Editor's Comment

This is the ninth issue of Petroleum Technology Development Journal (PTDJ) and it contains nine papers. The first paper, *Deposition and Evaluation of Electroless Nickel Based Coating for Corrosion and High Temperature Environment* [1] is a study that shows the superior corrosion and thermal resistance characteristics of this basic metallic coating in environments containing H_2S and CO_2 as a result of its excellent surface finish properties, superb adhesion ability and controllable range of thickness on any engineering material. The results of the study further reveals that principal properties of coating are directly related to the phosphorus content and its corrosion resistance is best when annealed at 400ºC for about one hour immediately after deposition.

The second paper - *Overpressure Prediction from Seismic Data and the Implications on Drilling Safety in the Niger Delta, Southern Nigeria***a**[2] examines the main factors responsible for overpressure generation and preservation in the Niger Delta Basin. The authors conclude that "high sediment influx rate, rapidly subsiding basin, very thick clayey members in the Agbada and the Akata Formations, as well as prevailing presence of growth faults, have been identified as the main factors responsible for overpressure generation and preservation in the Niger Delta Basin"

The third paper[3] examines *Souring and corrosion potentials of two geologically distinct oil producing facilities in Nigeria.* Their souring and corrosion potentials were determined by using direct growth measurement of sulphate-reducing bacteria(SRB) and acid-producing bacteria (APB) in API RP-38 broth and ZPRA-5-Phenol red dextrose broth media respectively. Activities of SRB, heterotrophic nitrate-reducing bacteria (hNRB) and sulphide oxidizing-nitrate reducing bacteria (so-NRB) were also measured using Coleville synthetic brine (CSB-K) medium, while corrosion rate was measured using linear polarization resistance (LPR) probe, weight loss method and methane production tests. The investigation revealed that microbiological activities at the onshore oil producing facility with zero sulphate level were dominated by methanogenesis with zero potential for souring and high potential for corrosion while the microbiological activities at the offshore facility were dominated by sulphate reduction with high potential for both souring and corrosion. The authors note however, that proper mitigation efforts are being applied by the operators of the facility and this they say, appears to considerably inhibit the activities of microorganisms associated with corrosion and souring.

In *Skill Pool Management System (SPMS) as a Strategy for Effective Workforce Management in the Oil and Gas Industry,*[4] the author asserts that there are different approaches to framing organisational issues as well as several strategies for managing the organisation. He describes Skill Pool Management System (SPMS) as a strategic tool that enables a systematic management of employee skills. SPMS according to him is underpinned by the specific industry value chain activities for the effective management of the workforce. He examines the benefits of implementing the SPMS in the organisation and concludes that the SPMS as industry 'best' practice would ensure effective workforce management and deliver profitability and sustainability for the organisation.

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[1] Olamilekan R. Oloyede et al
[2] Olawale Olakunle Osinowo et al
[3] Okoro Chuma Conlette et al
[4] Musa Rabiu

The *Effects of Production Parameters on the Development of Polymer-Based Biodiesel Heterogeneous Catalyst I* is examined by Otoikhian and others. They developed polymer catalyst for biodiesel production and the catalytic activity dependence on preparation condition, ranging from adsorbed radiation dose, reaction temperature and retention time were investigated in the resulting study. The catalyst was synthesized by radiation-induced graft polymerization of 4-chloromethylstyrene onto a polyethylene substrate followed by amination with trimethylamine and was further treated with sodium hydroxide solution. Gamma radiation was directed at a constant rate of 20kGy/hr on four different samples of polyethylene substrates at different exposure times ranging from 60 to 150 minutes to attain the required dose, a zero rate order was established for the grafting stage. They employed X-ray diffraction (XRD) and Fourier transform infrared (FT-IR) to characterize the catalyst. The results indicate that polymer catalyst is a potential heterogeneous catalyst for biodiesel production.

