Projects Portfolio

Pooyan Latifi
Senior Mechanical Engineer
Mechanical Engineering Consultant

SECTION-1 Major EPC projects

SECTION-2 Brownfield and manufacturing projects

Rev.0 26/08/2025

SECTION-1

Major EPC projects

Azar Oil Field Development-Central Processing Facility (CPF)

The **Azar oil field**, situated in Ilam Province along the Iran-Iraq border, is geologically complex and one of the region's most challenging onshore fields. The CPF development encompassed **engineering, procurement, construction, and commissioning**, with the goal of achieving normal operations at **65,000 barrels of oil per day (BOPD).**

As Lead Mechanical (static) engineer working at EPC Joint Venture for delivery of CPF, I was responsible for :

- Leading on time delivery of mechanical scope's deliverables including technical specs, mechanical datasheets, and MRs for fixed and packaged mechanical equipment
- Clarification with vendors, generate TBE for the separator, air coolers, and storage tanks.

The project met and exceeded contractual oil production targets (65,000 BOPD), laying groundwork for further expansion.

South Pars Gas Field Development Phases 13, 15–16, and 20–22 | Engineering &Procurement services

The **South Pars Gas Field** is the world's largest gas-condensate field, jointly shared between Iran and Qatar. Each development phase is designed to produce **2 billion cubic feet of natural gas per day** (~56 million m^3/day), along with significant volumes of **ethane, LPG, condensate, and sulfur**.

Project Scope:

Phase 13

Full-scale gas processing and export facilities, producing sales gas, condensate, and LPG.

Phases 15–16

Onshore processing capacity of **2,000 MMSCFD**, including condensate stabilization, MEG regeneration, sulfur recovery, LPG storage, and utility systems.

Phases 20–22

Similar scope to Phases 15–16, with added capacity for **75,000 bpd condensate** and **3,000 tons/day LPG**, designed for domestic consumption and export.

South Pars Gas Field Development Phases 13, 15–16, and 20–22 | Engineering &Procurement services

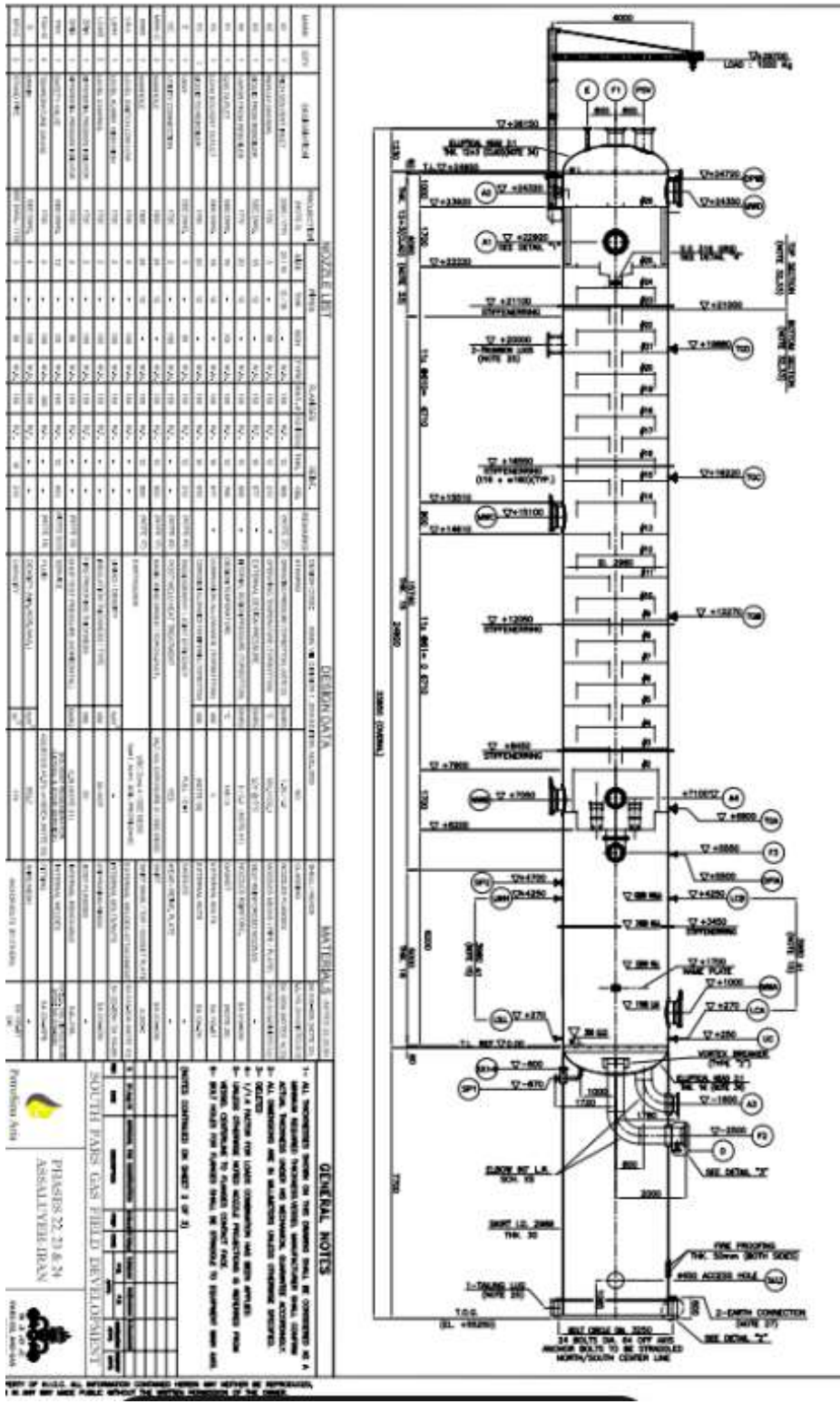
My Role & Contributions:

