energy’s Rocky Mountain Oilfield Testing Center (DOE RMOTC) on a marginal oil well on the Naval Petroleum Reserve #3 in the Teapot Dome oil field. In May 2008, IVE won the Utah Innovation Award in the area of Clean Technology and Energy.

Geological context of Tarfaya Oil Shale

The identified worldwide resources of oil shale and tar sand are substantial in terms of estimated recoverable reserves which exceed those of conventional oil reserves by a factor of 5:1; if speculative reserves are also included the ratio would be still higher. These resources are therefore an important factor in the future world energy spectrum (Morgan 1985).

Vast oil shale deposits have been identified in several locations of Morocco. The total oil shale reserves across Morocco were originally estimated to be 53 billion barrels in place for the surface mining technique (this does not include the vast reserves that can be recovered using the in-situ technique). These figures put Morocco in the sixth position in the world in terms of reserves in place and the second country in Africa.

The Tarfaya and the Timahdit deposits have been subjected to exploration studies, including geological, mining, Hydro geological and geochemical studies **(Figure 1.1)**.

The Shell study (1985) established that the Tarfaya oil shale reserves are in excess of 500 x 106 barrels of oil equivalent (again, this does not include oil resources that can be recovered through the in-situ technique). The oil shales are slightly thicker (27 m in average) and of better average oil yield than elsewhere and the overburden is relatively low. Shell concluded that the oil shale reserves are more than sufficient for a 50,000 bbl/day production over 30 years (Morgan 1985) from open pit mining. San Leon Energy will utilize the in-situ technique of oil extraction from oil shale, which would increase daily production to over 500,000 BOPD.

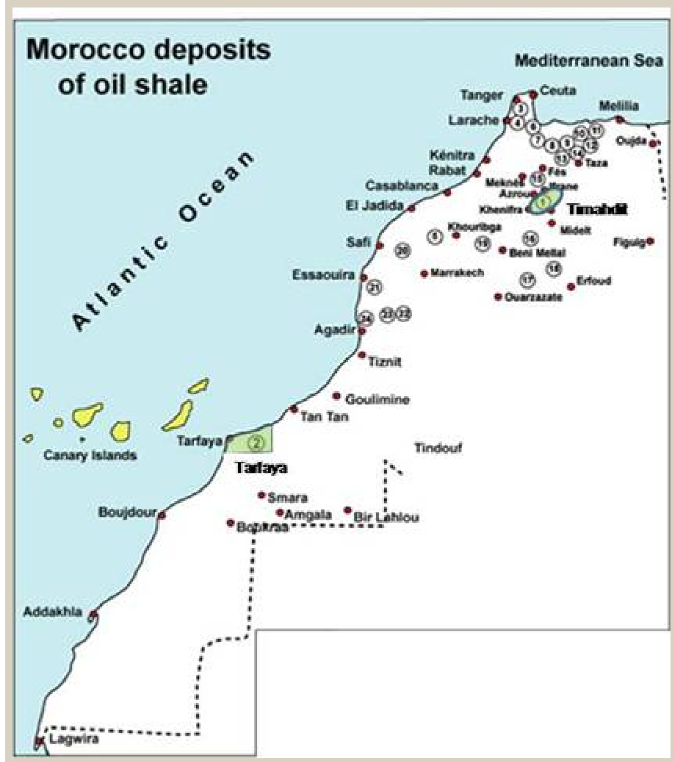

Figure 1.1: Location map of the oil shales in Morocco.
1: Timahdit , 2: Tarfaya, 3:Tangier, 4: Beni Arous, 5: Oulad Abdoun, 6: Tetouan, 7: Chaouen, 8: Jebel Tazarn, 9: Achouamat, 10: Targest, 11: Oued Arris, 12: Bou Ourd, 13: Tahar Essouk, 14: Tammada, 15: Immouzer, 16: Arhbala, 17:, Tinghir, 18: Toukert, 19: Tadala, 20: Gantour, 21 Dar Caid Zeltani, 22: Min Touzrou, 23: Al Khountrir, 24: Agadir

