



## East Africa – Case Study

SMS Provides Solar Powered, Wireless Acoustic Sand Monitoring Solution to Offshore Wellhead Platforms in East Africa



### Key Facts:

Many offshore oil and gas wells producing high rates of sand or solids are not being monitored for sand production due to the lack of power and communications connectivity.

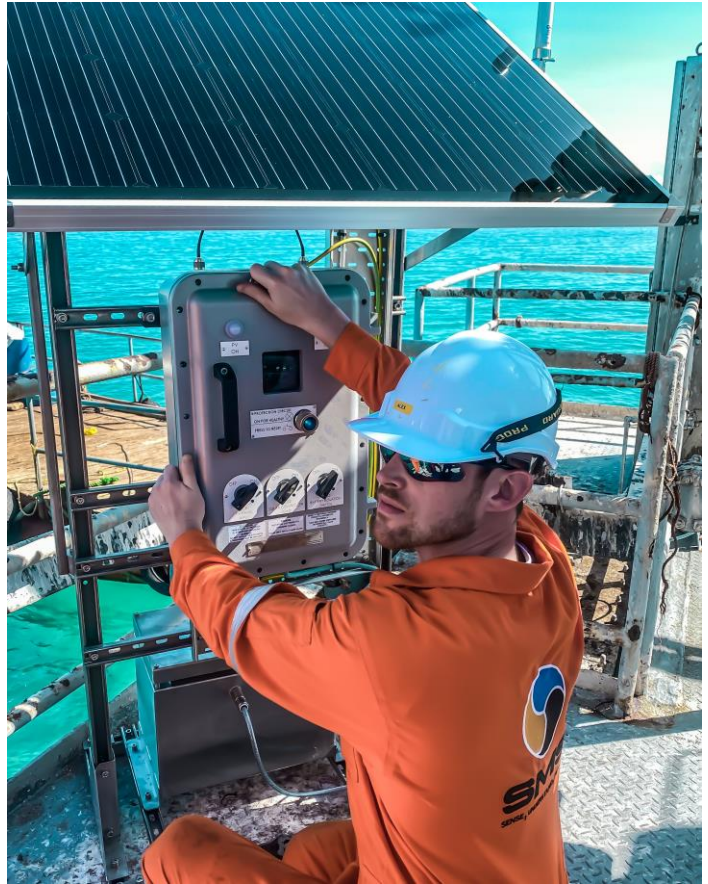
Remote well sites or wellhead platforms often comprise only local indication devices for metering, making real-time monitoring from central control rooms impossible.

The real-time Acoustic Sand Monitor detects instantaneous sand production in pipelines and transmits this data back to the operator's DCS/SCADA. The instruments however require a 24VDC power supply and communication tie-in point to do this.

SMS' solar powered, wireless Acoustic Sand Monitoring solution overcomes this problem by providing a local autonomous power source with integrated cellular data transmission capability.

**Location:** East Africa

**Industry:** Oil & Gas



### Problems:

- Geomechanics study conducted in 2020/2021 suggests the imminent onset of sand production
- No Sand Monitoring technology in situ
- Monitoring system must be non-intrusive / clamp type so as not to interrupt the process
- Due to the high chance of deposition, monitoring devices are required upstream / at wellhead location
- No power or communications available at wellhead locations
- Solution must be fully autonomous
- Solution must be modular & mobile for relocation between well sites

### Challenges:

- Turnkey solution required without pre-commissioning survey
- In-house development of software solution to receive TCP/IP data over Cellular 4G
- Solar power generation with a minimum three (3) days autonomy