Phases 13, 20-24

- Leading detailed engineering activities including vendor documents review/approval for the Waste Effluent Disposal and Network - Unit 129
- Calculation and engineering drawing preparation for more than 10 columns and API-650 storage tanks

Phases 15-16

- Final review and approval of vendor documents for API-650 aboveground storage tanks



Lorestan & Mahabad Petrochemical Project | Engineering &Procurement services

The Lorestan Petrochemical Complex is one of two affiliated plants (alongside Mahabad) under Bakhtar Petrochemical Company (BPC), situated along the Western Ethylene Pipeline. Nargan partnered with Italy's Technimont to deliver these projects.

Each complex is designed to produce:

- 300,000 tons/year of LLDPE (Linear Low-Density Polyethylene)
- 300,000 tons/year of HDPE (High-Density Polyethylene)
- 30,000 tons/year of Butene-1

My Role & Contributions:

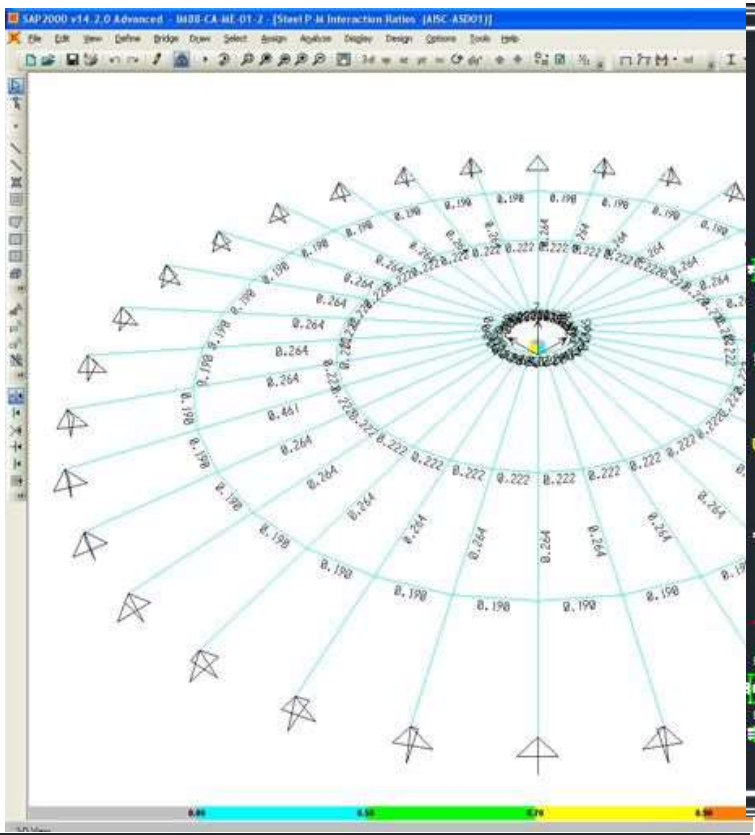
- Review and approval of vendor documents for more than 40 ASME and PD5500 pressure vessels (three vendors)