WORLDWIDE OIL SHALE STRATRIGRAPHIC LEVELS

One of the most intriguing aspects of Mesozoic climate is the episodic occurrence of so-called oceanic anoxic events (OAE's). Originally, the term OAE was used to describe the phenomenon characterized by seemingly global distribution of laminated organic carbon rich (>1%) sediments in pelagic sequences of Aptian–Albian and Cenomanian–Turonian boundary age (Schlanger & Jenkyns 1976). Since then, other episodes of widespread black-shale deposition in marine environments have been identified. Six OAEs have been identified in the mid-Cretaceous (Arthur et al. 1990) and one in the Jurassic (Early Toarcian) (Jenkyns 1988).

These Mid Cretaceous OAEs are:

- The Early Aptian (~120.5 Ma; OAE1a),
- The Aptian/Albian boundary (~113-109 Ma; OAE1b),
- The early Late Albian (~101 Ma; OAE1c),
- The latest Albian (~99.5 Ma; OAE1d),
- The Cenomanian/Turonian boundary (~93.5 Ma; OAE2),
- The Coniacian-Santonian (~86-85 Ma; OAE3).

These events are often associated with periods of dramatic climatic change and biotic crisis, and each apparently represents the sequestration of vast quantities of organic carbon into the geosphere (e.g. Jenkyns 1999, 2003). Consequently, black shales deposited during OAE2 are among the most organic-rich marine sediments and are important petroleum source rocks (Pancost & al. 2004).

Interest in OAEs has stimulated diverse investigations using sedimentological, palaeontological and geochemical approaches. However, the underlying causes and unifying characteristics of OAEs remain poorly understood. Black shales deposited during OAEs share similarities such as high organic carbon contents, lamination and impoverished benthic fauna, indicating that these sediments were deposited under oxygen-deficient bottom-water conditions (Summerhayes 1987; Bralower et al. 1994). Models to explain these observations typically invoke either enhanced organic matter preservation and/or enhanced primary productivity (Demaison & Moore 1980). Preservation models propose that either restricted circulation or elevated temperatures at the sites of bottom-water formation resulted in a decreased oxygen flux and decreased organic matter remineralization (e.g. Ryan & Cita 1977; Brass et al. 1982; Barron 1983; de Graciansky et al. 1984). In contrast, productivity-driven models propose that enhanced primary productivity during OAEs resulted in increased burial of organic matter (e.g. Pedersen & Calvert 1990; Erbacher et al. 1996; Sinton & Duncan 1997).

1994). Maleimide distributions were determined for black shales spanning the Livello Selli horizon at Gorgo a Cerbara, situated near Gubbio in the Umbria-Marche region of Italy at Gorgo a' Cerbara, situated near Gubbio in the Umbria–Marche region of Italy.

OIL SHALES IN MOROCCO

Late Cenomanian and Turonian times witnessed the major "Cenomanian" transgression that invaded North Africa all the way to the Sahara platform.
The transgression established marine conditions that persisted throughout the Late Cretaceous in all major sedimentary basins in Morocco except the Essaouira Basin-Western High Atlas region, where the Central Massif, that characterizes the westward extension of the Central Atlas, emerged just after the Cenomanian **(Fig. 1.3)**.

As result of the transgression was to reduce the amount of terrigenous clastic sediments, shedding from the hinterland, and deposition of fine grained and organic rich marine sediments.

Oil-shale deposits related to the Upper Cretaceous transgression have been identified at ten localities in Morocco **(Fig. 1.3)**. The two deposits that have been explored most extensively are the Timahdit and the Tarfaya deposits; about 69,000 analyses have been made of samples extracted from 157 boreholes totaling 34,632 m in length and from 800 m of mine workings.

