

## Angela Maria Pulis

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**From:** David Griscti  
**Sent:** L-Erbgħa, 28 ta' Marzu 2018 08:35  
**To:** Zammit Johann at IESC; Camilleri Jan at IESC  
**Cc:** Angela Maria Pulis; Abela Carmen at Enemalta  
**Subject:** RE: Updates to the air dispersion modelling

Dear Ing. Camilleri

With reference to our discussion I would suggest to consider 6 engines running on Gas fuel for the air dispersion modelling.

Considering these facts :

- Diesel fuel is used as an emergency fuel
- D3 is dispatched for 2/3 of the year with less than 6 engines during which all engines are generally shut down during the night
- It is expected to run even less during low season once Italy- Sicily interconnection is re-enforced
- Provided dispatch plans ( to be considered approximate ) as per below :

2018 FORECASTED MONTHLY DISPATCH			
	D3 Availability (MWh)	D3 Units Generated (MWh)	D3 Gas Consump. (MMBtu)
JANUARY	96,720	8,545	69,216
FEBRUARY	90,816	9,983	80,861
MARCH	110,112	42,068	340,755
APRIL	106,560	15,460	125,226
MAY	110,112	9,622	77,941
JUNE	106,560	1,861	15,076
JULY	110,112	57,434	465,213
AUGUST	110,112	81,750	662,179
SEPTEMBER	106,560	61,666	499,491
OCTOBER	110,112	16,105	130,452
NOVEMBER	106,560	0	0
DECEMBER	110,112	0	0

The table above shows that peak season would be August with 81,750MWH equivalent to 6.6 engines running continuously.

Thus, taking 6 engines kept in service on 24\*7 basis should be a model generating an averaged level of emissions more than the expected actual. However these would then make up for some Diesel fuel operations and the frequent engine starts and stops during which emission levels are higher [ Nox in particular until SCR dosing gets in operation – Engines operating on Gas fuel without Urea injection would have an emission Nox level of 220mg/Nm3 with urea we go down to under 50mg/Nm3 ]

As Ing. Zammit described, Auxiliary Boiler is used for just few hours sparingly. This we can proof from log of operating hours and if required even from actual burner operating hours ( burner goes on and off while boiler is in

service ). In future we intend to install more electrical jacket water heaters to avoid the need of putting Auxiliary Boiler in service.

Feel free to comment back.

Thank you



**Ing. David Griscti**

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**From:** Zammit Johann at IESC [mailto:johann.zammit@iesc.com.mt]

**Sent:** 28 March 2018 08:01

**To:** Camilleri Jan at IESC <jan.camilleri@iesc.com.mt>; David Griscti <david.griscti@d3pg.com>

**Cc:** Angela Maria Pulis <angela-maria.pulis@d3pg.com>; Abela Carmen at Enemalta  
<carmen.a.abela@enemalta.com.mt>

**Subject:** RE: Updates to the air dispersion modelling

Dear All,

In my opinion the auxiliary boiler shall not be considered as it will not be in operation if any of the DEs are in service.

Do we have to perform this exercise considering worst case scenario in normal operation or in emergency? ERA considers that in emergency gas will not be available and hence only the 4 df engines will run on diesel and no sg engines will be available.

Kind regards,  
Johann.



**Ing. Johann Zammit**  
General Manager

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**From:** Camilleri Jan at IESC

**Sent:** 28 March 2018 07:05

**To:** 'David Griscti' <[david.griscti@d3pg.com](mailto:david.griscti@d3pg.com)>

**Cc:** 'angela-maria.pulis@d3pg.com' <[angela-maria.pulis@d3pg.com](mailto:angela-maria.pulis@d3pg.com)>; Abela Carmen at Enemalta  
<[carmen.a.abela@enemalta.com.mt](mailto:carmen.a.abela@enemalta.com.mt)>; Zammit Johann at IESC <[johann.zammit@iesc.com.mt](mailto:johann.zammit@iesc.com.mt)>

**Subject:** RE: Updates to the air dispersion modelling

Dear Ing. Griscti,

Thanks, as I was not aware that ERA is considering diesel operation as an emergency fuel, in this case we agree that calculations should consider situation when all engines are running on gas fuel. On IPPC Framework Permit F we were asked to update this study twice, but on new IPPC Framework Permit G this was reduced to once.

So, for D3PG plant with whom should we correspond to be given go-ahead, for ERA submittal, regarding the mode of operation in which D3PG plant is going to be considered for this air dispersion modeling study update?