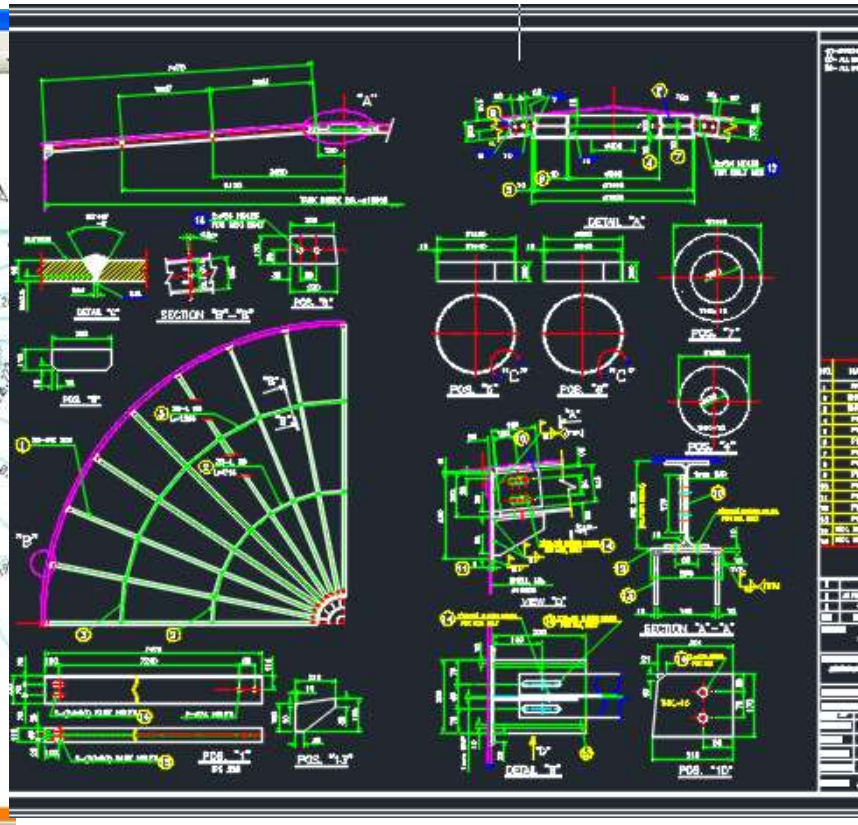
Tank Farm and Oil Depot Projects

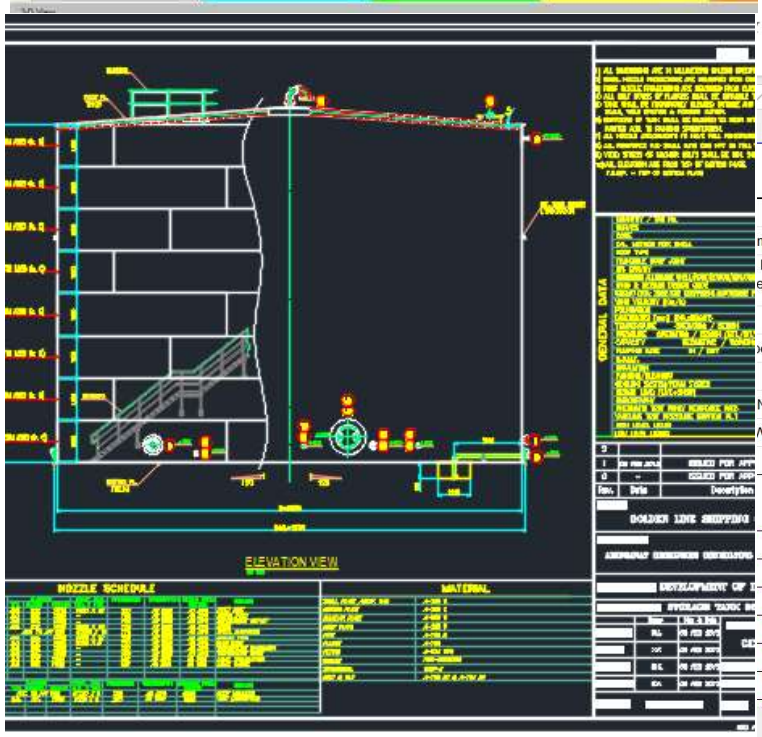
My Role & Contributions:

- Engineering Project Manager for " Five cities strategic oil depots development project"
- Preparation of technical specs, procedures, calculation, and shop fabrication drawings for more than 50 fixed, floating and internal floating API 650 storage tanks
- Developed in-house software (Excel spreadsheet and VBA) for storage tank calculation

Storage Tank Detailed Design







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SHELL THICKNESS

meter	=	28.600	m	Shall "H" be increased as per F.7.1 ?	NO					
liquid level+ eight to	=	14.301	m	TEST LIQUID LEVEL(H_{test}):	14.301	m				
	=	0.7								
erarure	=	85	C-deg							