Sense



Understand

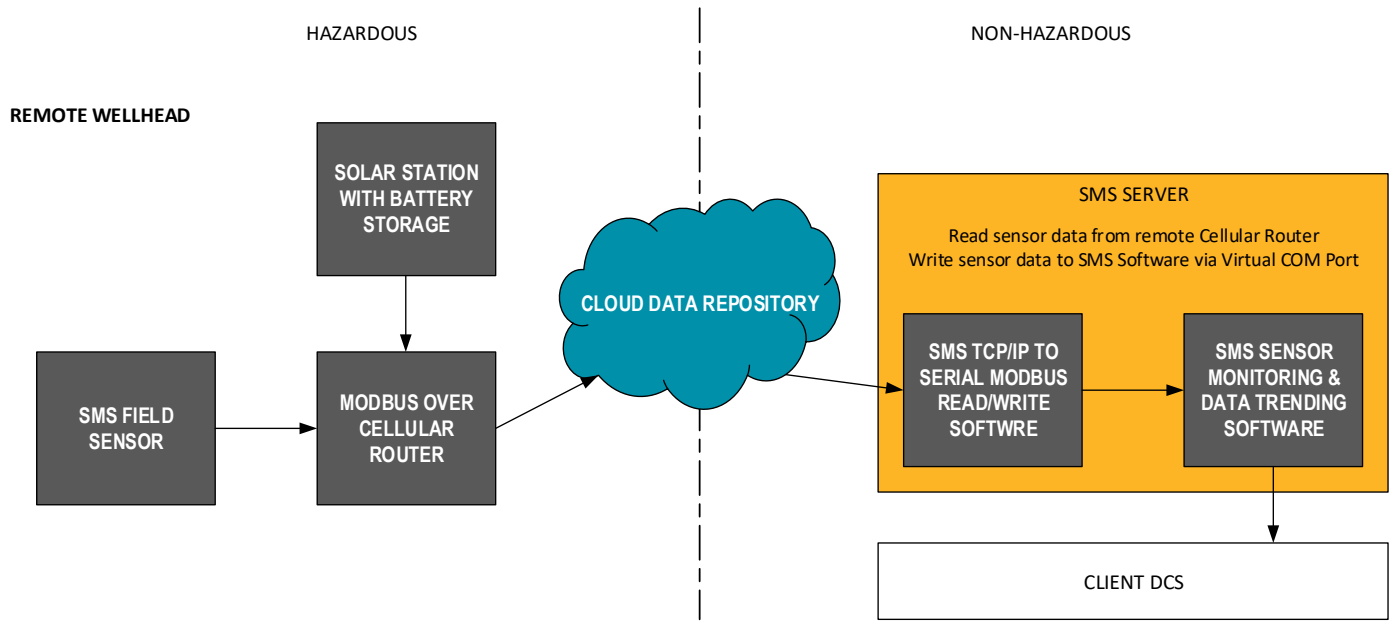


Perform

# Solar Powered, Wireless Acoustic Sand Monitoring Solution

## Solution:

- Transportable solar station with battery storage capability designed, built, and factory acceptance testing in UK - surpasses stress test criteria for three days of autonomy in darkness
- EEx d control panel designed and assembled with integrated sand monitoring and MODBUS over cellular technology
- High gain EEx rated antennas supplied with dual redundancy for uninterrupted data transmission
- In-house software developed to read TCP packets over cellular 4G and hand-off to SMS SMART software via serial MODBUS – tested fully functional
- Sand PC configured with cellular TCP read/write software and SMS SMART software
- SMS SMART software configured to hand-off sand data to client DCS in real-time



## Results:

- Non-intrusive Acoustic Sand Monitor installed on flowline at remote wellhead (offshore)
- Solar station installed adjacent to Acoustic Sand Monitor and positioned for optimum solar hours
- Sand PC installed in client CCR and connected to DCS module
- Wireless router successfully reads and transmits sand data over 5km to sand PC
- Sand PC successfully reads TCP data over 4G and hands-off to SMS SMART
- Sand PC successfully integrated with client DCS
- System fully commissioned and site acceptance tested within the allocated timeframe
- Training and handover to site reps with the provision of health checklists, SOPs, and software familiarisation
- Sand data for remote wells trending and logging both at Sand PC CPU and client DCS
- Client provided with full coverage and visibility of well sanding tendencies, clean-up duration, critical drawdown, and Maximum Sand Free Rates (MSFR)

### UK Head Office

Energy Development Centre  
Aberdeen Science & Energy Park  
Claymore Drive, Bridge of Don  
Aberdeen, Scotland AB23 8GD

Tel: +44 (0) 1224 853 525

Fax: +44 (0) 1224 707 999

Email: [info@smsintegrity.com](mailto:info@smsintegrity.com)

### Malaysia Office

SMS Sand Management SDN BHD  
26th Floor, Menara Maxis  
Kuala Lumpur City Centre  
50088 Kuala Lumpur, Malaysia

Tel: +60 (0) 3 2615 2606

Fax: +60 (0) 3 2615 2699

Email: [info@smsintegrity.com](mailto:info@smsintegrity.com)



## Value to Client:

- **Remote Location Monitoring**  
Early identification of sanding events from remote wells
- **Real-time**  
Immediate data availability, for dynamic and informed decision making
- **Reduced Cost**  
Minimal personnel and maintenance required
- **Repeatable and Reliable**  
Reliable method of tracking sand production

Contact us at [info@smsintegrity.com](mailto:info@smsintegrity.com) or click [here](#) for more details on our services.

### UK Head Office

Energy Development Centre  
Aberdeen Science & Energy Park  
Claymore Drive, Bridge of Don  
Aberdeen, Scotland AB23 8GD

Tel: +44 (0) 1224 853 525  
Fax: +44 (0) 1224 707 999  
Email: [info@smsintegrity.com](mailto:info@smsintegrity.com)

### Malaysia Office

SMS Sand Management SDN BHD  
26th Floor, Menara Maxis  
Kuala Lumpur City Centre  
50088 Kuala Lumpur, Malaysia

Tel: +60 (0) 3 2615 2606  
Fax: +60 (0) 3 2615 2699  
Email: [info@smsintegrity.com](mailto:info@smsintegrity.com)