Position Paper: Need to expedite Soku AG-2 control upgrade

BACKGROUND

Soku Gas Plant (SGP) is a facility designed to process and export Non-Associated Gas (NAG) from Soku field and Associated Gas (AG) from other stations.

The Soku Gasplant AG solution was originally designed as a 3 X 65mmscfd turbine driven compressor system (AG1, AG2 and AG3). Due to the depleting pressures in the gas wells, AG1 was taken out, redesigned and dedicated for NAG compression leaving only AG2 & AG3 for AG Solution. Ref. appendix 1.

AG COMPRESSION SYSTEM

The AG compression system is currently operating with only one unit (AG2). Work is currently ongoing to reactivate AG3 which has been down since 2007.

The NAG compression project undertook to upgrade the associated control systems of all 3 compressor units - from obsolete Mark-II system to Mark VIe, which is the most recent GE developed control systems for gas fired Turbine drivers. To date AG-1 (now converted for NAG compression) and AG-3 control systems have been upgraded (but mechanical works still outstanding). AG2 upgrade is scheduled in September 2015 due to business exigencies.

CURRENT SCENARIO

AG-2 control platform is Rustronic MKII which runs on windows 3.1 technology just to enhance display on the HMI. Its main program, the RP2 is 'DOS' based.

AG-2 has been down since 24th May, 2015 post 4k inspection and has been impossible to reinstate till date. Issues have been largely due to unstable Mark II controls, limited OEM support worldwide, and lack of spare cards for replacements. This leaves SGP without compression units for AG supplies from the outstations at the moment.

COMMENTS

The only available Rustronic FSR will not be available on site until end August 2015. This defeats the very purpose of delaying the control upgrade till September 2015. Moreover, the upgrade contractor-GE is currently on site and planned to be demobilized from site in August. It will be strategic therefore, to review planned upgrade schedule to harness value to the business.

JUSTIFICATION TO EXPEDITE UPGRADE

It is unpredictable when AG-2 will be restored. It has therefore, become imperative to allow the immediate upgrade of the control system and restore unit to full functionality. This will in effect optimize the usage of the Vendors who are currently on site and available to carry out the upgrade work.

TECHNICAL

There are no new technical challenges as Engineering for the upgrade is already concluded and factory acceptance tests done for the new control system.

Upgrading to Mark VIe is OEM recommendation control systems. The currently installed obsolete system is prone to incessant failures, spares unavailability and lack of technical supports.

SOLUTION OPTIONS & BUSINESS IMPACT

Option1 - Continue repair efforts and execute planned Upgrade in September

If the status quo is maintained, there is an 80% chance of AG2 remaining unavailable until the planned September upgrade concludes in November 2015 (6 months total outage). With the resultant effect of continued loss of revenue through flaring of ca 30mmscfd AG from the Nembe Axis (Aiteo) and ca 6mmscfd flash gas from Soku GP process (SPDC) throughout the entire period, there is also the associated environmental impact and our potential loss of reputation as a trusted Operator in the eyes of our customer Aiteo.

Option 2 - Bring planned forward by 3 months

If we commence the AG2 Controls upgrade in July (feasible based on Men, Money and Materials availability) we potentially could reduce the total downtime of AG2 to 3 months which is about the time needed to complete the subject upgrade and commission the system. Overall impact is reduced by ca 50% when compared with the first Option. Ref. appendix 2.

CHANGE MANAGEMENT

No new change control is required as project already obtained change approval for the change from Mark II system to the proposed Mark VIe.

REQUEST:

Management approval is required for:

- To immediately progress AG-2 Control Systems upgrade.
- Waiver to flare ca 30mmscfd (Nembe axis) and ca 4mmscf (Soku flash gas) during the upgrade period (8weeks) Not Supported. Flaring in the system should be reduced to capacity of AG3. Consider bringing forward oil facility shutdowns.

Impact of not upgrading now, will be indefinite flaring of same volumes due to non-availability of AG-2.