NE : Click to calculate M reduction factor

NO : Click to update design

$$t_d = \frac{4.9D(H-0.3)G}{S_d} + CA \qquad t_t = \frac{4.9D(H-0.3)G}{S_t}$$

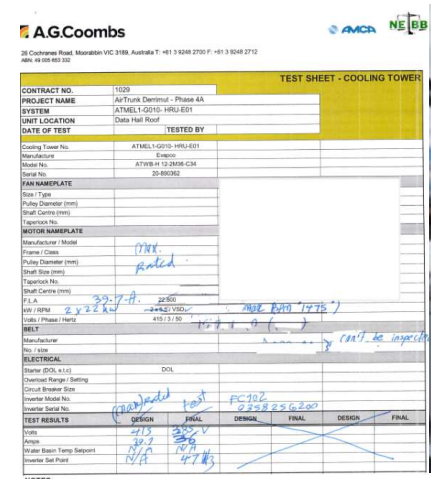
H(m)	Material	App.M reduction factor	Yield strength (Mpa)	S_d (Mpa)	S_t (Mpa)	C.A.(mm)	t_t (mm)	t_d (mm)	user specified thk.(mm)
14.301	A283-C	1.00	205	137	154	2.5	12.74	12.53	14
12.801	A283-C	1.00	205	137	154	2.5	11.38	11.45	14
11.301	A283-C	1.00	205	137	154	2.5	10.01	10.38	12
9.801	A283-C	1.00	205	137	154	2.5	8.65	9.30	10
8.301	A283-C	1.00	205	137	154	2.5	7.28	8.23	10
6.801	A283-C	1.00	205	137	154	2.5	6.00	7.16	8

GENERAL DESIGN INPUTS | DESIGN | APPENDIX E | APPENDIX F | ANCHOR CHAIR DESIGN | Vent Calc | Weig

AirTrunk MEL01 Datacenter- Commissioning

My Role & Contributions:

- Commissioning Engineer representing BVPI (Commissioning Contractor) on-site
- Conducted L2/L3 inspection for :
  - CHW Flow and return piping
  - Cooling water pumps
  - FWU
  - HRU
  - Side stream filtration pump and dosing system


A.G.Coombs

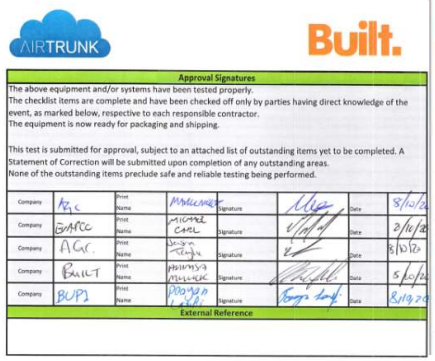
TEST SHEET - COOLING TOWER

CONTRACT NO.	1029
PROJECT NAME	AirTrunk Dernimut - Phase 4A
SYSTEM	ATMEL1-G010- HRU-E01
UNIT LOCATION	Data Hall Roof
DATE OF TEST	TESTED BY

Cooling Tower No.	ATMEL1-G010- HRU-E01			
Manufacture	Evapco			
Model No.	ATWB-H 12-2M36-C34			
Serial No.	20-860362			
FAN NAMEPLATE				
Belt / Type				
Pulley Diameter (mm)				
Shaft Centre (mm)				
Taperlock No.				
MOTOR NAMEPLATE				
Manufacturer / Model				
Frame / Class				
Pulley Diameter (mm)				
Shaft Size (mm)				
Taperlock No.				
Shaft Centre (mm)				
F.L.A	39.7-A.			
kW / RPM	2 x 22 kW			
Volts / Phase / Hertz	415 / 3 / 50			
BELT				
Manufacturer				
No. / size				
ELECTRICAL				
Starter (DOL e.t.c)	DOL			
Overload Range / Setting				
Circuit Breaker Size				
Inverter Model No.				
Inverter Serial No.				
TEST RESULTS	DESIGN	FINAL	DESIGN	FINAL
Volts	415			
Amps	39.7			
Water Basin Temp Setpoint	N/A			
Inverter Set Point	N/A			

NOTES:

- Nameplate is not accessible (Nameplate pic to be presented later)
- Instrument to be revised to reflect correct 'design data'.


AIRTRUNK Built.

