

 BANGLADESH GAS FIELDS COMPANY LIMITED.	 ZICOM	CONSORTIUM OF SINOPEC PETROLEUM ENGINEERING CORPORATION. AND ZICOM EQUIPMENT PTE. LTD.	
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ELECTRICAL CALCULATION SHEET

Doc. No: 252-0214-EMEL-CS00-0008

Job No.

: 252

Client

: BANGLADESH GAS FIELDS COMPANY LIMITED

Location

: LOCATION I

Item No.

: -

Description

: FAULT LEVEL CALCULATION




Project Title.




: 2 x 75 MMSCFD GLYCOL DEHYDRATION TYPE GAS PROCESS PLANT

Year Built

: 2015

A	2015.10.28	3	ISSUED FOR APPROVAL	AS	MH	VG
Rev.	Date	Page	Description of Revision	Prepared	Checked	Approved

	BANGLADESH GAS FIELDS COMPANY LIMITED		Electrical Calculation Sheet			CONSORTIUM OF ZICOM EQUIPMENT PTE LTD. AND SINOPEC PETROLEUM ENGINEERING CORPORATION			
USER			BANGLADESH GAS FIELDS COMPANY LIMITED			DOC NO		252-0214-EMEL-CS00-0008	
LOCATION			TITAS GAS FIELD, BRAHMANBARIA, BANGLADESH			SERVICE		FAULT LEVEL CALCULATION	
PROJECT			2 x 75 MMSCFD GLYCOL DEHYDRATION TYPE GAS PROCESS PLANT			TAG NO			
JOB NO			252 LOCATION I			QUANTITY			
Generator KVA Rating			345 kVA						
Line to Line Voltage			400 V						
Line to Neutral Voltage			230 V						
Full Load Ampere			497.98 A						
Genset Alternator Percentage Impedance			12.5 %						
Fault at zero distance/terminal						Fault at zero distance/terminal			
Full Load Amperes			498 A			Full Load Amperes			498 A
Multiplier,M1			8			Multiplier,M1			8
Fault at Generator terminal			3984 A			Fault at Generator terminal			5976 A
L-L Fault			3.98 kA			L-N Fault			5.98 kA
L-L-L Fault(AFC)			4.58 kA						
For BUSBAR B, C & D									
Fault at some distance from terminal						Fault at some distance from terminal			
Distance from terminal, L			430 ft			Distance from terminal, L			430 ft
No. of Conductor,N			1			No. of Conductor,N			1
Conductor factor,C			799			Conductor factor,C			799
Factor,f			9.2839			Factor,f			27.9663
Multiplier,M2			0.0972			Multiplier,M2			0.0345
Fault after 1st distance			388 A			Fault after 1st distance			206.18 A
L-L Fault			0.39 kA			L-N Fault			0.21 kA
L-L-L Fault(AFC)			0.45 kA						
Note			Formula						
Reff. Drawing: 252-0214-EMEL-DW00-0008-I POWER DISTRIBUTION SYSTEM FOR LOCATION I			For L-L Fault			For L-N Fault			
For conductor factor, C reff. document is attached									
FLA=Full Load Ampere			$FLA_{L-L} = \frac{KVA\ Rating \times 1000}{L-L\ Voltage}$			$FLA_{L-N} = \frac{KVA\ Rating \times 1000}{L-N\ Voltage}$			
AFC=Available Fault Current			$Multiplier, M1 = \frac{100}{\% \text{ Percent Impedance}}$			$Multiplier, M2 = \frac{1}{1+f}$			
L-L Fault=Approx. 87% L-L-L Fault			$Factor, f = \frac{1.732 \times L \times I(SCA)}{N \times C \times E(L-L)}$			$Factor, f = \frac{1.732 \times L \times I(SCA)}{N \times C \times E(L-N)}$			
Sub-transient Reactance Per Unit,Xd''=0.125			I(SCA)= Short Circuit Current at the beginning of the circuit						
For low resistance Percent Impedance≈12.5%			L=Length of Cable						
Percent Reactance data is found from Generator datasheet of Model No: PG345B3			N=No. of Conductor Per Phase						
			C=Conductor factor(One over the impedance per foot)						
			E(L-L)=Phase to Phase Voltage or L-L Voltage						
			E(L-N)=Phase to Neutral Voltage or L-N Voltage						

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Line to Line Voltage	400	V			
Line to Neutral Voltage	230	V			
Full Load Ampere	497.98	A			
Genset Alternator Percentage Impedance	12.5	%			
Fault at zero distance/terminal				Fault at zero distance/terminal	
Full Load Ampreres	498	A		Full Load Ampreres	498 A
Multiplier,M1	8			Multiplier,M1	8
Fault at Generator terminal	3984	A		Fault at Generator terminal	5976 A
L-L Fault	3.98	kA		L-N Fault	5.98 kA
L-L-L Fault(AFC)	4.58	kA			
For BUSBAR E					
Fault at some distance from terminal				Fault at some distance from terminal	
Distance from terminal, L	65	ft		Distance from terminal, L	65 ft
No. of Conductor,N	1			No. of Conductor,N	1
Conductor factor,C	981			Conductor factor,C	981
Factor,f	1.143			Factor,f	3.4432
Multiplier,M2	0.4666			Multiplier,M2	0.2251
Fault after 1st distance	1859	A		Fault after 1st distance	1345.2 A
L-L Fault	1.86	kA		L-N Fault	1.35 kA
L-L-L Fault(AFC)	2.14	kA			