SIGNED

AGG Impr. Manager

M&I Manager

16:07:2015

Asset Mgr Swamp East

P.P. J. JONZOM

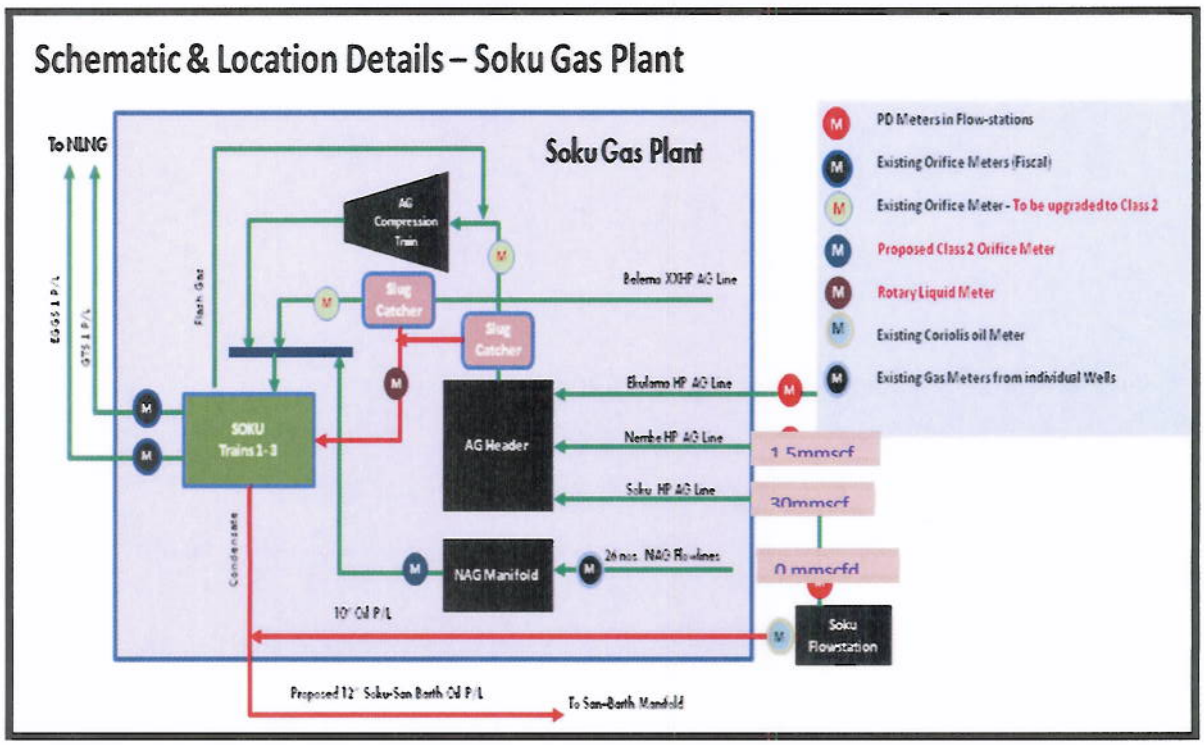
GM Onshore

OPTION 2

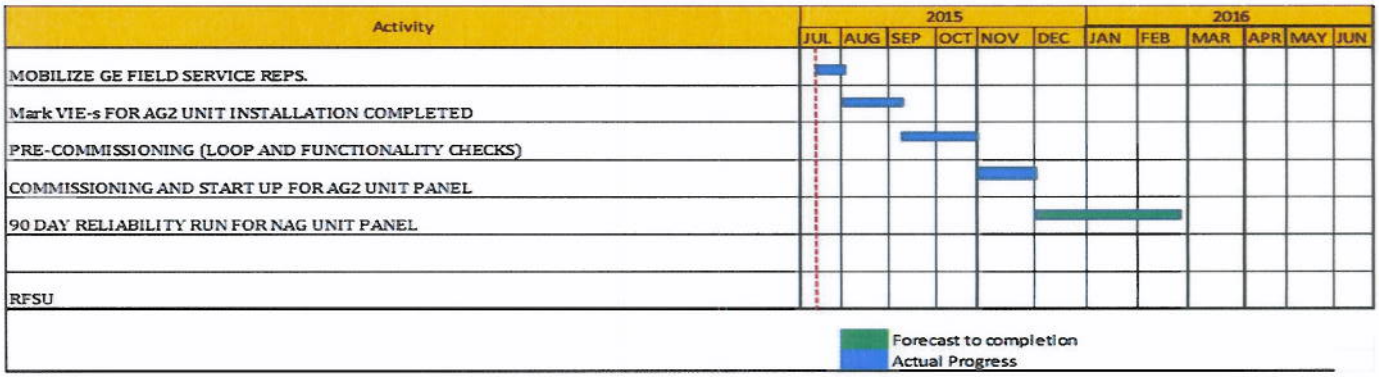
PS Manager

GM Production.

Appendix 1 – AG Schematic



Appendix 2 – AGC 1-3 Mark-VIe project schedule



NOTE:

This schedule is based on the following assumptions:

1. **If you give us the AG2 by mid July 2015 (July 15 is mid-July)**
2. **GE FSRs need 2 weeks minimum to mobilize to site**
3. **Estimated duration for AG2 installation and pre-comm. is approx. 90days, assuming very little complications; and this does not include commissioning (approx. 30 days), start-up & reliability run test (90 days), which altogether is about 210 days.**
4. **Also note that reliability run test may now run into 2016, prompting contract extension for GE contract which ends in 2015.**
5. **Also note that Alcon may need some time to engage new technicians as the current personnel will be fully engaged within this period completing the Instrument scope for NAG Compression which is ramping up to peak level and final commissioning the NAG systems**