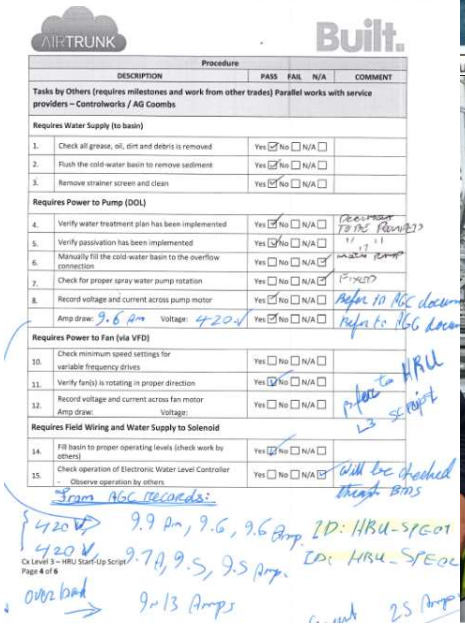
Approval Signatures

The above equipment and/or systems have been tested properly.
The checklist items are complete and have been checked off only by parties having direct knowledge of the event, as marked below, respective to each responsible contractor.
The equipment is now ready for packaging and shipping.

This test is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas.
None of the outstanding items preclude safe and reliable testing being performed.

Company	[illegible]	Print Name	[illegible]	Signature		Date
Company	BAMCC	Print Name	[illegible]	Signature		Date
Company	AGC	Print Name	[illegible]	Signature		Date
Company	BUILT	Print Name	[illegible]	Signature		Date
Company	BVPI	Print Name	[illegible]	Signature		Date

External Reference


AIRTRUNK Built.

Procedure

	DESCRIPTION	PASS	FAIL	N/A	COMMENT
	Tasks by Others (requires milestones and work from other trades) Parallel works with service providers – Controlworks / AG Coombs				
	Requires Water Supply (to basin)				
1.	Check all grease, oil, dirt and debris is removed	Yes ☑	No ☐	N/A ☐	
2.	Flush the cold-water basin to remove sediment	Yes ☑	No ☐	N/A ☐	
3.	Remove strainer screen and clean	Yes ☑	No ☐	N/A ☐	
	Requires Power to Pump (DOL)				
4.	Verify water treatment plan has been implemented	Yes ☑	No ☐	N/A ☐	
5.	Verify passivation has been implemented	Yes ☑	No ☐	N/A ☐	
6.	Manually fill the cold-water basin to the overflow connection	Yes ☐	No ☐	N/A ☑	
7.	Check for proper spray water pump rotation	Yes ☐	No ☐	N/A ☑	
8.	Record voltage and current across pump motor	Yes ☑	No ☐	N/A ☐	
	Amp draw: 9.6 Amp Voltage: 420 V	Yes ☑	No ☐	N/A ☐	
	Requires Power to Fan (via VFD)				
10.	Check minimum speed settings for variable frequency drives	Yes ☐	No ☐	N/A ☐	
11.	Verify fan(s) is rotating in proper direction	Yes ☑	No ☐	N/A ☐	
12.	Record voltage and current across fan motor Amp draw: Voltage:	Yes ☐	No ☐	N/A ☐	
	Requires Field Wiring and Water Supply to Solenoid				
14.	Fill basin to proper operating levels (check work by others)	Yes ☑	No ☐	N/A ☐	
15.	Check operation of Electronic Water Level Controller – Observe operation by others	Yes ☐	No ☐	N/A ☑	Will be checked through BMS

From AGC records:
420 V 9.9 Amp, 9.6, 9.6 Amp. ID: HRU-SPE01
420 V 9.7A, 9.5, 9.5 Amp. ID: HRU-SPE02
Over load 9 to 13 Amps

Cx Level 3 – HRU Start-Up Script
Page 4 of 6

uction line measurement

Discharge line measurement

SECTION-2
Brownfield and manufacturing projects

Eastern Treatment Plant Power Station-Coolant PRV Tank

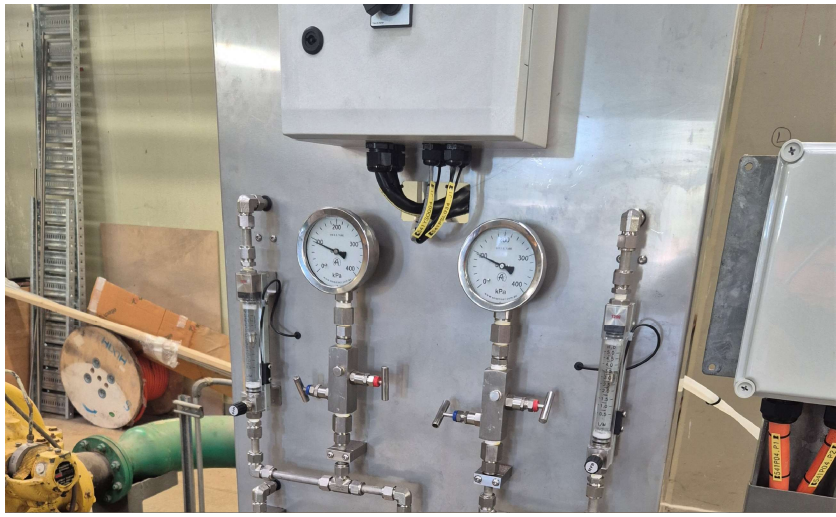
- Concept Design
- Detailed Design
- SiD Workshop
- Fabrication shop drawings review/approval
- Vendor QA/QC documents review/approval

