IPPC Permit Renewal
Variations

1. SUMMARY

This document provides an overview of the variations that shall be put forward for the upcoming renewal process of IPPC permit IP 0002/07/Gi – ElectroGas Malta Ltd

2. DESCRIPTION OF VARIATIONS

A.

This variation has been withdrawn from this application process.

B. Ship-to-Ship transfer - LNG offloading

In order to ensure that inventory levels aboard the FSU will always satisfy Malta's security of supply requirements and the scheduling requirements of EGM and Enemalta, EGM will at times require to offload a volume of LNG stored in the floating storage unit 'LNG Armada Mediterrana', onto an LNG carrier.

The offloading operation will be from the FSU to an LNG carrier ("LNGC"), the same as the LNGC that visits Delimara to replenish the FSU's LNG reserve. Moreover, all procedures followed, as well as the safety and security arrangements will be the same as any other ship-to-ship transfer operation that is regularly carried out at the terminal.

The HAZOP conducted by OSL consulting engineers in November 2020 (OS-0928-OSLI-HRP-0001-D00) on this operation concluded the following:

"*EGM intends to extend the operational scope at the FSU to add flexibility to the LNG delivery scheduling and to limit the risk of excess LNG stock and security of supply to the Gas Facilities. From the FSU perspective, this new operation will involve reverse LNG flow to a visitor cargo. Depending on the state of the LNG visitor cargo, three different operations are foreseen; gassing up, cooling down and LNG offloading of small volumes of LNG. Each of these operations have been risk assessed within this HAZOP workshop. The HAZOP is conducted on the basis that there will be simultaneous send out to shore.*

The existing Safety Studies and other operational permits for the Project did not consider any reverse flow to any visitor cargo; however, the FSU systems in place are designed for it as it is a common shipping operation. This new operation requires a minor software modification to the ESD Cause & Effect matrix and there is a Management of Change (MOC) which the designer company will implement."

C. Glycol expansion tank upgrade

An additional expansion tank was installed to reduce pressure fluctuations within the glycol loop. The tank has been placed inside the bunded areas within the Regasification area.

D. Improved Power Supply Feeder

In order to reduce the dependency on the previously sole powerful existing power supply feeder to the regasification plant, a second robust supply was installed. This was executed through the upgrading of the existing 11kV circuit-breakers on unit no. 52 power generator, within the combined cycle power plant and an installation of a transformer at the Regasification Plant. Cables were run between the upgraded 11kV circuit-breakers and the new transformer to feed the Regassification plant - replacing the existing weak feeder. This activity was exempted from requiring development permission.

E. Addition of FSU Boil-Off Gas Attemperator

The Boil Off Gas attemperator is a nozzle which sprays LNG into the Boil Off Gas to cool it before it is sent to the BOG recovery compressors.

At present we cannot stop and start the compressors at the ideal temperature, so we are required to keep the compressors running to avoid undue wear on the compressor pistons. This continuous running increases maintenance and operating costs.

The initial engineering phase during which the tie in points, instrumentation and control systems are defined, has been completed. The next stage will include the detailed design.

F. Improved bunding of make-up water glycol tank

The current make-up water glycol tank was moved to the main bunded area within the Regasification plant, such that the present bunding of this tank is improved. This move will further reduce the risk of groundwater contamination.

