EXTENSION TO NEYRIZ 66/20KVSUBSTATION

GUARANTEE TABLE FOR GROUNDING SYSTEM

Z	Issued For Approval	1405/02/17	M. E.	M. A.	M. A.	M. E.
Rev.	**Purpose of Issue**	**Date**	**Prepared**	**Check**	**Approved**	**Authorized**

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1 INTRODUCTION

1.1 Purpose

This document has been prepared to specify and establish the minimum technical requirements for the design, supply, installation, and commissioning of the Extension to Neyriz 66/20 kV Substation.

1.2 Definitions

Within the context of this document, the following definitions will be applicable:

Project: Extension to Neyriz 66/20 kV Substation

Client: Petro Kavian Sanat Pars Co.

Owner: Fars Regional Electric Co.

Consultants: Aria Niroo Jam Co.

EPC Contractor: Any firm who is responsible for providing any service and material with respect to detailed engineering, procurement, construction of all items and material in accordance with the contract between the CLIENT and him.

Vendor/Supplier: The company, which has been selected to supply the equipment and material and products technical documentation mainly, related to the production of the ordered supply.

The word "shall" indicate a requirement. The word "should" indicate a recommendation.

Contractor shall be responsible for vendor goods.

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2 GUARANTEE TABLE FOR GROUNDING

ITEM	DESCRIPTION	UNIT	TECHNICAL PARTICULARS
1	Basic Design Data:		
1.1	Nominal Voltage		
1.2	Design ground fault current	KA(rms)	
1.3	Time duration of ground fault current	S	
1.4	Assumption for calculation of step and touch voltages:		
a	step length	m	
b	Body resistance, hand to both feet and one foot to the other	Ohm	
c	Weight	kg	
1.5	Fault clearing time NOTE: For design, a set of soil average resistivity measurements shall be carried out by contractor with the supervision of client representative and the results shall be used for designs. The measurement method shall be submitted to the Engineer for approval.	Sec	
2	Bolted connector:		
2.1	Manufacturer		
2.2	Type		
2.3	Estimated number of bolted Connectors which will be provided for each type		
2.4	Cross sectional area	mm^2	
3	Other connectors:		

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ITEM	DESCRIPTION	UNIT	TECHNICAL PARTICULARS
3.1	Manufacturer		
3.2	Type		
3.3	Cross sectional area	mm^2	
4	Switchyard Grounding Equipotential Mats:		
4.1	Conductor		
4.2	Type		
4.3	Burial depth	Cm	
4.4	Manufacturer		
4.5	Number of mats and dimension		
5	Control Building Grounding Cable:		
5.1	Cross sectional area		
5.2	Manufacturer		
5.3	Number of cores		
5.4	Core cross sectional area	mm^2	
5.5	Estimated length for buildings	m	
6	Control Building Grounding Bus:		
6.1	Manufacturer		
6.2	Cross sectional area	mm^2	
6.3	Estimated length for each building	m	
7	Switchyard Grounding Cable (Grid):		
7.1	Manufacturer		

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ITEM	DESCRIPTION	UNIT	TECHNICAL PARTICULARS
7.2	Estimated length for main ground grid	m	
7.3	Cross sectional area for main grounding gird		
7.4	Number of cores		
7.5	Type		
7.6	Burial depth	Cm	
7.7	Risers particulars:		
a	Manufacturer		
b	Cross-sectional area	mm^2	
c	Number		
d	Type		
e	Total estimated length for risers	m	
8	Switchyard Grounding Rods:		
8.1	Manufacturer		
8.2	Type and designation		
8.3	Estimated number which will be provided		
8.4	Material		
8.5	Diameter and length	Cm	
9	Min. Sizes of Copper Conductor for:		
9.1	Connection of transformers		
9.2	Connection of lightning arresters and other equipment's		
9.3	Connection of shield wire		

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ITEM	DESCRIPTION	UNIT	TECHNICAL PARTICULARS
10	Max. permissible fault current density	A/mm^2	
11	Max. step voltage, calculated and tolerable at the design ground fault current and 1 m step	V(rms)	
12	Max. grid potential rise at the design ground fault current	KV(rms)	
13	Max. touch voltage, calculated and tolerable at the design ground fault current	V(rms)	
14	Max. calculated ground resistance to the remote earth	Ω	
15	Temporary Grounding Devices:		
15.1	Type		
15.2	Material		
15.3	Size		
15.4	Permitted short time current (1/3S)	KA(rms)	
15.5	Dynamic current	KA(peak)	

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