Syntechsys™
News Letter
For all sectors in the Oil and Gas Industry

PIPELINE LEAK DETECTION DEVELOPMENT PROJECT

Syntechsys –Development of Eleaktra System for Leak Detection and Pipeline Monitoring in Oil and Gas Industry

Nigeria Oil and Gas Industry Overview: Shell Companies in Nigeria and other topics

Syntechsys Upcoming Workshop and Training Conference

DPR approves deployment for Permits of Upstream Energy End of Pipe Technology for Waste Management

Syntechsys: DPR delegate Technical Visits to Sweden to Witness End of Pipe System

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Nigeria Oil and Gas Industry Overview

..NNPC

Nigeria Petroleum Industry started some 75 years ago when under British Colonial Rule brought in players like Shell Darcy as the Lead Oil and Gas Exploration company which started operations as Shell Darcy in 1938. Other International oil companies, Gulf Oil in the 1950, Mobil , Agip etc..NNPC went through a very elaborate restructuring between 1988 and 1990 an exercise that was managed by the then Anderson Consulting. Three upstream subsidiaries were responsible for exploration and production, gas distribution and integrated data services. In the midstream were an engineering company (NETCO). The downstream were five companies, three refining and petrochemical companies, a standalone petrochemical company Eleme and the PPMC for products marketing. The 12th business units are then coordinated by a group Managing Director at the Corporate Head Office. NNPC was envisaged that by now NNPC was to evolved into an integrated oil and gas company competing with the likes of Norway's Statoil or Brazil's Petrobas as a fully integrated Oil and Gas Company able to independently finance its operations and meet her obligations to her partners without recourse to

Nigeria Oil and Gas Industry Overview

...NNPC (cont'd)

Government. That mandate has not changed, and NNPC inability to deliver cannot be said to be the result of the existing structure. Unfortunately the reality on the ground today is that apart from NPDC, NETCO and NGC, all other subsidiaries are from a functional point of view as good as un functional. And even the three subsidiaries operate at efficiency levels that are far below acceptable industry standards. NAPIMS is joint venture with the multinational oil companies. But more instructive is that those business units in addition to DPR by its LEGAL FRAMEWORK and virtue of the provisions of Section 8, subsection 1(a) and 9, subsection 1(a) & (h) of the Petroleum (Drilling and Production) Amendment Regulations 1988, the Director of Petroleum Resources has the mandate to formulate Regulations/Guidelines as desirable for the smooth and safe operations in the Oil and Gas Industry. On the other hand, section 60A of the Petroleum Drilling and Production) Amendment Regulations 1988, states that no company shall render or be engaged to render any technical services to the Oil Industry without first being registered and issued a permit to carry out such services by the Director of Petroleum Resources. On the basis of this legal framework, any service company that operates in the Oil and Gas sector without a service permit is in contravention of the provision of the above Regulation . The first commercial oil exports from Nigeria by Shell was in 1958 from Shell's Oloibiri Field: Shell Petroleum Development Company (SPDC) is Nigeria's Oldest energy company, and all Shell companies in Nigeria have a long term and continuing commitment to the country, its people and economy. Today Shell produces oil and gas from land and swamps in the Niger Delta and from deep water reserves some 120km off the coast of Nigeria. In 2012 the total production from Shell run operations averaged 949,000 barrels of oil equivalent per day (boe/d). Shell also has an interest in Nigeria's Liquefied Natural Gas (LNG) plant at Bonny which exports gas to different parts of the World.

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Nigeria Oil and Gas Industry Overview ...The Operating Environment

-The Niger Delta

The Niger Delta is the operating environment of Nigeria Oil and Gas Exploration and production activities. The Niger Delta continues to be a challenging place to operate because of Lack of basic infrastructure in many areas, poverty, lack of employment opportunities , widespread criminality and other factors all contributing to the social and economic crises of the region. In the Niger Delta region criminality expressed itself in many forms-attacks on facilities, kidnapping, militancy and worrisome in recent years crude oil theft and illegal refining. In 2012 there was over 80 reported incidents from the facilities of Shell Petroleum Development Company of Nigeria Limited (SPDC) several accompany by vandalism, spill and fire. The federal Government Amnesty Programme in the Niger Delta aimed at ex-militants group. This has resulted in significant Nigeria's oil and gas production , and less incessant attack on facilities. However significant grievances remains a post management issue. The loss of 60,000 bbls/day of crude oil theft from SPDC facilities alone raises issue for concern. This industrial scale theft has deleterious effect on the Nigerian people and environment. Most of the stolen crude makes its way to International markets with a smaller portion refined locally in many illegal refineries. The Land, shorelines and water are polluted by these activities. Shell operations in Nigeria generates billions of dollars in revenue in terms of taxes, duties and royalties, fees and the like for government. The Joint Venture operated by SPDC have contributed 42 billion US Dollars in the past for five years 2008-2012. Shell Nigeria Exploration and Production Company (SNEPCO) which manages Shell offshore business paid nearly 6 billion dollars in taxes and royalties within same period. As a statutory obligation Shell –Operated Venture contributed over 178.3 million to the Niger delta Development Commission (NDDC) . Nevertheless the Niger Delta is still largely under developed and Infrastructure and well below expected standards

Nigeria Oil and Gas Industry Overview

...Shell Companies in Nigeria

The Shell Petroleum Development Company of Nigeria Limited (SPDC). SPDC is one of the largest oil and gas companies in Nigeria. It is the operator of the Joint Venture between the Government owned Nigerian National Petroleum Corporation-NNPC (55%) , Shell (30%) , Total E&P Nigeria Limited-Total (10%) and Nigeria Agip Oil Company Limited –Agip (5%). SPDC's operations are in shallow water and onshore in the Niger Delta spread over an area 20,000 square kilometres. They include a network of a little over 6000 kilometres of flowlines and pipelines, about 60 producing oil fields, approximately 700 producing wells, 60 flowstations, seven gas plants and two major oil export terminals at bonny and forcadoes. Th e company is capable of producing an average of approximately 900,000 boe/d. Shell Nigeria Exploration and Production Company Limited (SNEPCO). SNEPCO ,100% owned by Shell was formed 1993 to develop Nigeria's deepwater oil and gas resources offshore- the new frontier for the company' s energy industry at the time. It signed a production sharing contract with NNPC that year to operate two deepwater licenses in partnership with ExxonMobil, Total and Agip. The company produces Oil and gas and has made significant discoveries. The first of these is Bonga- is Nigeria's First major deepwater oil and gas projects for which SNEPCO is the operator and the majority venture partner. It started production in November 2005 and has capacity to produce more than 200,000 boe/d and 150 million standard cubic feet of gas. It is located 120km offshore in 1000 plus meters of water. SNEPCO is a venture partner in the ERHA deepwater oil and gas project (43.47%) operated by ExxonMobil and Zabazaba/Etan deepwater oil and gas project (50%) operated by ENI's Agip. Nigeria Liquefied Natural Gas Company (NLNG) Ltd-NLNG was incorporated as a Limited liability company in 1989 to harness Nigeria vast natural gas resources and to produce LNG and Natural gas liqiuids for export. Shell holds a 25.6% interest in NLNG together with NNPC (49%), Total LNG Nigeria Ltd (15%) and ENI Int'l N.A (10.4%). With completion of a sixth production train in December 2007, the Plant at Bonny Island has an overall capacity of some 22.00 millions tonnes a year of NLNG and a 5 million tonnes of Natural Gas Liquids (LPG and Condesates). It accounts for

Nigeria Oil and Gas Industry Overview (cont'd)

approximately 7% of the world's total LNG capacity and it is well position to serve the European and North American Markets. SPDC is the major supplier of gas to the NLNG plant. The company operates a world class technical standards and has achieved a number of feats . These include supplying LPG to domestic market and via its subsidaries (NLNG Ship Manning Limited and Bonny Gas Transport Limited (BGT) developing the crews that run the LNG ships owned by BGT.