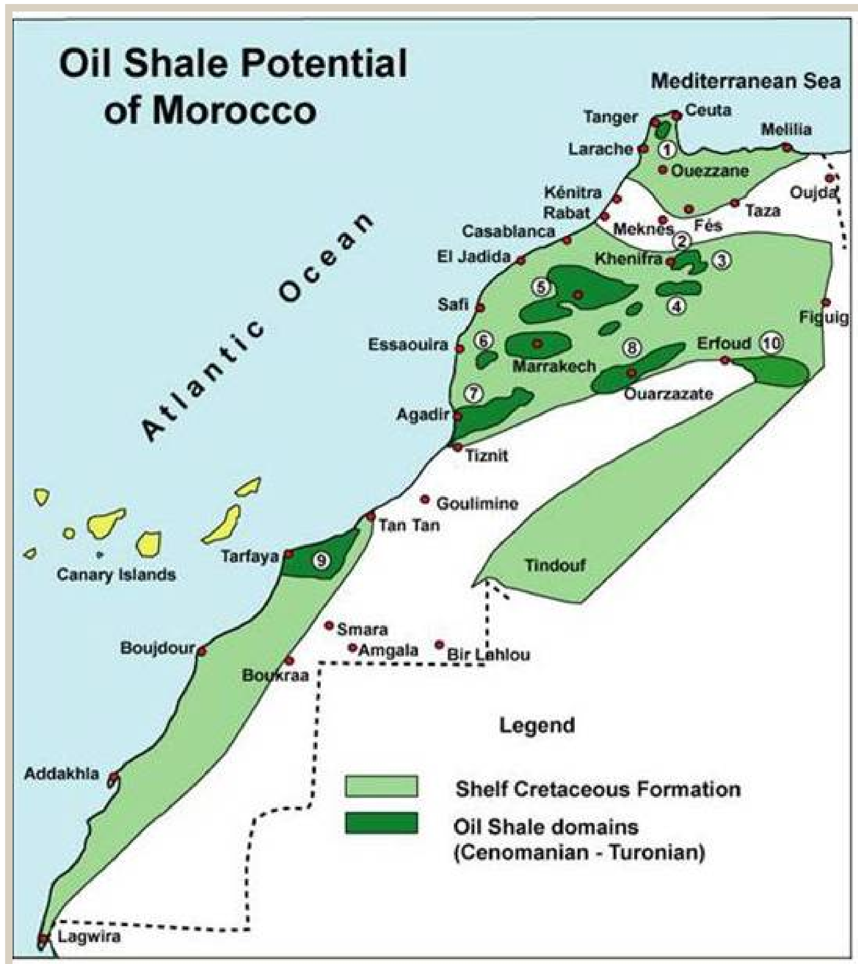

Figure 1.3: Location map of the Cenomanian-Turonian oil shale deposits in Morocco with their depositional paleoenvironments. 1: Tangier; 2: Timahdit; 3: Ait Oufalla basin; 4: Haute Moulouya basin; 5: Bahira-Tadla basin; 6: Essaouira; 7: Souss basin; 8: Oued Dades basin; 9: Tarfaya area and 10: Guir basin

TARFAYA DEPOSITS

Tarfaya oil shale deposits are located in the south west, along the Moroccan Atlantic coast and were discovered also in the 1960s.

OIL SHALE DEPOSIT OF TARFAYA BASIN

The Tarfaya Basin is situated in SW Morocco is a tectonically stable Mesozoic Basin, which extends along the southern Moroccan coast between latitudes 27°40′ and 28°40 N and covers an area of 10,000 km2. It is bounded by the Anti-Atlas fold belt to the North, the Precambrian Reguibat Massif in the east and the Atlantic Ocean to the West **(Figure 1.4)**.

The Basin was the host to an exceptionally thick (up to 800 m) organic matter-rich, shallow-marine sedimentary succession spanning the mid-Cretaceous, including the most stratigraphically expanded Cenomanian-Turonian (C–T) interval known (Luderer & Kuhnt 1997) (in TSIKOS & al. 2004).

Figure 1.4: Geological map of Tarfaya area and location map of the Upper Cretaceous sections outcrops of figure 1.11. A: Tah West, B: Tah North, C: Ed Dzaroua-Tazra, D: Oued Chebeika.

