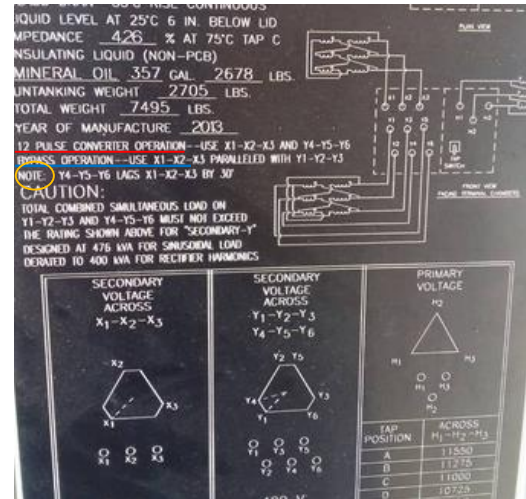




AOSCO LIBYA
PETROLEUM ENGINEERING CONSULTANTS
ESP SERVICES

Notification

Date:	24-Apr-21
Category:	Wrong connection / configuration on Step Down Transformer
Scope:	Electrical
Country:	Libya
Location:	ESP yard
Report #:	2021-0402
Severity	Medium
AOSCO Rep.	Bambang Handoko



What Happened?

There are 4 VSD skids of 400KVA with the configuration as follows: Phase shifted Transformer configuration for 12 pulse operation X1-X2-X3 and Y4-Y5-Y6 lagging 30 degree were connected to 12 pulse VSD but VSD has only one input main breaker - meaning VSD is assigned as 6 pulse (X1 jumped with Y4, X2 jumped with Y5 and X3 jumped with Y6), it should have two input main breakers when VSD is assigned as 12 pulse VSD and using one breaker with this configuration can lead short circuit that can harm the equipment.

PRELIMINARY POST INCIDENT DISCOVERIES

- 4 units 400 KVA VSDs were reported in new condition since around 8 years purchased and no inspection has been performed since they arrived.

IMMEDIATE ACTIONS

- Reported to client's reps and the Supervisor.
- Change the connection on Step Down Transformer from 12 pulse operation to By-pass operation (From previous X1-X2-X3 and Y4-Y5-Y6 to X1-X2-X3 and Y1-Y2-Y3). By-pass configuration as X1 and y1 are in the same phase (0 degree different), so with X2 and y2 and X3 and y3 it is safe for each pair to be connected in the same terminal of existing Input VSD breaker.