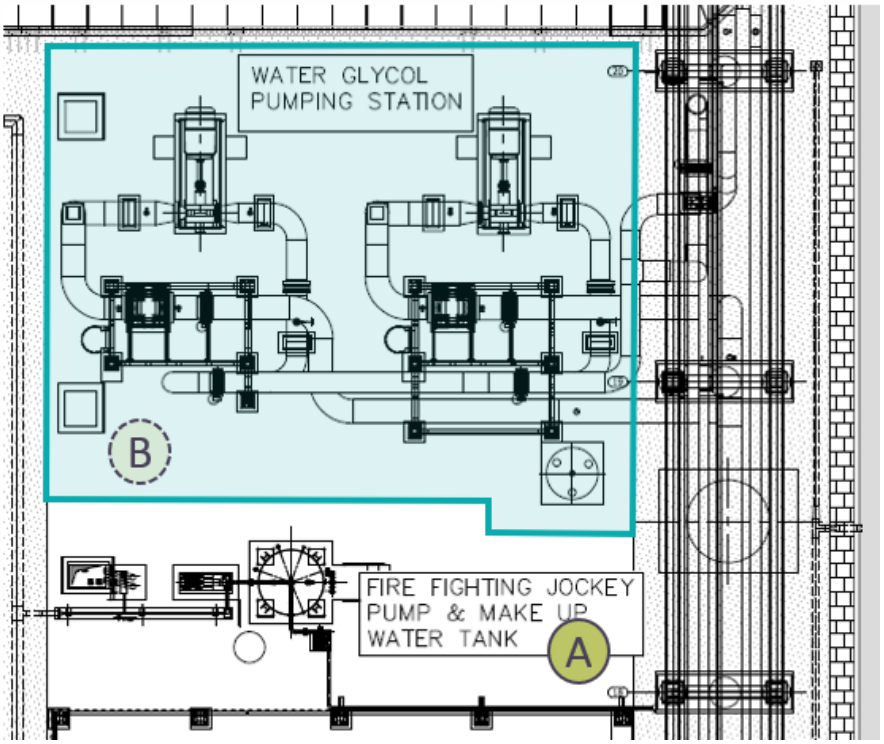

Figure 1 - Site plan showing current (A) and planned location (B) for make-up water glycol tank. Shaded area represents the main Regas bunded area.

G.

This variation has been withdrawn from this application process.

H. Introduction of Oily Water Separator at Regasification Site

An above ground oil water separator was installed in the regasification area, the purpose of which is to receive wastewater generated from the operational activities of air compressors. The effluent is monitored and if compliant it is discharged in outlet point number 6.

I. Oil Boom

A 300-meter oil boom has been installed on the quay adjacent to the Delimara 4 portacabin offices. This oil boom allows for quick and efficient deployment in case of an oil spill within our sea area.

Figure 2 - Oil boom installed on the quay adjacent to the Delimara 4 portacabin offices.

J. D4 Portacabin Offices Sewage Collection

Previously, the sewage generated from the restrooms located in the portacabin offices in the Delimara 4 area was being collected in an above ground sewage tank which was emptied periodically by a sewage waste collection contractor. These D4 portacabin restrooms have now been connected to the municipal sewer discharge point.

The latest Public Sewer Discharge Permit issued for the sewage point in the D4 area was issued in August 2020, subject to the quarterly monitoring of FSU grey water.

K. Installation of Chemical Stores used in plant operation/maintenance (at both generation and regasification sites)

Two 20-foot containers were placed on site as shown in the site plan below, in order to be utilised as chemical stores within the Delimara 4 area.

Figure 3 - Image showing the chemical store containers in D4 area.

A COSHH locker was also installed for the safe storage of chemicals within the Regas area.

Figure 4 - COSHH locker installed in Regasification area.

L. Installation of office facilities

A total of sixteen 20-foot portacabins have been installed in Delimara 4 area to be used as offices. The portacabins have been placed such that a row of 8 units placed adjacent to each, are stacked on top of another row of 8 units. Layouts of the ground floor and the 1st floor are shown in Figure 6, whereas Figure 7, shows the location of these portacabins. Planning Authority's decision to grant permission for these offices (PA/04297/18) was posted on 17th November 2018, with commencement date being 10th December 2018.

Figure 5 - Image showing the Delimara 4 Portacabin Offices.

