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COMMISSIONING OF POWER METERS AND TRANSDUCERS

When undertaking pump tests during installation / calibration of TAS PumpMonitor at several mines we have calculated some unrealistically high pump efficiencies. On investigation, we have found that this results from wrong power meter readings due to incorrect installation and calibration

Accordingly, we advise that the following procedures are followed in the installation and commissioning of power meters and transducers, whether for TAS PumpMonitor projects or other reasons e.g. establishing power factor:

- Power meters must be connected to Current Transformers (CTs) on all three phases
- 5A CTs should be used. If 1A CTs are used, then the values on power meters must be checked with a tong tester.
- When power meters are used, the current of all three phases on the meter must be verified as:
 - roughly equal (balanced)
 - similar to the Amps given on the existing local display
- When power meters are used, the voltage measurement on the meter must be similar to the voltage available on the local display in the sub station.
- Power values must be checked against the kW rating of the motor. High lift pump motors operate very close to the motor rating.
- In the application of a power transducer, the kW measured must be compared against the amps and the voltage given on the existing local displays. Power factor can be estimated as 0.88 or read from the motor plate. The calculation is as follows:
 - $kW = \sqrt{3} \times \text{Volts} \times \text{Amps} \times \text{power factor}$
- When power meters are used, power factor must be recorded and provided to the Electrical Foreman. Power factor should be between 0.84 and 0.9. Any excessive deviation from 0.88 should be considered incorrect and investigated.

Power meter and transducer measurements should not be accepted until all of the above checks have been performed.

TAS PumpMonitor Issues

- Please check all power meters to ensure that they are correctly connected prior to TAS Online coming on site to undertake pump tests. If power meters are found to be incorrectly installed then the pump tests will have to be re-done at the User's expense.
- Incorrect power meters also lead to substantial delays in commissioning TAS PumpMonitor at a site, thus delaying the beneficial information for which the was ordered.
- Also please check power meters on all pumps where TAS PumpMonitor is already in operation. Incorrect power values will result in pump efficiencies being calculated incorrectly, but this would not be detected if they were within a 'normal' range. This could result in pumps being scheduled incorrectly and / or operating past their optimum refurbishment date.

TAS PumpMonitor Technical Bulletins are issued to our Customers as an added-value service in the interests of greater pump operating efficiency. A full library of Bulletins may be viewed at www.tasonline.co.za/TechBul