Eastern Treatment Plant Power Station- Pre/post Ozone piping spools

- Piping technical spec
- Detailed Design
- SiD Workshop
- Fabrication shop drawings review/approval
- Vendor QA/QC documents review/approval

Winneke Treatment Plant –Supernatant pumps FRA panel

- Design Management
- Basic Design
- Vendor documents review/approval
- FAT
- SiD Workshop
- Commissioning Technical support



Yering Gorge Pump Station–PRV replacement

- Design Management
- PRV capacity calculation and valve selection
- SOW and vendor engagement
- SiD Workshop
- Pipework concept design
- Pipework vendor documents review/approval
- Execution Technical support

TEAM Inc. – Leak Seal

About TEAM Inc.
TEAM Inc. is a global leader in on-stream leak sealing and asset integrity management services for the oil, gas, petrochemical, and power sectors, providing engineered solutions that minimize downtime and enhance plant safety.

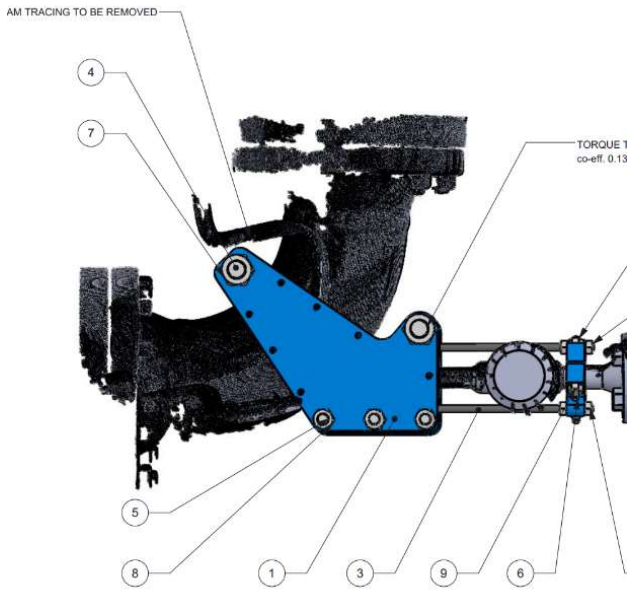
My Role & Achievements

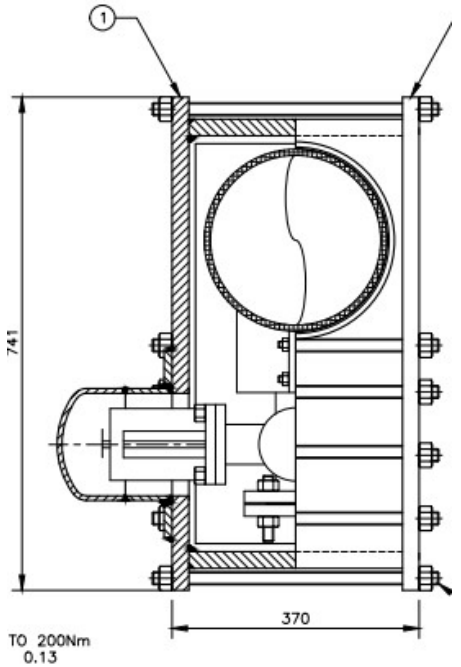
- Delivered **100+ custom leak seal enclosure designs** for pressurized piping and equipment.

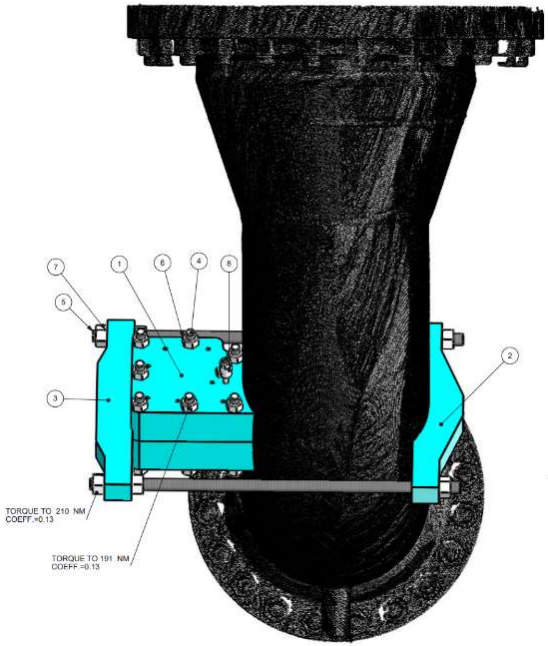
Designs completed in compliance with **ASME PCC-2**, **ASME VIII Div.1**, and **ASME B31.3**.