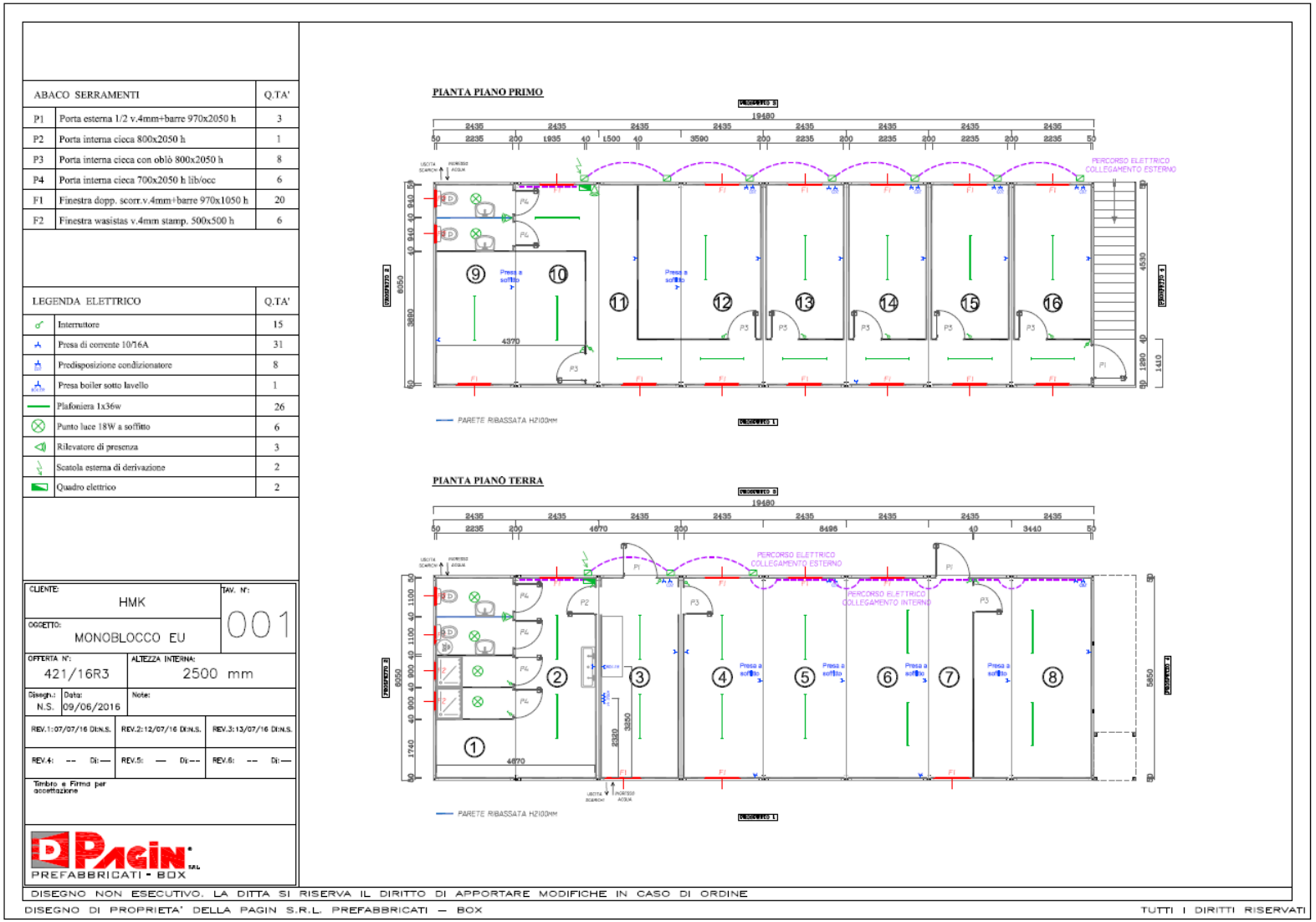

Figure 6 – As-built plans of the Delimara 4 Portacabin Offices.

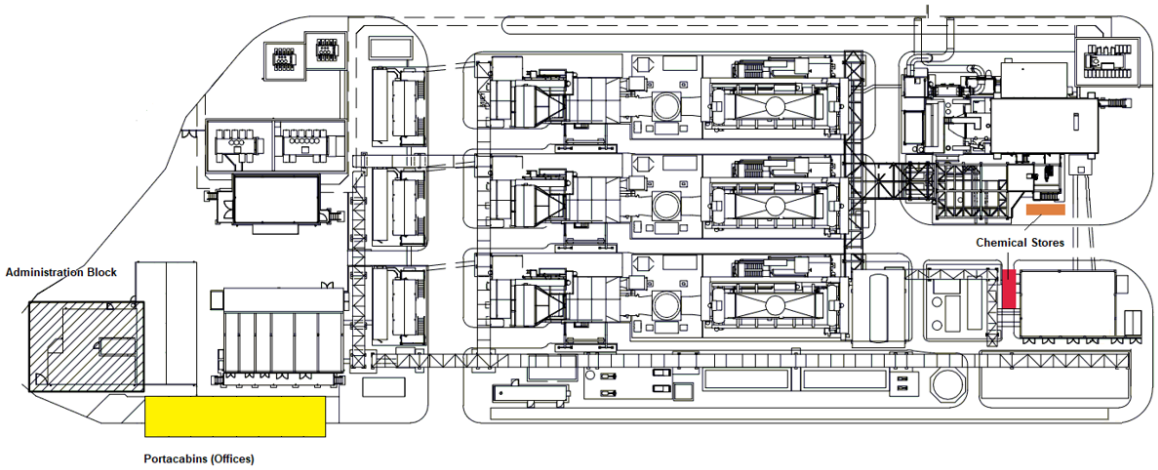

Figure 7 - Site plan of Delimara 4 area showing the locations of the Portacabin Offices (yellow) and the Chemical Stores (red & orange).