Extract-References: Shell in Nigeria, Briefing Notes April 2013.

Nigeria Oil and Gas Industry Overview ...DOMESTIC GAS

Nigeria holds the 9th largest proven natural gas reserves in the World (BP World Energy Report, June 2012). With the Nigeria Gas Master Plan initiative, the Federal Government aims to leverage this resource base to meet the aspiration of the growing economy at nearly 14% per annum under the vision 2020. Five years ago the Government predicted that domestic demand for gas would rise five fold to some five billion standard cubic feet per day by 2013. To meet this demand, the Government set domestic gas supply obligations for producers as well as basis of pricing of gas sold to different categories of customers-namely the strategic power sector, wholesale industrial an d commercial users, and strategic based industries that use gas as feedstock. Nigeria has about eight gigawatts (GW) of installed electricity generation capacity but only three to four GW of that is currently in operation. In August 2010, the government set to increase the country's actual power generation to 40GW by 2020 and correspondingly to increase gas production. Commitment and the process for achieving these electricity generation targets have been articulated in the Power Sector Road Map that was released in 2010. SPDC and other joint venture partners are currently negotiating key gas to power contracts with the power holding Company of Nigeria and the Niger Delta Power Holding Company under the New Nigerian Gas Master Plan Commercial Framework. SPDC has also

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Nigeria Oil and Gas Industry Overview ...DOMESTIC GAS

commenced discussions with potential investor s with fertiliser aspirations with potential investors with fertiliser aspirations under SPDC gas revolution agenda. SPDC is at the fore front of gas development and utilization in Nigeria, having pioneered the production and delivery of gas to consumers for over 40 years. In 1960s SPDC Jv began supplying gas to industries in Trans Amadi in Portharcourt, Aba Territories and to Power Plants at AFAM in Rivers States of Niger Delta.

Extract-References: Shell in Nigeria, Briefing Notes April 2013.

NNPC-Refining Capacity

Nigeria's refining capacity is currently insufficient to meet domestic demand forcing the country to import petroleum products. Nigeria's state owned refineries (Portharcourt I and II, Warri and Kaduna Refinery) have a combined capacity of 445,000 bopd but due to operation al lapses, poor management and turn around maintenance, operating capacity is less than 50%. To increase refining capacity, the Nigerian Government is granting permits to build several independent refineries , Oando a Leading petroleum marketing company is considering building 224,000 bbls/day in the Free Trade Zone, NNPC sometine anounced the building of three independent Green Field Refinery with combined capacity 750,000 bbls/day.

Syntechsys Upstream News Letter

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Syntechsys: DPR delegates Trip to Sweden to Witness End of Pipe-Science Filters polluted water cleaning

It was a dream come true when DPR delegates visited Sweden on February 17th through to 20th 2014 to witness Syntechsys End of Pipe-Science Filters Technology. Syntechsys sponsored the technical visits to witness the Science Filter Equipment in operation in Sweden. The relationship with the Technology is traceable to November 2012, when the Licensor of the Technology SCIENCE FIVE WOOD EUROPE AB approach Syntechsys for some level of Technical Cooperation in assisting in marketing the products in Nigeria. Syntechsys through its affiliate Upstream Energy Nigeria Limited applied to the Department of Petroleum Resources for permits for its End of Pipe Technology for Waste Management developed by its Technical Partner/Sponsor-Syntechsys. The Provisional approval cover Sludge Evacuation and Treatment , Remediation of impacted sites (Water, and Soil) with the Science Filter coming at the end of the process to treat the waste water stream. Syntechsys delegates and the DPR delegates were hosted by SCIENCE FIVE WOOD. The company's delegates hosted the DPR delegates and took them round a tour. There were initial challenges to the visits but when the Board of Syntechsys finally approved $50,000 US Dollars to finance the visits, the feasibility of the projects seem to come on stream. To note Syntechsys is currently developing the Eleaktra Technology to fit into several process applications of which the End of Pipe Technology is first.

Definitions:

Sludge: Hydrocarbon or Process Waste Fluid Stream containing any one or more of the following substances: oil, heavy metals, chemicals, solids, biological contents above statutory requirements.

Products: Major equipment components, reusable and products in the end of pipe Technology described in Exhibit A.

Broker: Person or entities responsible for brokering relationship between Franchisee and Product Suppliers.

DPR: Department of Petroleum Resources-The Regulator of the Nigerian Oil and Gas Industry.

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Syntechsys: DPR delegates Trip to Sweden *(cont'd)*

Franchisee: An entity or person acquiring rights for sale of products Licensor: An entity or person that has authority or rights to a patented technology.

Affiliates: Persons and Entities related or associated with the Main Company or Entity.

End of Pipe Technology: A process/plant unit operations and systems technology added as the END process unit of a Production Process to collect, process and treat effluent wastes to or below statutory limits before being discharged to the receiving environment.

Customers: Direct and Indirect End Users of the End of Pipe Technology and associated products

End of Pipe-Science Filters polluted water cleaning

PROBLEM DESCRIPTION: Oil extraction and oil refining are connected with many engineering and environmental problems.
The produced water constitutes some of the following:
Water
Heavy metals
Mechanical impurities
Salt content
Oil and grease
Organic and inorganic chemicals
Naturally occuring radioactive material

- Release of untreated produced water into the water bodies is one of such problems. Release of oil traces, dissolves solids and heavy metals in concentration higher than the acceptable level has environmental impacts which poses a threat to the lives of aquatics, surrounding plants as well as human lives(directly or indirectly.

THE SCIENCE FIVEWOOD SYSTEM (SFS)

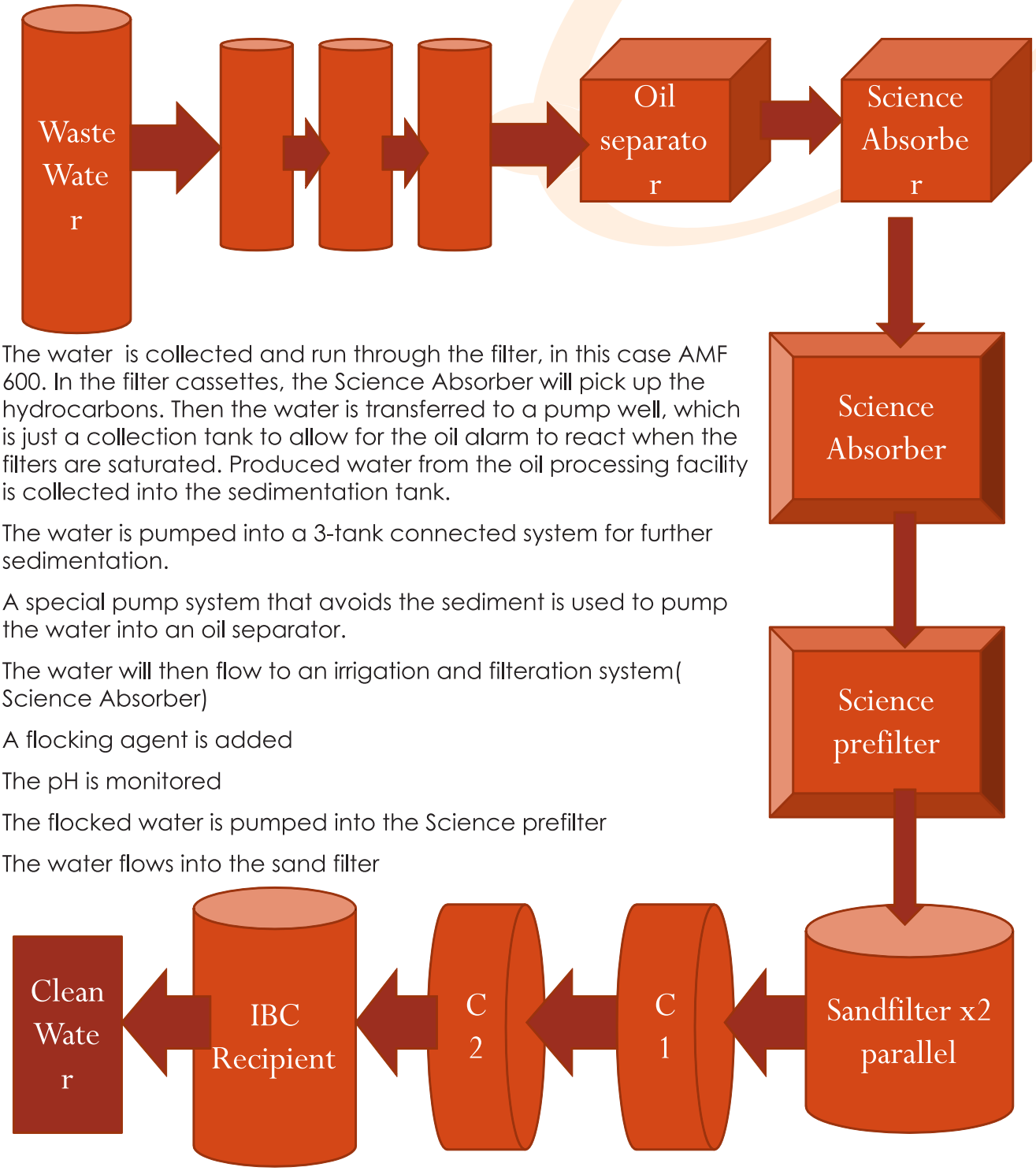
Science Filter System, SFS, is a very simple yet efficient way of cleaning polluted land or water from oil and heavy metals.