Please keep in view that if not opting for worst case scenario and instead considering the average dispatch demand or any other approach, an explanation for approach selected must also be given to ERA, in this explanation it would be beneficial to indicate how each release point is going to be considered e.g. Chimney D6D having both engines at MCR on natural gas. Another point worth highlighting at this point is on how release point Chimney D6E is going to be considered, my personal impression is that the auxiliary boiler is rarely in operation however, once again an explanation for this needs to be provided if D3PG intends considering auxiliary boiler in switched off mode for this exercise.

Extract from IP 0002/07/Gii – D3 Power Generation Ltd

**Table 2.2.1 Emission points to air**

Release Point	Source	Total Thermal Rating	UTM Co-ordinates <sup>[1]</sup>	
		MW <sub>TH</sub>	x-coordinates	y-coordinates
Chimney D6A	DPS6 (Diesel engines 1 & 2)	86	460,137	3,965,687
Chimney D6B	DPS6 (Diesel engines 3 & 4)	86	460,134	3,965,685
Chimney D6C	DPS6 (Diesel engines 5 & 6)	79	460,104	3,965,663
Chimney D6D	DPS6 (Diesel engines 7 & 8)	79	460,101	3,965,661
Chimney D6E	Auxiliary steam boiler	3.85	460,009	3,965,425

Extract from IPPC Framework Permit G

2.3.5.1 The Permit Coordinator, in collaboration with the Operators of the installation shall update the dispersion modelling study carried out by the Authority twice, using the data from the plant's air emissions monitoring systems, and ambient air monitoring data from Žejtun, Birzebbuga and Marsaxlokk (including the data collected as required by 2.3.5.2). The updated studies shall assess the dispersion of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, arsenic, cadmium, nickel, lead and vanadium and shall estimate the likelihood of there being any exceedances of the relevant limits laid down by S.L. 549.59 especially but not limited to the most sensitive receptor(s) in the prevailing wind direction within a 15 km radius. The Permit Coordinator shall submit to the Authority a proposed methodology for this study, which shall be to the Authority's satisfaction.

2.3.5.1.1 The proposed methodology to be submitted by end November 2017.

2.3.5.1.2 The study which shall include an assessment of the impact of closure and decommissioning of the Marsa Power Station and Delimara 1 plant and the conversion of the Delimara 3 plant to natural gas to be submitted by end June 2018.

Kind regards,  
**Jan Camilleri**

Ing. Jan Camilleri  
Professional Executive

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**From:** David Griscti [<mailto:david.griscti@d3pg.com>]  
**Sent:** 27 March 2018 16:21  
**To:** Camilleri Jan at IESC <[jan.camilleri@iesc.com.mt](mailto:jan.camilleri@iesc.com.mt)>  
**Cc:** Angela Maria Pulis <[angela-maria.pulis@d3pg.com](mailto:angela-maria.pulis@d3pg.com)>  
**Subject:** RE: Updates to the air dispersion modelling

Dear Ing. Camilleri

Actually its very unusual to have 4DF engines on diesel mode and 4SGs on gas. Another point is that ERA is considering diesel operation as an emergency fuel so it would not be recommended to propose diesel operation as base load situation.

I would say 4DF engines on gas and 4SG engines on gas would be more realistic.

At what time intervals does this modelling needs to be repeated.

The above is only my opinion. Feel free to comment back.

Best Regards



**Ing. David Griscti**

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**From:** Camilleri Jan at IESC [<mailto:jan.camilleri@iesc.com.mt>]  
**Sent:** 27 March 2018 14:54  
**To:** David Griscti <[david.griscti@d3pg.com](mailto:david.griscti@d3pg.com)>  
**Cc:** Angela Maria Pulis <[angela-maria.pulis@d3pg.com](mailto:angela-maria.pulis@d3pg.com)>  
**Subject:** Updates to the air dispersion modelling

Dear Ing. Griscti,

Prior to the start of the air dispersion modelling study update, ERA is asking for the mode of operation on which model calculations are going to be carried out e.g. worst-case scenario or combinations will be considered

depending on the average dispatch demand etc. For D3PG plant, what mode of operation do you think is best to consider for this exercise? In my opinion it is best to go for the worst-case scenario, which I believe is having 4 diesel engines running on natural gas and 4 diesel engines running on diesel oil, rather than going for the average dispatch demand, as having future changes in operation trends could question the applicability of such air dispersion modelling update.

Kind regards,  
**Jan Camilleri**



**Ing. Jan Camilleri**  
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<sup>[1]</sup> Zone 33s, datum ED 50, ellipsoid – Hayford International.