A new modular office building was installed in the Regasification area and is composed of 16 modules distributed over two floors, the arrangement of which is shown in Figure 9. The installation of cabins in the re-gasification area together with storage containers (PA/04118/18), was granted permission by the Planning Authority, with 12th November 2018 as the commencement date.

Figure 8 - Regasification portacabin offices.

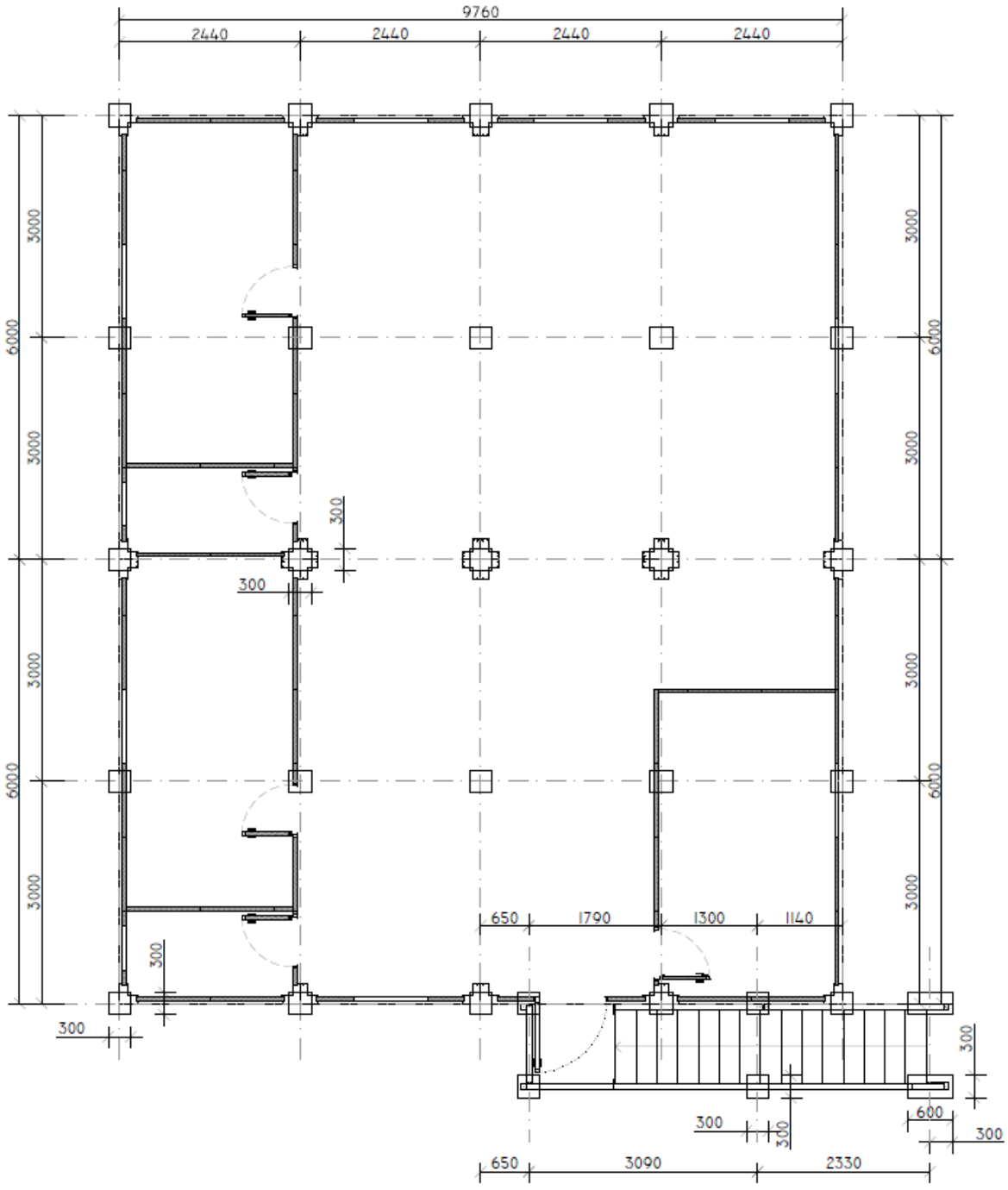

Figure 9 - Layout showing the portacabin arrangement of Reganosa offices.