The key component is the Science Absorber material, nature's own material with unique properties to absorb oil and heavy metals, which makes the system work with less maintenance and at lower cost.

When it comes to absorbing oil, the material is outstanding and for heavy metals the levels are reduced to more than half. If a flocculation step is included when cleaning water, the levels will go down to at or below detectable levels.

Applications vary from use in power stations to tank stations to ship-yards. The system is flexible and can be made with various steps to suit the needs. The technology can be above-ground, in-ground or container.

PROCESS FLOW DESCRIPTION



The water is collected and run through the filter, in this case AMF 600. In the filter cassettes, the Science Absorber will pick up the hydrocarbons. Then the water is transferred to a pump well, which is just a collection tank to allow for the oil alarm to react when the filters are saturated. Produced water from the oil processing facility is collected into the sedimentation tank.

The water is pumped into a 3-tank connected system for further sedimentation.

A special pump system that avoids the sediment is used to pump the water into an oil separator.

The water will then flow to an irrigation and filteration system(Science Absorber)

A flocking agent is added

The pH is monitored

The flocked water is pumped into the Science prefilter

The water flows into the sand filter

5/31/2014

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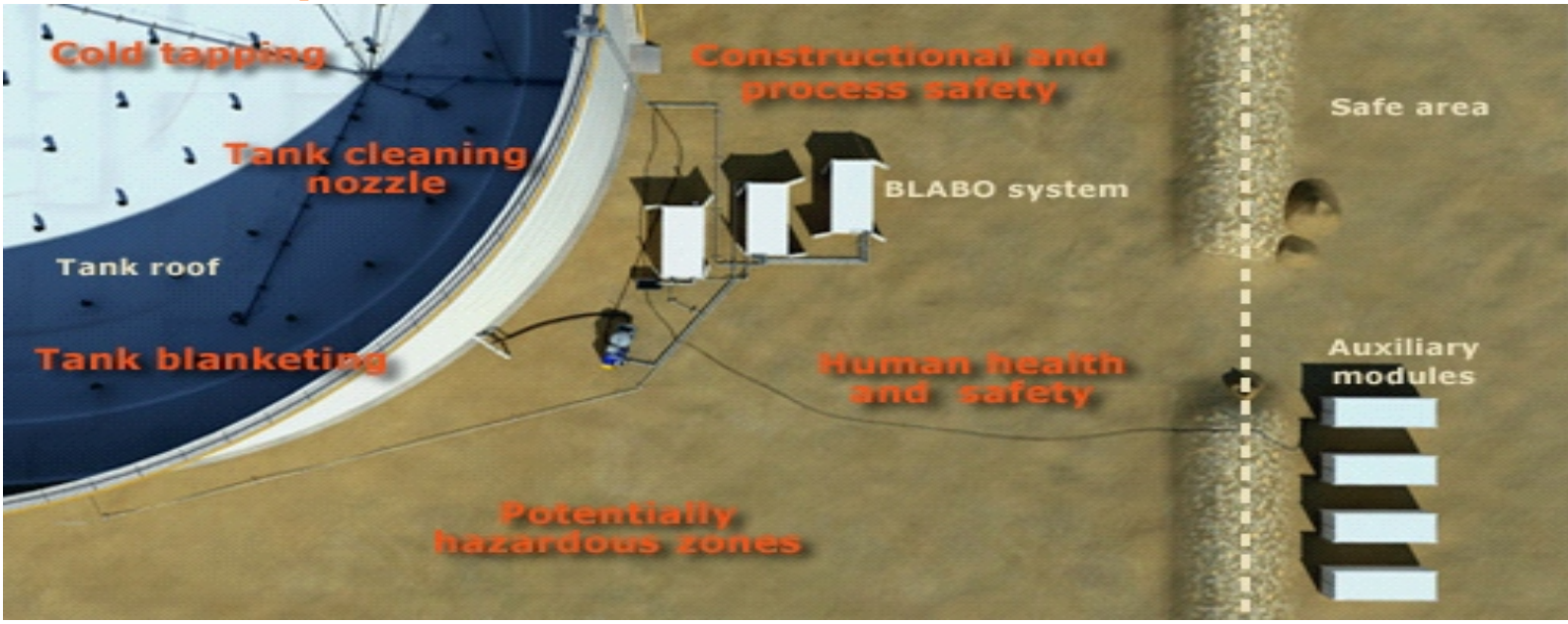
APPLICATION/BENEFITS OF OUR TECHNOLOGY

- HEAVY METALS AND DISSOLVED SOLIDS REMOVAL FROM PRODUCED WATER
- RELEASE OF PORTABLE WATER
- REMOVAL OF OIL BELOW DETECTION LEVELS
- PRODUCTION CYCLE IS UNINTERRUPTED
- THE PROCESS IS AUTOMATED -Non-man entry in the tank
- ENVIRONMENTALLY-FRIENDLY AS THE PROCESS MINIMIZES HYDROCARBON EMISSIONS
- NO WEATHER OR SEASONAL RESTRICTIONS

Upstream Energy-Confidential

Safety Practices and Procedures



Safety measures in place for our tank cleaning system and process

- Syntechsys mission to provide the safest, most environmental-friendly tank cleaning system in the Nigeria and we constantly developing new features that ensures even safer operation of our systems.

- The safety measures in our end of pipe system are not only limited to the design and construction of the system, but also deals with the tank cleaning process and personnel safety.

- The safety description cover the health, safety and environmental-friendly initiatives that have been

Safety Practices and Procedures *(cont'd)*

found necessary during the risk assessments of the project as our dedication to HSE.

- **All moving parts**
- All moving parts are protected by covers that cannot be opened without tools. This is to protect the operators from injuries.

- **Monitoring and Auto-shut down**
- Continuous monitoring of the process and automatic shutdown features are integral parts of the End of Pipe system and keeps the process safe. Built-in warning systems for hydrocarbon vapors minimizes exposure to hazardous substances.

