

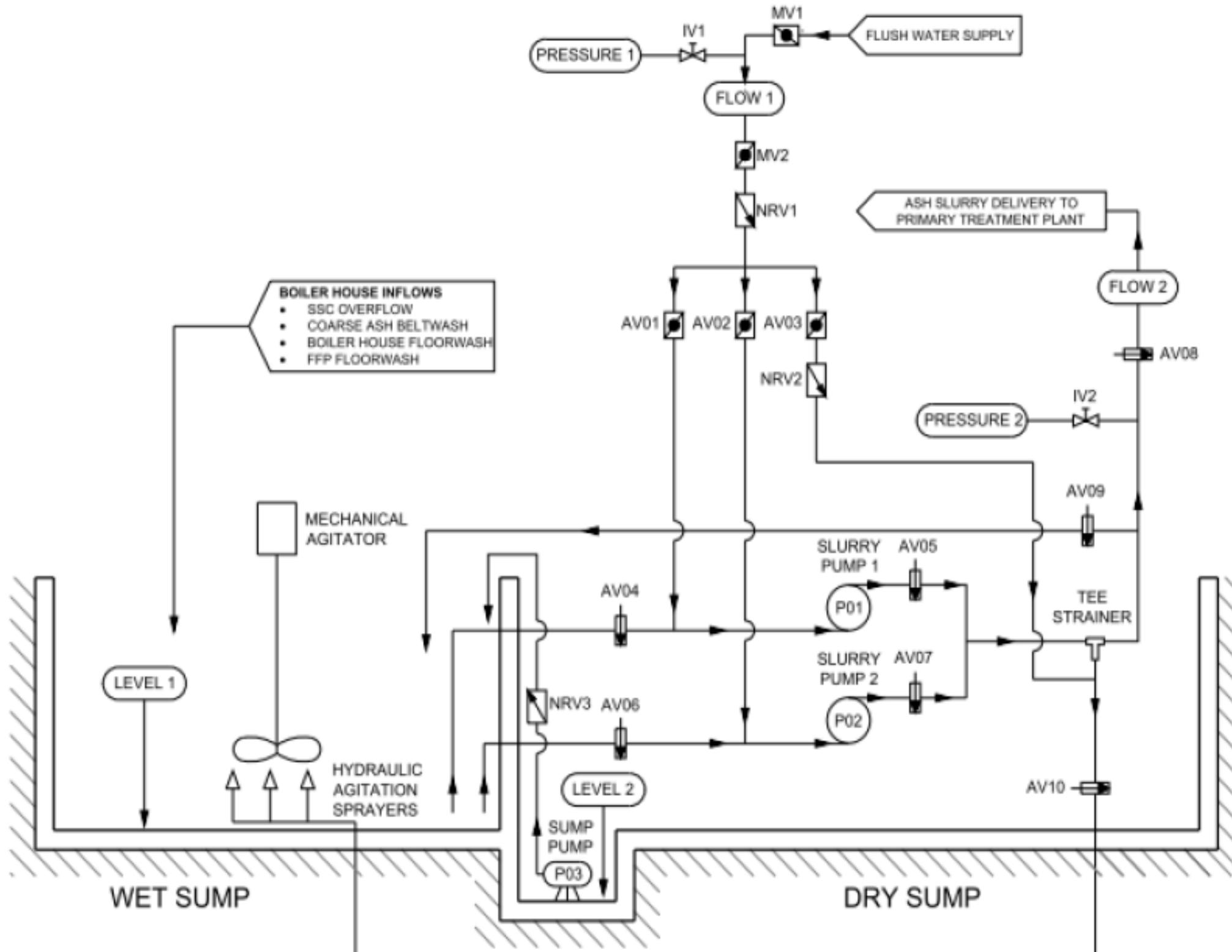


Scope of Work

Primary and Secondary Clarifier Valve Automation Project

22 March 2022

Boiler Degrit Sump



Replacement of Equipment

	Unit 6	Unit 5	Unit 4	Unit 3	Unit 2	Unit 1
Pumps	Pumping Length-260m. Flow rate-20.7 l/s. Static Head-10.7m. 2 Pumps	Pumping Length-371.7m. Flow rate-21.3 l/s. Static Head-10.7m. 2 Pumps	Pumping Length-483.5m. Flow rate-21.0 l/s. Static Head-10.7m. 2 Pumps	Pumping Length-655.2m. Flow rate-30.6 l/s. Static Head-10.7m. 2 Pumps	Pumping Length-706.9m. Flow rate-31.3 l/s. Static Head-10.7m. 2 Pumps	Length-818.6m. Flow rate-31.1 l/s. Static Head-10.7m. 2 Pumps
Pump Suction	90mm	90mm	90mm	90mm	90mm	90mm
Pump Discharge	62mm	62mm	62mm	62mm	62mm	62mm
Pump Motors	22 kW	30 kW	37 kW	37 kW	55 kW	55 kW
Actuators	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)
Level transmitters	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)
Submersible pump	1 X 1.3 kw	1 X 1.3 kw	1 X 1.3 kw	1 X 1.3 kw	1 X Lowara 1.3 kw	1 X 1.3 kw
Flow meters	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling
Valves	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve
Agitator motor					1 X 37Kw motor	1 X 37Kw motor