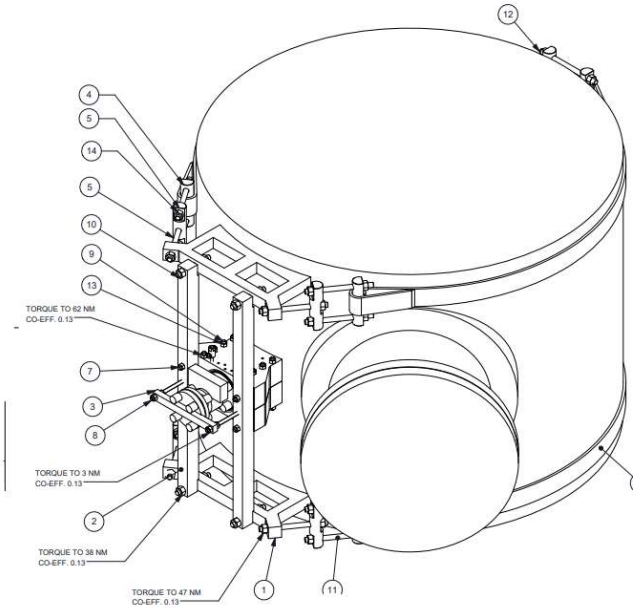
- Prepared **engineering calculations, datasheets, and fabrication drawings**, and coordinated with vendors/fabricators.
- Provided **technical and installation support**, ensuring every design was successfully fabricated and installed.

Outcome
Safe, reliable on-stream leak sealing solutions, reducing production losses and maintaining asset integrity.