- **Human health and safety**
- Closed loop
- Our technology can be described as a "closed loop" process meaning that the media runs in closed circuits from the tank to the different modules. In this way, operators never get into contract with the media inside the tank and consequently have less contact with toxic and flammable liquids and no emissions to the atmosphere.

- **Non-man entry**
- The most important aspect of 'personal safety' offered by the End of Pipe system is the fact that it is a 'non-man entry system'. Hence, no personnel will be present inside the tank during the cleaning process. This aspect alone ensures that the highest risk for a tank explosion is eliminated as safety negligence by personnel is the highest risk of accidents. Also, many people inside a tank, using different equipment, scaffolding etc. pose a higher risk of sparks. This is also eliminated by using a non-man entry system.

- **Other personal safety and health issues**
- Personal safety is closely related to the non-man entry method described above but there are also a number of health problems that the our system addresses and eliminates:
- No staff is exposed to toxic or carcinogenic substances.
- No respiratory problems or oxygen deficiency caused by working inside tanks.
- No injuries caused by falls, inadequate lighting or structural tank failure.
- Containers are equipped with gas detectors.
- Insulated pipes, valves and flanges.
- Etc.

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STORAGE/LOGISTICS/EVACUATION

The equipment is placed not too far from the oil production facility with a system fro outlet connecting to the water body.
It is portable and does not disrupt the operation cycle

Syntechsys

–Development of Eleaktra System for Leak Detection and Pipeline Monitoring in Oil and Gas Industry

Sigma Preliminary study on development and software design of Syntechsys pipeline leak detection factory and sludge treatment plant(SCIENCE FILTER EQUIPMENT) (eleaktra lab studio proof of concept) and (eleaktra field studio technology verification)

Contents

Syntechsys International Limited is a Technology Research Development and Project Management Company providing First Class Services in System Software Design and Consulting solutions for the Energy, Process and Hydrocarbon Industry in Nigeria and globally, organizer of the Pipeline Leak Detection Factory and Sludge Treatment Plant in SWEDEN and NIGERIA. Syntechsys is a family member of Syntechsys Network of Companies globally, it benefits from the ideas, technology solutions and partnership with its U.S.A global Manager. We focus

Syntechsys –Development of Eleaktra System for Leak Detection and Pipeline Monitoring in Oil and Gas Industry *(cont'd)*

on Ideas, Technology, Solutions and Partnerships, Our mission is to deliver excellent services and products based on standards that answers the needs of our Clients and create value for shareholders fund, striving to form and maintain workable synergies with offshore technical partners, reposing confidence in our business associates, communities, and creating an environment for profitability, growth and sustainability. Syntechsys Global Network have used a new generation of wireless sensors, packaged in a low-profile explosion proof enclosure with the full assembly painted the same color of the pipeline to help address the problems associated. Syntechsys International Limited is pleased to collaborate and submit a proposal to Department of Petroleum Resources (DPR) in the development of a Patented Pipeline Leak Detection System.

2.0 PRODUCT DESCRIPTION

BACKGROUND

Pipeline leak detection was identified as one of the methodologies to manage the risk of pipeline failure at the end of the eighties and the beginning of the nineties. The authorities particularly in the U.K drove to implement a number of leak detection systems on pipelines (REL, 1997). Other measure should be put in place to prevent and monitor degradation of the pipelines that in the end may lead to failure. Effective risk management of pipeline systems is engendered through the installation of a leak detection system, which encompasses economic, safety, environmental and social- political consequences.

PRODUCT DESCRIPTION

Introduction of Eleaktra Systems patented in the U.S and commercialized underthe trademark ELeaktra in Nigeria, Canada and the United States. Syntechsys proposal relates to the Prestudy Study Proof of Concept and Field Trial Studies on ELeaktra Lab and Field Studioproduct design and system procurement of a commercial ELeaktra Enterprise Product System to the Petroleum Industry in Nigeria.

The ELeaktra Platforms utilize both UNIX and Windows Platforms OS in Web based and Standalone Enterprise Solutions. The product is also software to be coded as embedded chips CDMA technology with GPS Capabilities so we can integrate system in hardware formats.Our proposal entails Sigma Prestudy for Eleaktra Lab Studio and Field

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Syntechsys –Development of Eleaktra System for Leak Detection and Pipeline Monitoring in Oil and Gas Industry *(cont'd)*

StudioSoftware design, integration of system for "Automated process control system, namely, micro-processor based hardware and software used to monitor the status of industrial processes, namely power generation, electrical distribution and oil and gas processing; Automatic liquid-flow control machines and instruments; Electrical leak detection hardware and operating software; Electronic test instrument and associated software for use in leak, flow and functional testing; Industrial process control software". The SCADA MANAGER interface Software to link up with field devices, third party client or customer SCADA systems and satellite links as the ELeaktra Angel Charter.

APPLICATION OF THE ELEAKTRA SYSTEM IN THE NIGERIAN PETROLEUM INDUSTRY

The need to have smart systems having real time capabilities for the Petroleum Industry Operations in Nigeria
The need for an integrated monitoring and early warning detection system for pipeline integrity and inventory loss assessment for oil and gas facilities in Nigeria
To minimize or completely eliminate pipeline vandalization, hydrocarbon theft and sabotage costing oil and gas operations in Nigeria, billions of dollars lost in CAPEX and OPEX downtime.
To reversing the current slow response time to pipeline leaks and integrity assessment providing savings in millions US Dollars annually
Develop on-line commodity assessment, batch tracking, corrosion monitoring, pipeline wall thickness monitoring etc.

BENEFITS

1. Minimization of manual surveillance and monitoring of pipeline systems
2. Actualization of World Class (Patented) pipeline integrity, environmental integrity monitoring technology and risk safety management system
3. Tremendous savings arising from proactive and quick response to hydrocarbon release, pipeline failure and asset integrity management

4. Promotion of Indigenous Technology in Nigerian Content Act: 2010
5. Financial benefits from exports of Technology globally

AVAILABLE TECHNOLOGIES

1.1 Aerial Monitoring
1.2 Intelligent Pigging
1.3 Simple Leak Detection System
1.4 SCADA Dynamic Monitoring
1.5 Statistical Pipeline Leak Detection
1.6 Wave Alert System
1.7 Computational Pipeline Monitoring System

Syntechsys –Development of Eleaktra System for Leak Detection and Pipeline Monitoring in Oil and Gas Industry *(cont'd)*

DISADVANTAGES OF AVAILABLE TECHNOLOGIES

1. High False Alarm
2. Low Leak Sensitivity
3. Leak Location estimate incapability
4. Large disturbance due to operational change
5. High Maintenance Requirement
6. High Cost of Installation and Operation (High CAPEX and High OPEX)
7. Low availability issues

1.6 PROCESS DESCRIPTION APPLICATION-PRESTUDYSLUDGE TREATMENT PLANT

3.0 PROCESS DESCRIPTION

Produced water is water trapped in underground formations that is brought to the surface during the oil and gas exploration and production. In traditional oil and gas wells, produced water is brought to the surface with oil or gas. Because the water has been in contact with the hydrocarbon-bearing formation for centuries, it has some of the chemical properties of the formation and the hydrocarbon itself.

The physical and chemical properties of produced water may vary considerably depending on the geographic location of the field, geographical formation from which it comes, and the type of hydrocarbon products being produced.

Science Filter System is designed to clean water from oil; before it's suitable to drink a variety of actions must be taken. Firstly you need to determine the presence of heavy metals, if there are any, another filter stage has to be added to the system. Furthermore, a flocculation- and filter system is added, after treatment of any bacteria, the water may be gathered in separate tanks, this is made during the ongoing cleaning process.