M. Installation of A/C units and updating of F gas register

Several new air-conditioning units were installed around the Delimara Power Station. This is reflected in the Register of Ozone Depleting Gases EGM-HSE-EMR-06.

N. Upgrade to reflect changes in fire suppression systems in line with regulations

Currently the local control room of each of the three gas turbines and the 2nd CWP electrical container, have smoke detectors, but are not equipped with a fire suppression system.

Plans for the installation of an IG-55 Argonite fire suppression system in each of the three GT control rooms and the 2nd CWP electrical container are being drafted.

Furthermore, electrical buildings within the regasification area are equipped with an FM200 fire suppression system. In light of the reduction of HFC gas quantities as per EU F Gas Regulation 517-2014, alternative options are being investigated to replace FM200.

O. New cooling water pump

A second main cooling sea water pump, identical to the present one was installed in order to increase the reliability of the Steam Turbine through redundancy to improve security of supply. This additional pump did not increase volume flow.

This main cooling sea water pump replaced decommissioned D1 equipment.

P. Removal of AST and QAL 2 testing requirement for GT bypass stacks

The original design of D4 Plant consisted of one Continuous Emission Monitoring System (CEMS) installed on each main stack only since operation in open cycle was expected to be only for a very limited number of hours per year. Because of the time difference between Open Cycle (OC) taking over and Combined Cycle (CC) taking over, ERA had asked for CEMS readings on the bypass stacks as well during this period. This was achieved by having only one CEMS equipment but exhaust sampling switching over from main and bypass stack and gas sample conditioning system.

Back in July 2018, EGM asked ERA for a derogation from the IPPC permit to perform ASTs and QAL2 testing of the bypass stacks. In theory the emissions from the main stack and the bypass stack should be the same since there is no emission abatement equipment installed downstream the gas turbines and the only emission abatement technology used is the Dry Low NOx Burners. This was verified through the ASTs that were performed on all stacks in January 2019. The results showed that with one correction curve in EMIDATE (software for collection and processing of raw emission data) the ASTs passed on both the main and bypass stacks. These results have been shared with ERA in April 2019.

EGM also points out that Open Cycle operation is very limited; 115hrs GT51, 88hrs GT52 and 113hrs GT53 (period Aug 2018 to Aug 2019). These are well below the 500hrs specified in Directive 2010/75/EU which states that ”*Gas turbines and gas engines for emergency use that operate less than 500 operating hours per year are not covered by the emission limit values set out in this point. The operator of such plants shall record the used operating hours”*. Besides, to perform ASTs/QAL2 on bypass stacks EGM will have to operate in Open Cycle mode just for these tests. This has a negative impact not only on efficiency but also to the environment – more CO2 emissions per unit of power dispatch, which could be avoided.

Following the above EGM again asks ERA to reconsider the requirement to perform ASTs and QAL2 on the bypass stacks. The AST and QAL2 calibration of the main stack will cover for that of the bypass stack.

Q. Cooling water mixing chamber

The cooling water mixing chamber was created to permit the connection of the D4 seawater piping to the main outfall using the D1 seawater pipes.

In light of the fact that the D1 plant is now fully decommissioned, the mixing chamber is now for the sole use of D4 and should therefore be recognised as such.

R. Inert Gas Generator

Reference is made to the Inert Gas Generator ("**IGG**") system on board the Floating Storage Unit, as described in section B1.2 Non-Technical Description of the original IPPC application (prepared by AECOM on behalf of ElectroGas Malta), and other supporting documentation. It has been noted during the FSU Class Certification processes and Environmental Management System auditing processes that the IGG system is not clearly referenced in the IPPC permit issued.

The IGG on board the FSU is a Sasakura Moss engine which operates at a 50% load at a rated thermal input of 7.2 MWth to generate inert gas through combustion of good quality fuel oil, to generate dry air having limited oxygen content after treatment through cleaning and cooling apparatus. Two main outputs as a result of this process are the air output into the tanks, that are eventually released to the air after use and the sea water outlet from the scrubbing system.