



SHELL IN NIGERIA **GAS FLARING**

APRIL 2011

Why it happens

In many oil fields, large volumes of gas are produced with crude oil when it is brought to the surface. This is particularly true in the Niger Delta where much of the oil has a high proportion of this 'associated' gas. When The Shell Development Company of Nigeria Limited (SPDC) first built many of its production facilities in the 1950s, there was little demand or market for gas in many parts of the world, including Nigeria. So, associated gas (AG) was usually burned off safely – a process called flaring. This remained accepted industry practice as SPDC established a major oil operation across the Niger Delta.

Since then, demand for gas in Nigeria and other countries has grown. Technology to harness, liquefy and export natural gas to distant markets has become commercial and climate change has become an increasingly important issue. Today, most people agree that continuous flaring of associated gas must be reduced significantly. It contributes to greenhouse gases that cause climate change and it is a waste of resources and revenue. SPDC and its joint venture partners are committed to ending the routine flaring of gas as soon as possible and are working towards that goal. To that end we have designed all new facilities since 2000 to have no continuous flaring.

What is Shell doing to stop flaring?

In 2000 the SPDC joint venture (JV) began an ongoing multi-year program to install equipment to capture gas from its facilities. This program has been delayed by events outside SPDC's control, such as funding shortfalls from NNPC (the government-owned majority shareholder of the JV); security concerns which meant it was not safe for staff to work in large parts of the delta for long periods of time; and delays in NNPC contract approval processes. Despite the delays, between 2000 and 2009 SPDC installed associated gas gathering (AGG) infrastructure at 33 sites, covering over 60% of its associated gas production. Unfortunately, 18 of these facilities were either vandalised or not commissioned because of the crisis in the delta in recent years. In total, SPDC flaring dropped by more than half between 2002 and 2010 from over 0.6 billion cubic feet a day (bcf/d) to less than 0.3 bcf/d, although production losses contributed to this decline.



Aerial view of Gbaran Ubie Integrated Oil and gas Project

In 2010, security improved in the delta and funding became available. This allowed the SPDC JV to resume work on many delayed projects and start new ones. By mid January 2011, three of these additional sites had been completed (bringing the total number of SPDC sites with AGG facilities to 36) and work was underway at a further 17. When complete, these projects will extend AGG coverage to more than 90% of the associated gas produced in our operations. SPDC estimates the entire AGG program will cost around six billion dollars when complete.

Associated Gas Development Scheme

SPDC is working to find alternative solutions for the remaining facilities which represent less than 10% of SPDC associated gas production potential. It is partnering with the Nigerian government and the World Bank to identify suitable Nigerian investors that would collect associated gas from flare sites for small scale local projects. Over 30 potential investors have indicated their interest in this scheme and SPDC is supporting the screening and selection processes. In addition, SPDC is providing financial, logistical and technical support to the Living Earth Foundation in a pilot project for small-scale projects that will use gas to provide power for communities living near flare sites.



Where SPDC continues to flare, it complies with the law. The Minister for Petroleum has the power to permit companies to flare on agreed terms and conditions. The only way to end flaring at flare sites without AGG equipment would be to stop oil production. This decision cannot be made by SPDC without direct support from other JV partners, including the government-owned majority partner NNPC. In a letter dated 31 December 2008, the government directed SPDC and other oil companies to continue with production (and therefore flaring) until instructed otherwise.

Helping create demand for Nigeria's gas

Harnessing gas is only half of the story; gas needs customers as well. SPDC was the first company to supply gas inside Nigeria in the 1960s. This helped provide fuel to industry and generate electricity at a time when the country began diversifying the economy. In the 1990s, SPDC helped to pioneer the Nigeria Liquefied Natural Gas (NLNG) plant on Bonny Island – one of the largest consumers of gas in the country which supplies LNG to customers around the world. Today, SPDC still supplies over 70% of the domestic gas market, mainly for power generation, and continues to increase its contribution. In 2008, SPDC began producing electricity from the new Afam VI power plant using gas from SPDC's Okoloma gas plant which opened in 2008 and has the capacity to increase the nation's gas supply by approximately 20%. And in 2010, SPDC began producing oil and gas from the Gbaran Ubie integrated oil and gas plant in Bayelsa State. This plant is helping reduce continuous flaring of associated gas from nearby fields. To encourage further investment and to boost the supply of gas to domestic consumers, Nigeria needs a comprehensive and flexible gas infrastructure that allows for distribution to various customers. It also needs a stable fiscal and robust commercial framework to make it profitable for investors. SPDC is working with government and other operators to help develop this framework.

Health

In general, flares were originally located away from where people were living. However, attracted by economic opportunities, communities have since grown around some areas of our operations. SPDC flares are designed to be clean (smokeless) and in walled environments with no radiation impact outside the walls. The World Bank published a report in 1995 'Defining an Environmental Strategy for the Niger Delta', which found that the environmental and health impact of gas flaring was low and that Nigeria's oil (and therefore gas) has some of the lowest sulphur levels in the world. The report concluded that any negative effects of flaring were confined to the immediate vicinity of the flare and would have little or no impact on the health of the local population.

SPDC has monitored ambient air quality pollution levels around its flare sites since 1998 and reports the results to government authorities regularly as required by Nigerian law (EGASPIN 2002). SPDC monitoring data shows air quality around SPDC flare sites complies – with occasional temporary exceptions – with air quality standards under EGASPIN 2002. Overall, these standards are equivalent to international air quality standards followed in the EU, the US and those set by the World Health Organisation. Monitoring work is carried out by licensed and competent independent contractors. SPDC recognises the importance of addressing local communities' perceptions and concerns about flaring. Thorough consultation is an integral part of SPDC's Environmental Impact Assessment (EIA) process and is done for all major projects. All such consultations are done with the full participation of government regulators and SPDC publishes EIA reports online.

More information on the operations of Shell companies in Nigeria can be found at www.shellnigeria.com

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