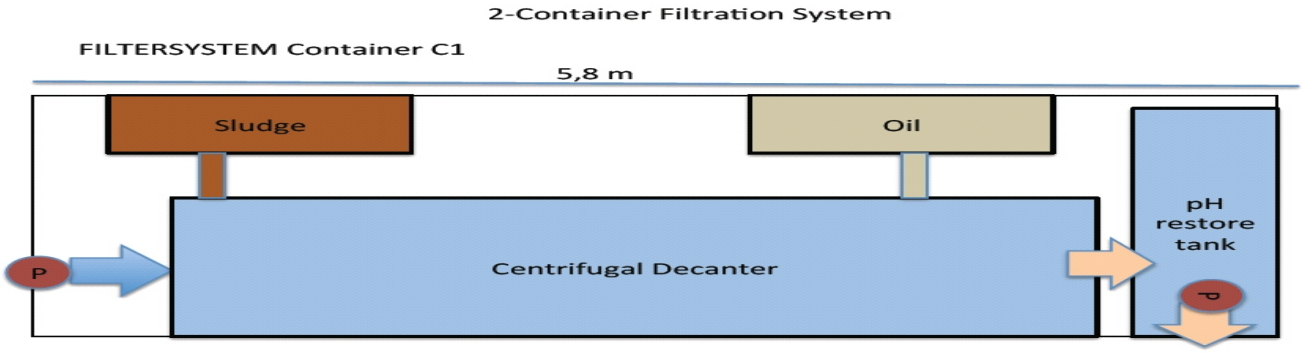
The Filter Systems are made in plastic where the contaminated water runs free through cassettes filled with absorption material. The purification takes place through the natural flow of water so the flow must be calculated in order to get the right dimension on the filters; this is measured in cubic meters per hour.

By using nature's own cleaning technology, the cleaning process is kept extremely effective and fast at a low cost. The main difference is that this can be made virtually anywhere through portable, or fixed installed systems. The natural material used in the filter is thermo treated to enhance its natural features, the material does not absorb water and therefore does not sink, instead it absorbs three times its own weight in oil before it's saturated; saturated filters leaks oil so a warning system is offered when needed in order to alert the operator that filters needs to be changed.

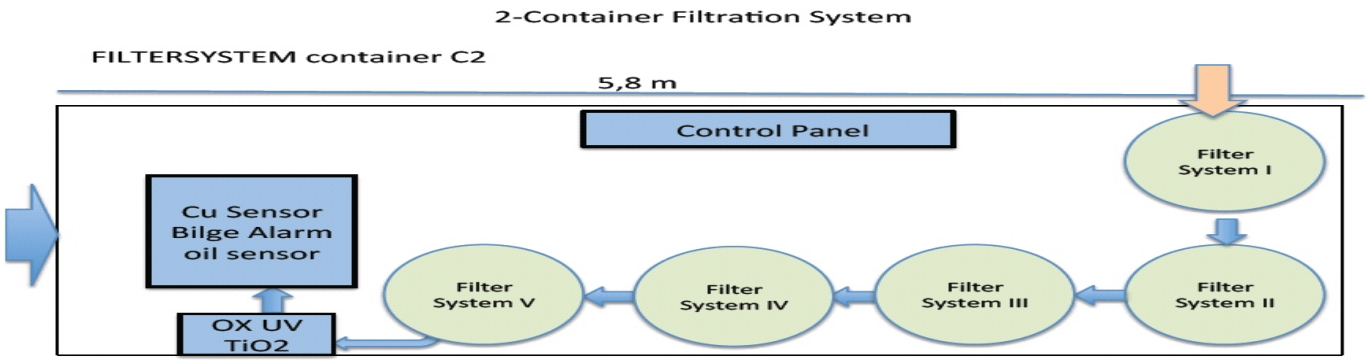
Dispersed oil will be purified to a level

Syntechsys –Development of Eleaktra System for Leak Detection and Pipeline Monitoring in Oil and Gas Industry *(cont'd)*

of at least 99.3% and for oil separated in water the purification level will be 100%.If the water that needs to be treated contains large quantities of oil, installment of an oil separator is recommended to avoid premature saturation of the filter. The only end product after the cleaning process is the separated oil and



Top view of the container system (Size 5,9m x 2,35m). 4 cm = 1 m . An insulated container will reduce the size 10 cm on each side



TECHNOLOGY/EQUIPMENT

LEAK FINDER-ELEAKTRA

This software provides invaluable assistance in determining and locating in real time, leaks in pipeline networks systems, storage facilities and chemical process systems to prevent inventory loss

Syntechsys delivers hardware solutions to the Industry

ELEAKTRA INTELLIGENT SENSORS

Eleaktra I-Sensor is a pipeline wireless sensor network system that derives it technology from the theory of Liapunov stability criteria, and it has been fully developed and implemented through a combination of software and appropriate hardware. Eleaktra I-Monitor is designed to improve operational efficiency, and safety, and should help reduce theft and sabotage.

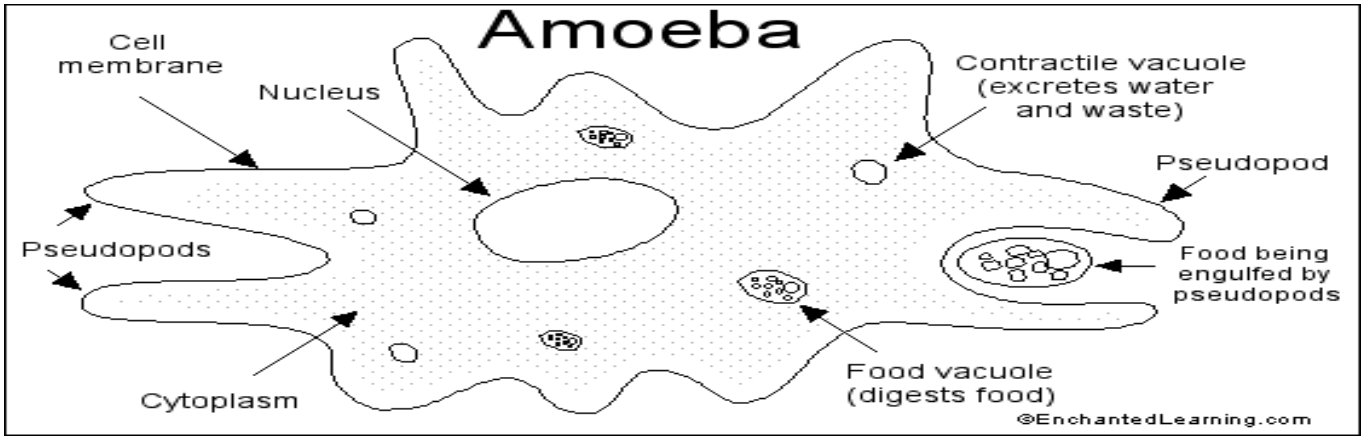
The Eleaktra I-Monitor is designed to serve as an integrity monitor, leak detection system, inventory analysis system, corrosion and fatigue monitoring system and also for pipeline inspection.

TECHNOLOGY/EQUIPMENT

The Eleaktra I-Monitor is installed on pipelines network through a fiber cable, these sensors communicate with an android phone handled by the facility manager. The facility manager then makes decision on whatever case the sensor is reporting to the android, this decision is sent to the control center for interpretation and then relayed back to the sensor for implementation.

The whole network is managed from the control center and has a large portion of the pipeline integrated into its supervisory control and data acquisition system. With the Eleaktra I-Monitor the operational conditions of the pipelines transporting basic petrochemicals and also the process condition of the fluids being transported are known.

SYNTECHSYS INNOVATION LEDGER



2.7 Amoeba (Characteristics of Our Group Innovation Styles)

Our Group has no particular innovation style but blends with the process and needs of our partners and clients we do business with at any point in time. Thus as like the amoeba with no particular shape we adapt and learn as we develop creating so much value to our Clients and partnership baseline and eliminating any wastes in our systems as we grow: As the Amoeba we are simply SIMPLE and SEAMLESS. We consider You as the Team, and You as the Solution and together with our Novel Catalyst Programmes, we find many ISmart Partners like You.