- **Cleaning and removing slurry around the drainage trenches around the boiler house.**
- **Replacement of cabling.**
- **Cleaning of both the wet and dry sumps.**
- **Purchase and installation of submersible pumps.**
 - 30 l/s
 - 30 kW

	Pumping Length-260m. Flow rate-20.7 l/s. Static Head-10.7m. 2 Pumps
Pumps	
Pump motors	22 kW
Actuators	7 X Actuators (2 X quarter turn actuators, 5 X knife gate actuators)
Level transmitters	2 X Level transmitters (Wet and Dry sump)
Submersible pump	1 X 1.3 kw
Flow meters	1 X Slurry discharge flowmeter with cabling
Valves	5 X Knife gate valves, 2 X butterfly valve

Remedial work including cleaning and draining out slurry water from both the wet and dry sumps.

Transfer House 8 sump

Pumps	34 m Head, 10 l/s
Motors	11 kW
Actuators	2 x Actuators to operate Butterfly Valves
Pressure Indicators	2x Pressure Indicators
Level Transmitters	Level Transmitters
Valves	2 x Butterfly Valves 2 x Non-Return Valve all 80 NB
Pipe work	80 NB Pipe 30 m

- Remedial work include cleaning of the sump.
- Chosen pumps shall be compatible with existing pipework.

- **Enclosed Container to house the equipment.**
- **6 X CPU set to be replaced**
- **6 X HMI panels to be replaced**
- **75m of Cat5e cables to be replaced.**

Actuation of the following valves per clarifier:

No.	KKS	Size
1	0 0GNB*4 AA501	65 NB
2	0 0GNB*5 AA501	50 NB
3	0 0GNB*4 AA502	65 NB
4	0 0GNB*5 AA502	50 NB
5	0 0GNB*4 AA503	65 NB
6	0 0GNB*5 AA503	50 NB
7	0 0GNB*4 AA504	65 NB
8	00GNB*5 AA504	50 NB
9	0 0GNB*4 AA505	65 NB
10	0 0GNB*5 AA505	50 NB
11	0 0GNB*4 AA506	65 NB
12	0 0GNB*5 AA506	50 NB

- **Additional 50NB flushing pipe**
- **Changing the 50NB discharge pipe and replacing it with 60 NB pipe. (This scope only for Clarifier 1&2).**

- **The scope of the re-design, construct (within the existing structure) of a Oil Skimmer to replace the existing.**
- **Problem with the existing Oil Skimmer:**
 - is that the decant pipe is highly inefficient in collecting the decanted oil. A large portion of oil remains uncollected.
 - The rotation of the multi-disc oil skimmer is highly inefficient in separating oil for collection

Scoring Method

SCORE	PERCENTAGE	DESCRIPTION
5	100	COMPLIANT <ul style="list-style-type: none">• Meet technical requirement(s)/AND;• No foreseen technical risk(s) in meeting technical requirements.
4	80	COMPLIANT WITH ASSOCIATED QUALIFICATIONS <ul style="list-style-type: none">• Meet technical requirement(s) with;• Acceptable technical risk(s) AND/OR;• Acceptable exceptions AND/OR;• Acceptable conditions.
2	40	NON-COMPLIANT <ul style="list-style-type: none">• Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR;• Unacceptable exceptions AND/OR;• Unacceptable conditions.
0	0	TOTALLY DEFICIENT OR NON-RESPONSIVE

Evaluation Scores

Technical (100%)	
3.1 General	10%
3.2 Mechanical	40%
3.3 Control & Instrumentation	30%
3.4 Electrical	15%
3.6 Configuration – and Documentation Management	5%
TOTAL (100%)	
Overall minimum threshold for qualification (70%)	

- **Mandatory**

1.	Company experience in executing multi-discipline (Mechanical, EC&I), engineering projects with particular emphasis on slurry pipework projects.	Company's portfolio of experience in engineering projects >3yrs, as a minimum the portfolio should include: <ul style="list-style-type: none">• Brief description of the projects• Designs experience, clearly described	Indication of competence in managing engineering projects
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- **Qualitative**

- **General Evaluation Criteria 10%**

- Project Execution Methodology and Project Program
- CVs of key personnel

- **Mechanical 40%**

- Individual experience in execution similar projects > 3years
- Company experience in design and executing Oil Skimmer plants

- **Electrical 15%**
 - Contractor shall specify load requirements using template 240-56227927
 - Previous experience in switchgear modifications
- **Control and Instrumentation 30%**
 - Proposed solution
 - CV of qualified C&I Engineer or Electrical
- **Configuration and Document Management 5%**
 - Understanding of Eskom configuration system.

Questions