



UIG FLARING GOR CONTROL WAIVER

Serial No.: CAWC/001^a

Date: 2015^b/05^c

Category^d: Excess of GOR limit (3*RSI or 5,000scf/b) ☐

Compressor-system outage ☐

NAG Flaring ☒

AG flaring ☐

Others ☐

Waiver Start Date/Time: 20-Feb-2015

Waiver End Date/Time: 13-Apr-2015

Facility Name	Bonny Gas Plant (BONN 30, 31 & BONT 03, 04)
Flare (or AG) Volume ^e (mmscfd)	16.5
Associated Oil Production ^f (Mbopd)	1.8
Reason for flaring (or HGOR production)	<i>To enable successful execution of the clean-up and MRT proposed on the 4 newly drilled wells. The flaring will be temporary, and will only be necessary when the well being tested is producing below 35MMScf/d during the clean-up/MRT, which is the minimum throughput for BNAG plant stability. The flaring would be for only 4 days out of the entire 46days campaign, refer to attached schedule and flare calculation/profile. The 4 gas wells have a combined potential of 150 MMScf/d. A total of about 66 MMscf of gas is expected to be flared from the 4 gas wells.</i>
Justification for waiver request	<ol style="list-style-type: none"> The clean-up of the 4 Bonny NAG MRD wells prior to their production will ensure the protection of facilities in the gas plant and maintenance of customer specifications in gas supply by; <ul style="list-style-type: none"> Acidizing the completion intervals and thus dislodge mud filter cake. Evacuating wells of drilling and completion fluid and other debris. The MRT Tests for the 4 gas wells is carried out as part of effective well and reservoir management and to meet statutory requirements by; <ul style="list-style-type: none"> Acquiring baseline bottom-hole pressure and temperature data. Evaluating the baseline reservoir properties such as <i>k</i>, <i>kh</i>, <i>skin</i>, non-Darcy <i>skin</i> and absolute flow potential. Acquiring surface production data to facilitate further evaluation of well performance. <p><i>Estimated time is 6 weeks.</i></p>

	Originator: Asset/Project/Area Dev. Mgr	Agreement: GM/Lead - (Asset/Project/Dev.)	Supported (SCiN only): Manager, Flared Gas
Name	Everitt, Tom	Kulawski, Grzegorz	Akosa Obi
Job Title	Development Manager, Onshore	GM Onshore Assets	Production Services Manager
Signature			
Date			

Approved by the GM Production:

Signature and Date:.....

Distribution List :

Gabon: Signatories + Asset Lead/Technical Manager/Operations Manager/Finance Manager/Head of Production Programming/Senior Production Programmer/Head of Planning & Economics/Head of HSE

Nigeria: Signatories + Operations Manager/Senior Operations Support Engineer/Senior Gas Accountant/Senior Programmer/Maintenance Systems Manager/ Production Surveillance and Support Manager.

^a The request number specify district reference indicator and serial number from 001

^b The year of the request

^c The month of the request

^d Please tick the appropriate box

^e please specify amount of gas to be flared per day

^f please specify potential net oil per day that would have been produced if the gas is flared

APPLICATION FOR FLARING WAIVER

BACKGROUND

Four wells (see Table below) were drilled in 2013/2014 as part of the Bonny NAG Minor Reservoirs Development (MRD). Flow line construction and hook-up have been completed for 2 of the wells (BONN030 & 031) while construction is in progress for the remaining 2 (BONT003 & 004) with LEC of 27th February 2015. To bring these wells into production, cleanup and Multi-Rate Test (MRT) need to be carried out.

The cleanup involves acidizing the completion intervals to dislodge mud filter cake. The acid, drilling/completion fluids and other debris will be back-produced to tank. The proposed MRT is aimed at determining the optimal gas rate (well deliverability) for each BONNY NAG well-draining the minor reservoirs; to facilitate effective well and reservoir management of the BNAG Asset by obtaining necessary data as well as to meet statutory requirements and WRFM Minimum Standards. The results of the test will also be used in determining the optimal liquid handling sizing of the plant.

The strategy for the clean-up/MRT is to export most of the produced gas during the planned testing period, but flaring will be necessary when each well is produced below 35MMScf/d during the clean-up/MRT, which is the minimum throughput for BNAG plant stability.

APPENDIX FOR FLARE WAIVER

The bulk application was initiated to reduce man hours spent on endorsing applications for Flaring/HGOR waiver. The waiver request is for 4 gas wells, scheduled for Well clean up and Multi Rate Testing (MRT). A total volume of ca. 95 MMscf of gas will be flared from these 4 wells over a period of 6 weeks. The estimated volume to be flared from each well is shown in Table 1 below.

Table 1

S/N	ASSET	FACILITY	CONDUIT	VOLUME OF GAS TO BE FLARED (MMscf)	JUSTIFICATION FOR WAIVER
1	BONNY	BNAG PLANT	BONNY 30	16.7	Waiver is required to carry out the well clean-up and MRT for newly drilled NAG wells.
2	BONNY	BNAG PLANT	BONNY 31	42.2	
3	BONNY NORTH	BNAG PLANT	BONNY NORTH 03	19.2	
4	BONNY NORTH	BNAG PLANT	BONNY NORTH 04	16.3	
TOTAL				94.3	