…Your Process is our Group Strategy
2)……Our Group Strategy is Your Team Work
3)……Your Team Work is our Solution
4)…..Our Solution is Your Success
5)….We do the Work
6)….You get paid
7)…When you get paid, we get paid by creating a World of Solutions and creating the difference.

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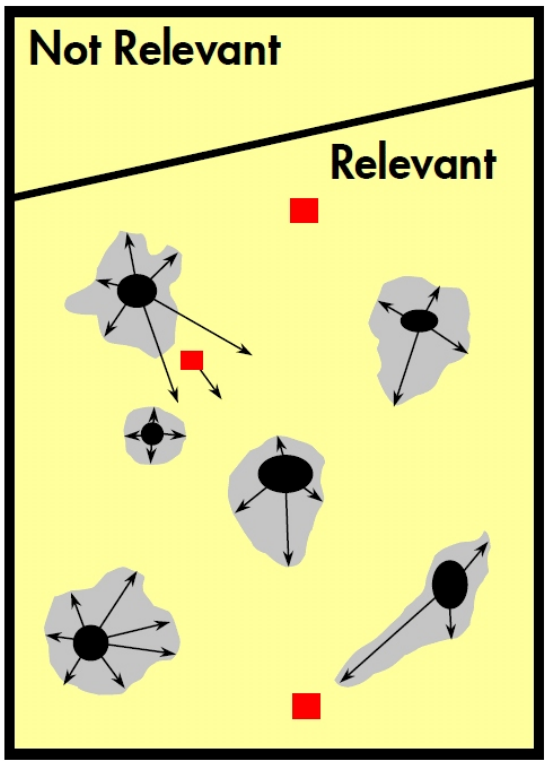
Our Group creates a world of solutions. We strive to maintain a customer-centric partnership approach in all our projects. We adhere to these fundamentals not only through our product and service offerings but in our Partnership building as well; In an Industry of Environmental and Technology Complexities, our Approach continually sets new Standards

Space of Business Opportunities



Notes:

- Sometimes a white space venture develops into a new core business activity
- More often the white space venture is used to radically extend one or more evolutionary spaces

Core business activities

Logical extensions to core business activities (Evolutionary Space)

White space Opportunity (Revolutionary Space)

The knowns and and Unknowns

Adapted from D. Rumsfeld Poetry

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Technology Pathways: Concepts

Is the primary focus to...

Improve on existing business?

Spiral Staircase

Create new businesses?

How well defined is the opportunity and how long will it take?

Near term with defined market?

Do you need new assets and competencies?

Develop new rapidly

Cauldron

Leverage existing over time

Fertile Field

Long term with undefined market

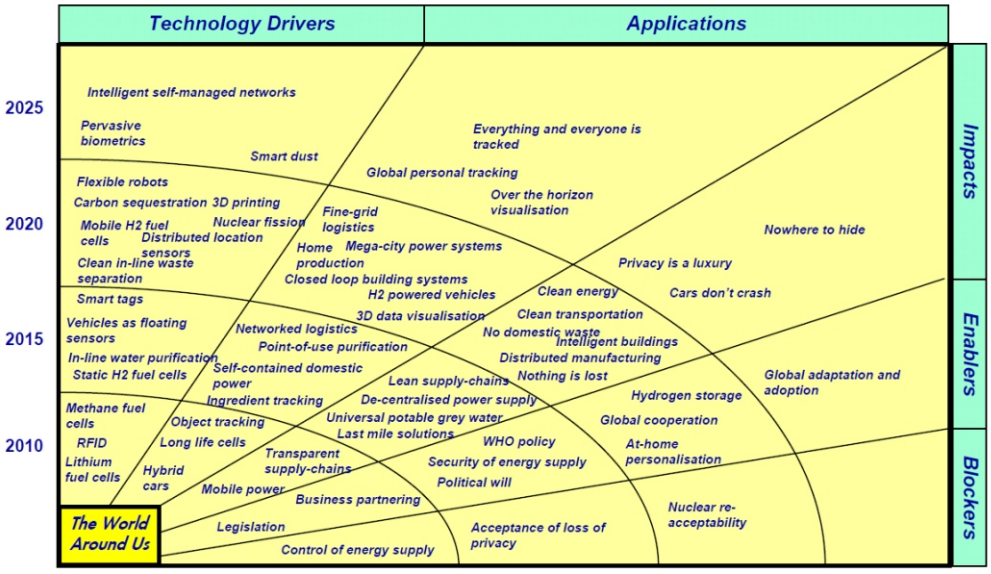
How can you best develop new assets and competencies?