In *Characteristics of Multiples in Shallow and Deep Marine Seismograms in Gulf of Guinea,* Umoetok and Uko analysed three dimensional (3D) data sets from the southern offshore Niger Delta, Gulf of Guinea for the purpose of characterizing multiple reflections in the seismograms. They processes the data using a customized sequence. The multiple attributes of frequency, wavelength, periodicity, and predictability were established. They found that shallow marine dataset at water-depth of 250m had predominantly interbed multiples whereas the deep water dataset at 2300m was heavily masked by water bottom multiples generated from the surface and interbed multiples arising from the canyons. They observe that for shallow marine data, the dominant frequency of the primary events vary between 3 and 80Hz, while those of the multiples vary between 10 and 90Hz. The dominant amplitude of the primaries range between -20dB and 47dB, while those of multiples range between -12dB and -45dB. For deep marine data, the dominant frequency of both primary multiples vary between 0 and 165Hz. The dominant amplitude of the primaries range between -45dB and -38dB, while those of multiples range between -53dB and -19dB. The authors conclude that this work is relevant because when multiples are to be attenuated from a seismic section; these parameters would be required as inputs in the attenuation process which would result in a better image of the subsurface geology, thereby reducing the risk of drilling dry oil wells. They also assert that this work confirms the claim of several workers on the existence of canyons in the Gulf of Guinea – reporting that the canyon has a water depth of 2800m which is close to the observed depth of 2300m.

In the paper *Parametric Study On The Behavior Of A Naturally Fractured Reservoir,* Izuwa and Nwaobia address the behaviour of a naturally fractured reservoir via a numerical simulation approach on a single-well radial cross-section using the ECLIPSE100 reservoir simulator. They express the strong view that effective evaluation, prediction and planning of these reservoirs require an early recognition of the role of natural fractures and then a comprehensive study of factors which affect the flowing performance through these fractures is necessary. The result of their study shows that reservoir parameters that affect oil recovery include matrix and fracture porosity, matrix and fracture permeability, anisotropy ratio, perforated interval/length, matrix block size, capillary pressure, while oil production rate has no significant effect on oil recovery.

In *Down-Dip Cross Sectional Variability in Sedimentological and Petrophysical Properties of Late Oligocene Shoreface Parasequence Reservoir, Greater Ughelli Depobelt, Niger Delta*[5]**,** the study of

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down-dip cross sectional variability in lithofacies, ichnofossils, porosity-permeability relationships, pore throats (r35) and hydraulic rock types in Late Oligocene shoreface parasequence reservoir sands (D8) of the Greater Ughelli depobelt, the Niger Delta is presented. The study shows that permeability heterogeneity is strongly influenced by sedimentary heterogeneity attributed to the combined effect of sea level changes, fluvial processes, longshore current, waves, tides and biological activities during sediment deposition. The study reveals that though vertically very heterogeneous, average core porosity and permeability indicate very good to excellent reservoir quality. Also, the studied sand-body is characterised by high intra sand-body connectivity and continuity as indicated by similarity in the amalgamation of bedsets and the same number of hydraulic rock types in both the up-dip and the down-dip wells as well as very slight difference in Dykstra-Parsons core permeability distribution coefficients of the two wells.

The *Effect of Crude Oil Seepage Intensity and Induced Bioaccessible Metals in Some Selected Fruits and Vegetables Grown in the Niger Delta: Implications for Decision-Makers and Administrators* is the last paper in this issue. The authors[6] identify heavy metals such as cadmium, copper, lead, chromium and mercury as environmental pollutants particularly in areas with high anthropogenic pressure. They re-echo the expression that crude oil polluted sites are prone to intense heavy metals release into the environment. They also note that the presence of these heavy metals in high quantity in the atmosphere, soil and water can be toxic. Fruit samples grown in oil polluted soils in the Niger Delta region of Nigeria were investigated to determine the percentage of total metals that can become bioaccessible. Ten (10) metals were extracted using Inductive Coupled Plasma Mass Spectrometry (ICP – MS). They assert that ICP – MS has a greater speed, precision and sensitivity over ICP – AES (Inductive Coupled Plasma – Atomic Emission Spectroscopy and GFAAS (Graphite Furnace Atomic Absorption Spectroscopy). They used Nitric acid (HNO_3) on the fruits to extract the metals, adopting the British Standard (BS) for plant analysis. The result of all the analysis showed that some fruit samples from the Niger Delta did contain slightly higher concentrations than the allowable values in the soil due to the crude oil exploration and exploitation in the region while others are within the tolerable daily intake. The metal content of the fruit samples have been investigated for potential harm to human beings. Comparison with maximum leached values indicate that some fruits are contaminated slightly above maximum tolerant limit. The authors conclude that the study is useful in health planning and ecological sustainability and for decision-making within the oil rich Niger Delta.

We are grateful to the authors of these articles, our technical advisers and the anonymous paper assessors for their invaluable contributions.

Momodu Kassim-Momodu
Editor

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[6]Abdulraheem, Mustapha and Neeka