

- Public Affairs.
- Internal Audit.
- Security.
- Total Quality Management Department.
- Company secretary & Legal Department.

The Managing Director, who is the Chief Executive, co-ordinates the entire management and activities of the company. The current Managing director of PHRC is Dr Bafred Enjugu.

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- Demine Plant (Unit 73): designed to produce de-mineralized water suitable for boilers operation and process units.



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Figure 2-1 : Demin Plant

- Cooling Water (Unit 74): Provides cooling water for all cooling processes in the whole-utility plants, process plants, offsite and other cooling medical.

- Instrument. Plant Air (Unit 75): Supplies instrument and services air for instrument operations, general plant services and backup to nitrogen unit.



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Figure 2-3: Cooling tower



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Figure 2-16a : Temperature switch



Figure 2-15b : Temperature switch showing probe

2.16.2 PNEUMATIC AIR REGULATOR

The Pneumatic air regulator controls the compressed air that comes in or leaves the actuator or diaphragm.



Figure 2-22 ; An air regulator

2.16.3 RELAYS

Pneumatic relays are mechanical devices that conduct compressed air, it checks the amount of air that enters the positioner

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Figure 2-23: A Pneumatic relay

- Burner shut down
- Post purge

| S/N | Name of Steam Generated | Temperature | Pressure | Color Coding of the steam line |
|-----|----------------------------|--------------------|-----------------------|--------------------------------|
| 1 | High pressure steam (HP) | 405 ⁰ c | 42kg/cm ² | Three (3) Red |
| 2 | Medium pressure steam (MP) | 350 ⁰ c | 12kg/cm ² | Two (2) Red |
| 3 | Low pressure steam (LP) | 120 ⁰ c | 3.5kg/cm ² | One (1) Red |



Figure 3-2 ; Control room view of the boiler 4

- Gauges should be installed at points where there is little vibration, and moisture, if it's to be installed in a place with vibration, glycol is poured into the gauge to prevent the pointer deflection when vibrating.
- Isolate the process line before installation, mount the gauge on the line, care should be taken when tightening to avoid damaging the of the gauge.
- When applicable, Teflon is used in the probe the end to avoid leakage of process material along the line.

3.4 SWITCHES

Switches are of different types, but focus was made on Temperature Switches

3.4.1 PROCEDURE

- Care must be taken in handling, in order not to harm the probe/sensor.
- Care must also be taken when handling the terminal blocks.
- Life, neutral and earth must be connected to the terminals in the live, neutral and earth respectfully.

3.5 VALVES

Before carrying out maintenance on a valve, the type of valve should be known., how the valve is actuated should also be known, some valves are self-operated while others are manually or with an actuator or pneumatic controller, emphasis was placed on pneumatic and solenoid valves. The various parts of the valves and their functions should be known too (Kuphaldt, 2016).

3.5.1 PROCEDURE FOR VALVE MAINTENANCE

- For a valve whose stem is stuck, first thing to be done is shut down the air line before you begin work, then you check the stem to find out if there are debris obstructing it, if there are debris the stem can be cleaned with naphthalene to ensue free stem travel.
- For a valve with a faulty solenoid (in the case of a solenoid valve), Disconnect the live wire and ensure to avoid it touching the body of the casing so as to avoid short



① DM mp
Pls, deploy

PHRC

06 APR 2016
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INTERNAL MEMORANDUM

| | |
|----------------------|---------------------------|
| TO: MGR, MTCE | REF: HRL/172 |
| FROM: MGR, HR | DATE: 5 April 2016 |

RE: INDUSTRIAL ATTACHMENT (SIWES) DEPLOYMENT

Idehen Osabuohien Peter who is taking a course in **Electrical/Electronic Engineering** at **University of Benin** is deployed to your Department for Industrial Attachment from **5th April through 30th September, 2016**.

We will appreciate an appraisal on his/her performance to his/her institution. Please, give him/her all necessary assistance to make the attachment meaningful.

NOTE: I.T./SIWES MUST NOT BE PLACED ON SHIRT DUTY.

[Signature]
 Obiora, C. A. (Mrs.)
 For: Manager, Human Resources

[Signature]
 SAM PPL - MTCE

Cc: MGR, HSE

DMs: Plant Clinic, Security &. Idehen Osabuohien Peter

Please consider and engage the bearer for the period of his attachment and accord him any other assistance as may be found necessary.
 Mgr 6/4/16