Acquire in marketplace

Develop internally

Explorer

Technology Futures



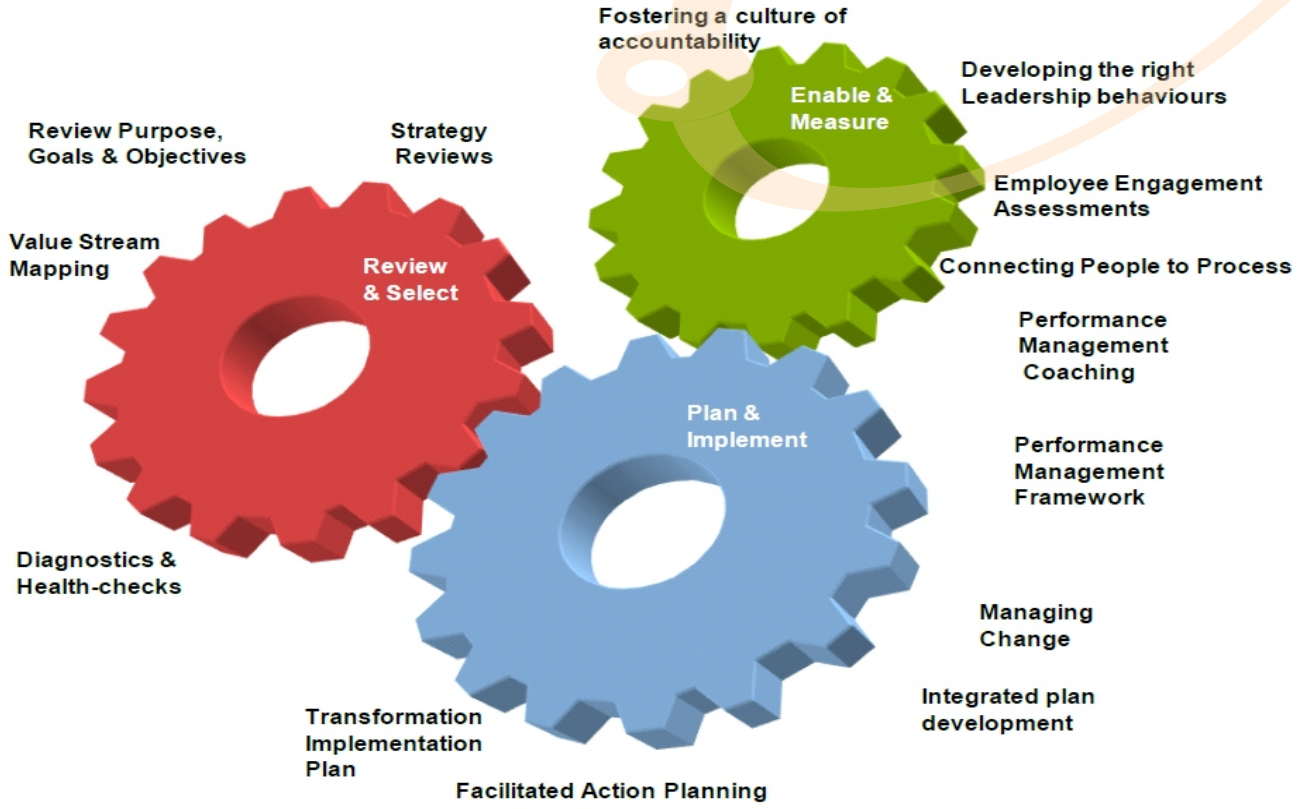
Energy & Mobility

Syntechsys™
RC NO: 474550
The World of Syntechsys
...A world of solutions

Syntechsys™ News Letter
For all sectors in the Oil and Gas Industry

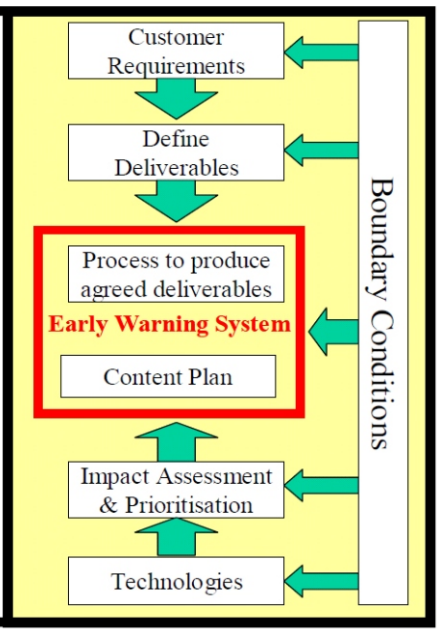
Technology Pathways: Concepts

The diagram below indicates our 'toolkit' and approach:



Key Technology Themes

- Power Transportation
- Energy Storage
- Biotechnology and Bio-mass
- Complex Adaptive systems
- New Maths
- Water Purification
- Novel Coal Conversion
- New Materials (Nanomaterials)
- Nuclear
- Sensing and Sensor Networks



Technology Pathways: Concepts

Technology Scouting Goals

- Keeping a (target) community informed
- Maintaining awareness of new developments
- Provoking new thinking in target groups
- Challenging the businesses
- Stimulating action across the organisation
- Providing advanced warning for the company
- Identifying future options for the business

2.5.1 Amoeba Cauldron

Blend with unleashed entrepreneurial energy in a concentrated mixture of talent, ideas and resources releasing the wastes from its systems as it grows and learn

Key Levers

Blend with Internal markets for new ideas
Blend with Venture capital model of internal entrepreneurs seeking funding from both internal and approved external sources
Blend with peers, rather than bosses, to screen and evaluate opportunities
Blend with Loose structure and frequent organizational changes

Examples: Enron

2.5.2 Amoeba Fertile Ground

Blend and cultivate a harvest a rich portfolio of strategic assets and core competencies

Key Levers

Blend to manage the overall portfolio of core competencies and strategic assets
Blend with people together across organizational boundaries to share information and discover opportunities
Blend to create mechanisms that gather, disseminate, and track new ideas and learning for all employees

Blend to determine when and if to spin off a growing business

Examples

Syntechsys
First Upstream PPP programmes
Shell GameChanger

2.5.3 Amoeba Spiral Stair Case

Blend with a focus for continuous improvement and innovation in the core business releasing every waste from its systems as it grows and learns

Key Levers

Blend with a profound sense of core purpose
Blend with everyone to integrate their innovation contribution to Business
Blend with teams to give the true meaning of leadership and autonomy they need to win by being their servant
Blend with a culture of experimentation and commitment to learn

Examples

Syntechsys LLc
Syntechsys Global Network
Syntechsys International

2.5 Amoeba Pac Man

Blend with successful innovators and integrate competencies into existing businesses disposing every waste as we grow and learn

Key Levers

learns
Blend with strategic intent to guide the entrance into new markets and development of new competencies
Blend with Partners to develop alternatives early in the innovation process
Blend with promising start-ups, using the market as a screen
Blend with competitors to access responses to strategy innovations
Successful Partnerships through respect and mentorships

Examples:

Syntechsys Global Network
First Upstream Projects
Chevron
Microsoft

2.6 Amoeba Explorer

Blend with Unleash entrepreneurial energy in a concentrated mixture of talent, ideas and resources and releasing every waste from its systems as it grows and learn

Key Levers

Blend to aspire beyond what seems possible
Blend Design and carry out effective and low-cost experiments
Blend with Strategic Intent to guide the entrance into new markets and development of new competencies
Blend with Emphasis in continuous, cumulative learning

Examples:

Syntechsys Global Network
First Upstream Projects
Syntechsys Group

2.7 Definitions

Extracts ICRC (PPP) Act 2005
Part VIII-Miscellaneous Provisions for Projects Concession
" Commission" means the Infrastructure Concession Regulatory Commissioned established under section 14 of this Act
"Concession" means a contractual arrangement whereby the "Private Proponent" undertakes the construction, including financing of any infrastructure, facility and the operation and maintenance thereof and shall include the supply of any equipment and machinery for any Infrastructure
"Construction" means any form of engineering work whether civil structural, mechanical or electrical and includes rehabilitation, improvement, expansion, alteration and related work activities, supply and installation of equipment or materials as may be approved from time to time by the federal executive council

New Investment and Development Projects include:
Any project involving any Infrastructure not existing at the time the Concessionaire is being made that will require the injection of substantial funds or resources to design, construct, build, maintain or operate such Infrastructure

Any project involving any Infrastructure existing at any time of the concession is being made, they will require the injection of substantial funds or resources to repair, service, overhaul, improve, maintain or sustain such infrastructure
" Project Proponent" means the Private Component in the PPP who has contractual responsibilities
" Infrastructure" involves development projects which before the commencement of this Act were financed, constructed, operated or maintained by the Government and which after commencement of this Act may be wholly or partly implemented by the Private Sector under an agreement pursuant to this Act including Power Plants, Highways, Sea Ports, Airports, Canals, Dams,

Hydroelectric Power Projects, Water Supply, Irrigation, Telecommunications, Oil and Gas, railways, interstate transport systems, Land reclamation projects, environmental remediation and clean up projects, industrial estates or town ship developments, housing, government buildings, tourisms developments projects, trade for complexes, warehouses, solid wastes managements, satellite and ground receiving stations, information technology networks and data base Infrastructure education and health facilities, Sewage, drainage, dredging and development projects.

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In Search of the Missing Document

NEITI and the Petroleum Industry Bill

The idea of the Petroleum Industry Bill popularly called the PIB began in 2007 following the recommendations of a Presidential Committee set up to carry out oil and gas sector reforms in Nigeria. The reforms were expected to form the nucleus of Nigeria's aspiration to become one of the most industrialized nations in the world by the year 2020. For the country to realize this tall dream, it was envisaged that the major source of revenue to the Federation account, (the oil and gas sector) must be re-positioned for greater efficiency, openness, and competition built on corporate governance as obtained in other resource-rich nations. The proposed legislation was therefore designed to strengthen the capacity of indigenous Nigerian companies in the oil and gas sector to compete with international oil companies in the search and acquisition of hydrocarbons in Nigeria. The measure was also intended to reduce exploitation in the sector and limit, to the barest minimum, Federal Government's exposure to oil and gas exploration and production through joint venture operations.

To achieve this, priority has to be placed on privatization and commercialization in a manner that retains government interest only as a shareholder. Besides, all the companies in the joint venture arrangement are to enjoy the freedom to source funds independently for their operations. To make this to happen, the PIB is expected to provide for the establishment of an independent regulator, an energy council, a national petroleum directorate, an inspectorate commission and a national petroleum company that will be open and ready to embrace competition, professionalism and good business ethics in its operations. The new law is expected to lay the foundation by producing a dynamic policy framework for massive reforms in the oil and gas industry. Under the PIB, the need to address the issue of raising indigenous capacity through a deliberate policy on research, production and broadening the spectrum for distribution are to be given priority. Each of these new

NEITI Nigeria Extractive Industries Transparency Initiative

THE PRESIDENCY

agencies to be created under the PIB is expected to operate in the spirit of efficiency, complementarily and division of labour. Above all, the agencies are to function with Nigeria's national interest as fundamental basis of operation

The current rates of Nigerian Government's share of revenues are; PSC 48% and JV 82%, while international rates of Government share of Oil revenue revolve around; minimum 56% and maximum 90% respectively. This is an important guide that the National Assembly has to take into consideration in looking at the fiscal regime provisions in the new PIB.