Morphology and surface structural trends

The Tarfaya area can be subdivided morphologically into two main domains **(Figure 1.5)**: a coastal platform with altitudes of 30-35 m and the Hamada table land with altitudes of 200-250 m. The two domains are separated by an escarpment trending NWE-SSW and changing to an ENE-WSW direction towards the east.

The coastal platform is composed of a nearly horizontal Moghrebian Formation (Plio-Pleistocene), which covers slightly inclined Upper Cretaceous Formations. Barchan dunes covering the coastal platform are concentrated in a broad area south and east of Tarfaya and in a relatively narrow band crossing the Tazra and Houiselgua Sebkhas. The dunes are aligned in a NNE-SSW direction parallel to the prevailing trade-winds.

The source of the dune sand is found further NE along the coast, where Paleozoic and Precambrian quartzes rocks are outcropping. Long shore currents bring this sand to the SW, where it was deposited as a beach sand, and subsequently transported into the interior by the NNE trade-winds. Hence the dunes are always situated SSW of sand beaches and they are generally absent leeward of those parts of the coast, which are more rocky and characterized by cliffs.

A vast area of the coastal platform - the Plateau de Taoulekt - is devoid of major sand dunes and is bordered at the seaside by a high coastal escarpment (25-30 m). Major reserves of shallow oil shales are situated underneath the Plateau de Taoulekt. Satellite image of this Plateau show numerous WSW-ENE trending lineaments, which probably represent ancient coastlines of the Moghrebian transgression.

Other features of the coastal platform are the sebkhas from which the Moghrebian Formation has been removed by wind erosion. In these sebkhas the Upper Cretaceous Formations are outcropping. The inland sebkhas tend to be below sea level, e.g. Sebkha Tah. (-55 m), Sebkha Houiselgua (-11 m), whereas the coastal sebkhas are usually 0 to 4 m above sea level, e.g. Sebkha Tazra, Sebkha El Khoui.

The Hamada tableland is composed of slightly inclined Cretaceous Formations, covered by horizontal "Hamada flags" (dalle hammadienne) which are composed of lacustrine sandy limestones and breccias of Pliocene age with a thickness of 0-25 m. The Hamada tableland is transected by numerous, valleys in which Cretaceous Formations are outcropping.

Figure 1.14: View of the Cenomanian-Turonian oil shale section at low-tide on the coast in the vicinity of the Tarfaya city at the Mafatma location.

CONCLUSIONS

The world-wide "Oceanic Anoxic Event" (OAE 2), is characterized by a deposition of laminated organic matter-rich Oil Shales, particularly in the proto-North and Central Atlantic where organic carbon contents could exceed 30%. The event occurred in Cenomanian/Turonian (C/T) transition some 93.5 Ma ago and lasted probably for less than 0.5 Ma.

The Tarfaya Basin is marked by the deposition of Upper Cretaceous shallow-marine sedimentary succession which is exceptionally thick (up to 800 m) and organic matter-rich.

The Previous studies and analysis led the subdivision of the Tarfaya oil shale sequence into P, Q, R, S and T zones. Each zone is characterized by Gamma Ray and/or the density logs responses, organic carbon richness (%TOC) and oil yield in the Fischer assay. Accordingly, P, Q, S and T zones are relatively of lower quality with the oil yield ranging between 5 and 50 l/t. Meanwhile, Zone R ("Zone Riche) shows low density response, 7.4 % mean TOC and 57 l/T as the highest mean oil yields.

Based on the density, the R zone was subdivided into four subzones (R-0, R-1, R-2, R-3 and R-4). The R-3 and R-1 subzones have the highest oil yields which can reach up to 110 l/t. The richest interval has a thickness ranging between 1 and 2 m.

Regional structural mapping of the top of R Zone and boreholes correlations show deepening and thickening of the Upper Cretaceous series away from the crest of the Tazra anticline.

They are well pronounced in the western part of the area of interest, where the top of the Zone R is deepening from 60 m, close to the crest of the Tazra anticline, to over 700 m below ground surface on the coast line. Its thickness varies also from 42 m to more than 55 m respectively.

The organic matter richness of the Upper Cretaceous series is also expected to increase from the margin of the basin in the East towards the open marine zone in the west.

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