In view of the fact that oil is the mainstay of the Nigerian economy, NEITI believes that the National Assembly owes all Nigerians a responsibility to promote Nigeria's interest in the bill, protect our country's corporate sovereignty and secure the future of generations yet unborn.

However as a result of increasing public demand for transparency and accountability in the oil and gas sector, there is every benefit in fast tracking action on the Bill, creation of opportunity for public inputs as well as adequate public awareness through timely grassroots education, enlightenment and information on the contents of the proposed PIB through coordinated engagements with the media, the civil society and diverse pressure groups.

These are some important measures that can be taken to reduce suspicion, rumour and rebuild public trust in the reforms even before the PIB becomes law. While NEITI is neither opposed to expectations of investors in the oil and gas sector to reap deserved profits from their investments, it is only fair that in the new PIB, there is every rationale in striking a balance between investor – profit - interest and the overriding interest of the nation.

Orji Ogbonnaya Orji
Director,Communications-NEITI

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2014 SYNTECHSYS LEAK DETECTION, PIPELINE SAFETY AND ENVIRONMENTAL PROTECTION CONFERENCE PROGRAMME GUIDE

Date: June 26th 2014

Venue: EKO HOTEL AND SUITES, VICTORIA ISLAND LAGOS

Time : 9am to 6pm

26th JUNE, 2014
9.00am - 9.30am: Registration of Participants

9.30am – 10.00am:Opening Remarks by Representative of Syntechsys International Limited Board

10.00am – 10.30am: Speech by Keynote Speaker , Director of DPR, Mr George Osahon

10.30am - 11.00am: Speech by Keynote Speaker, Engr. Nwapa

THE NIGERIAN CONTENT ACT: Prospects and Challenges

11:00am -11:30am: Tea/Coffee Break

11.45 am -12.30pm: Lecture by Executive Director, Operations, NPDC: Local Technology Applications in Pipelines, Exploration and Production Joint Venture Programmes

12:30am -1:00pm: Madam Dorothy Bassey

OIL SPILL MANAGEMENT/ ENVIRONMENTAL PROTECTION: DPR Policies and Practices

1.00 pm- 1:30pm: Dr Abraham Oba, NDDC:
CAPACITY BUILDING , EDUCATION AND COMMUNITY DEVELOPMENT AS STRATEGIES FOR NIGER DELTA EMPOWERMENT PROGRAMME TO ENSURE PIPELINE SECURITY AND ENVIRONMENT PROTECTION

1:30pm -2.30pm: : Lecture by Dr Kingsley Abhulimen and Sigma /Sweden Rep

LEAK DETECTION MODELLING AND DESIGN:
- Modelling of Real Time Leak Detection System
- SCADA Technologies: Pipeline Applications
- Process Automation and Control Systems

2:30pm -3:30pm : Lunch Break

2014 SYNTECHSYS LEAK DETECTION, PIPELINE SAFETY... *(cont'd)*

TECHNICAL FORUMS/ PAPER PRESENTATIONS

PIPELINE INTERGRITY MANAGEMENT: Leak Detection Technologies
4:00pm - 4:30pm: Paper 1 Presentation

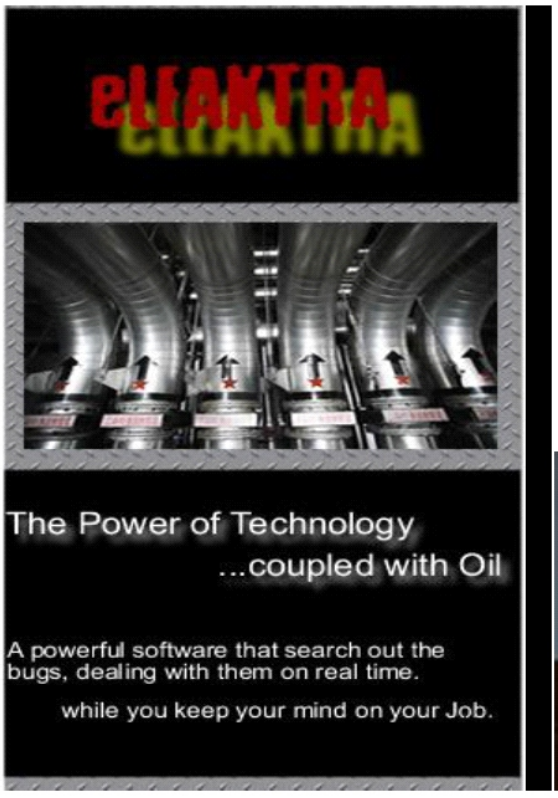
Pipeline Safety Standard, Processes and Operations
4:30pm – 5:00pm : Paper 2 Presentation

Oil Spill Detection and Control Technologies
5:00pm –5.30pm : TECHNICAL FORUM/DISCUSSION

5.30pm – 6:00pm : LECTURE BY DR AGBIM , EXXON MOBIL EXECUTIVE DIRECTOR (RTD.) AND WORLD BANK CONSULTANT
PETROLEUM ECONOMICS: Oil and Gas Monetization Policy Economics and Natural Gas Investment

REMOTE INTEGRITY MANAGEMENT AND LEAK DETECTON SYSTEM CAPABILITY OF ELEAKTRA TECHNOLOGY FOR- *OIL AND GAS PRODUCTION MONITORING, ASSET AND PIPELINE INTEGRITY INSPECTION, ENTERPRISE MANAGEMENT SYSTEM, HSE COMPLIANCE AND TECHNOLOGY REALIZATION STUDIES USING SENSORS*

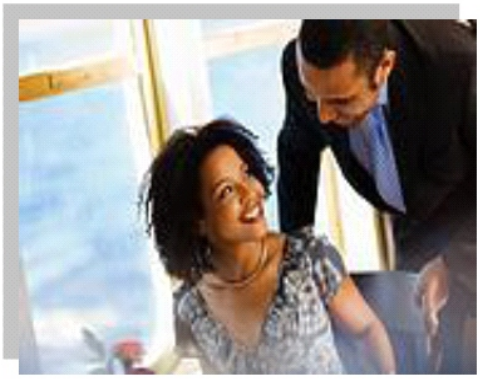
COMERCIALIZED AS: **E-LEAKTRA**



ELeaktra™

ELeaktra™

The Power of Syntechsys Smart System Technology: ELeaktra



TECHNOLOGY ("SYNTECHSYS")

REF: SYNTECHSYS GLOBAL NETWORK INC.

PROJECT EXECUTION PLAN

ELEAKTRA SYSTEM: SMART SYSTEMS - REMOTE OPERATIONS CAPABILITY

FIELD REALIZATION PROGRAMME: ELEAKTRA™ SYSTEMS OPERATIONS

DEVELOPED FOR SYNTECHSYS BY THE: NOVEL CATALYST TEAM

Preliminary Confidential Report

Syntechsys™

News Letter

For all sectors in the Oil and Gas Industry

ELeaktra™

Syntechsys is planning to partner with the Niger Delta States (Edo , Bayelsa, Imo and Delta Government for the deployment of Syntechsys PIPELINE LEAK DETECTION DEVELOPMENT PROJECT IN THE NIGER DELTA

NIGER DELTA CITI

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News Letter

For all sectors in the Oil and Gas Industry

ELeaktra™

Syntechsys Partners with Sigma for the deployment of the Eleaktra Pipeline Field Trial Solution in NPDC

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RC NO: 474550

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