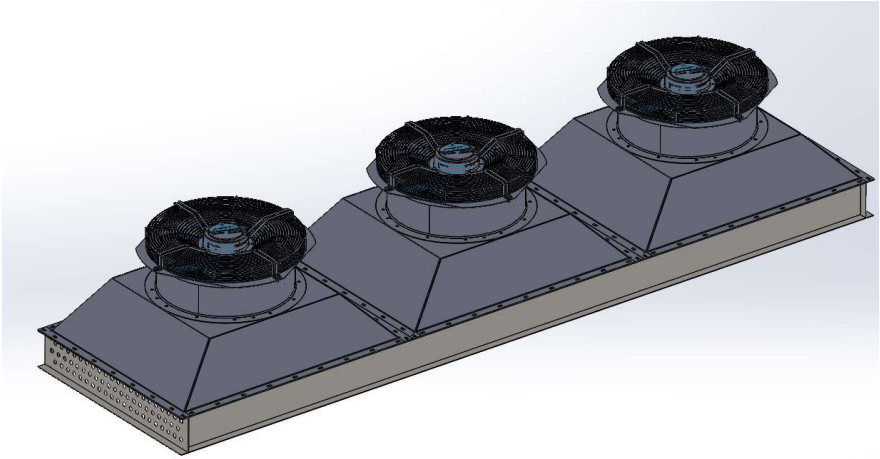
Air Cooled heat exchanger

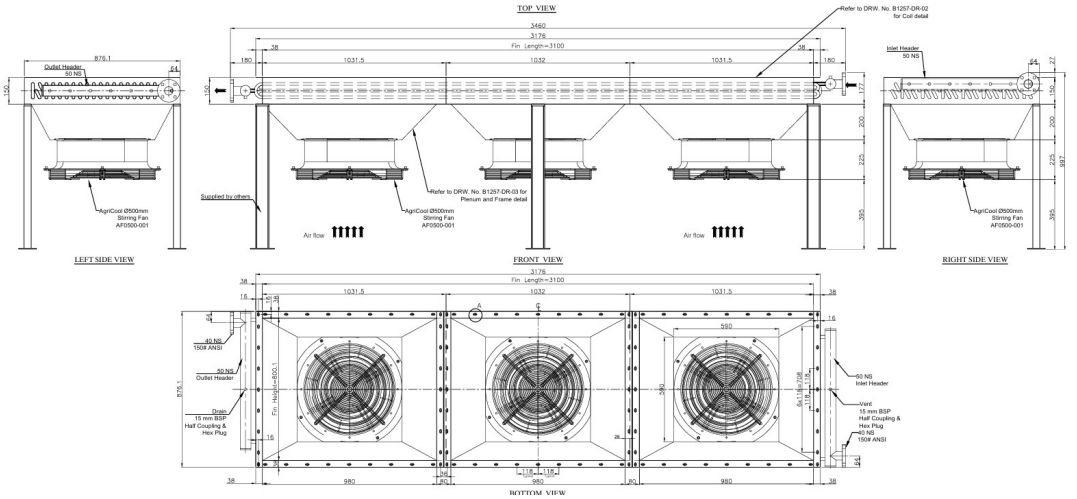
Detailed Design

- Thermal design of the coil
- Hydraulic calculations and plenum sizing
- Fan selection
- Pressure and strength calculations
- Structural support design
- Fabrication shop drawings
- Quality Control documentation

Project Management

- Fan Procurement
- Fabrication supervision and support
- Budget and schedule monitoring
- Shipment to site





Shell & Tube and Tube bundles

Detailed Design

- Thermal design review
- Pressure vessel calculations –AS1210
- Tubeplate calculations-AS3857
- Fabrication shop drawings
- Fabrication Procedure
- Quality Control documentation

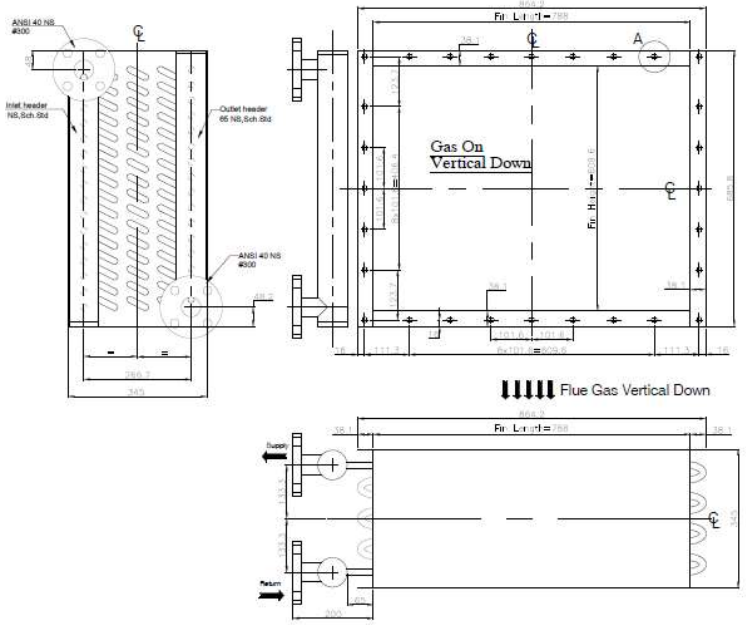
Production Management

- Tube plates, and special items procurement
- Fabrication supervision and support
- Schedule monitoring
- Shipment to site

Boiler Economizers

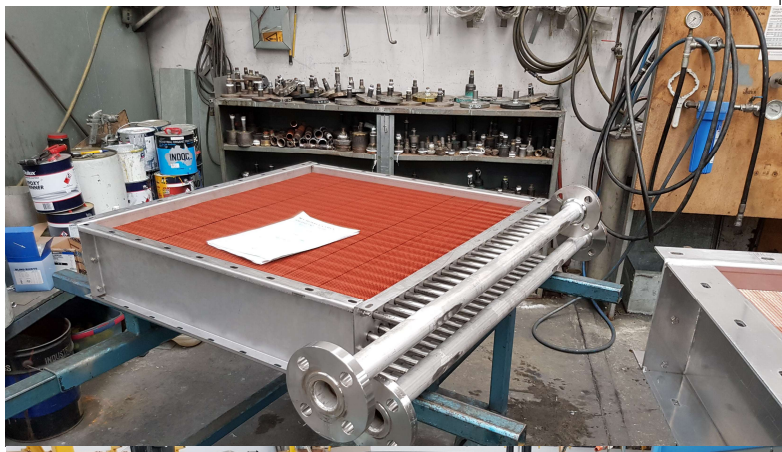
Detailed Design

- Sizing based on Boiler model and capacity
- Thermal design
- Pressure vessel calculations –AS1210
- Fabrication shop drawings
- Quality Control documentation



Production Management

- Leading 3rd party inspection and design verification
- Plant registration
- Special items procurement Fabrication supervision and support
- Schedule monitoring
- Shipment to site



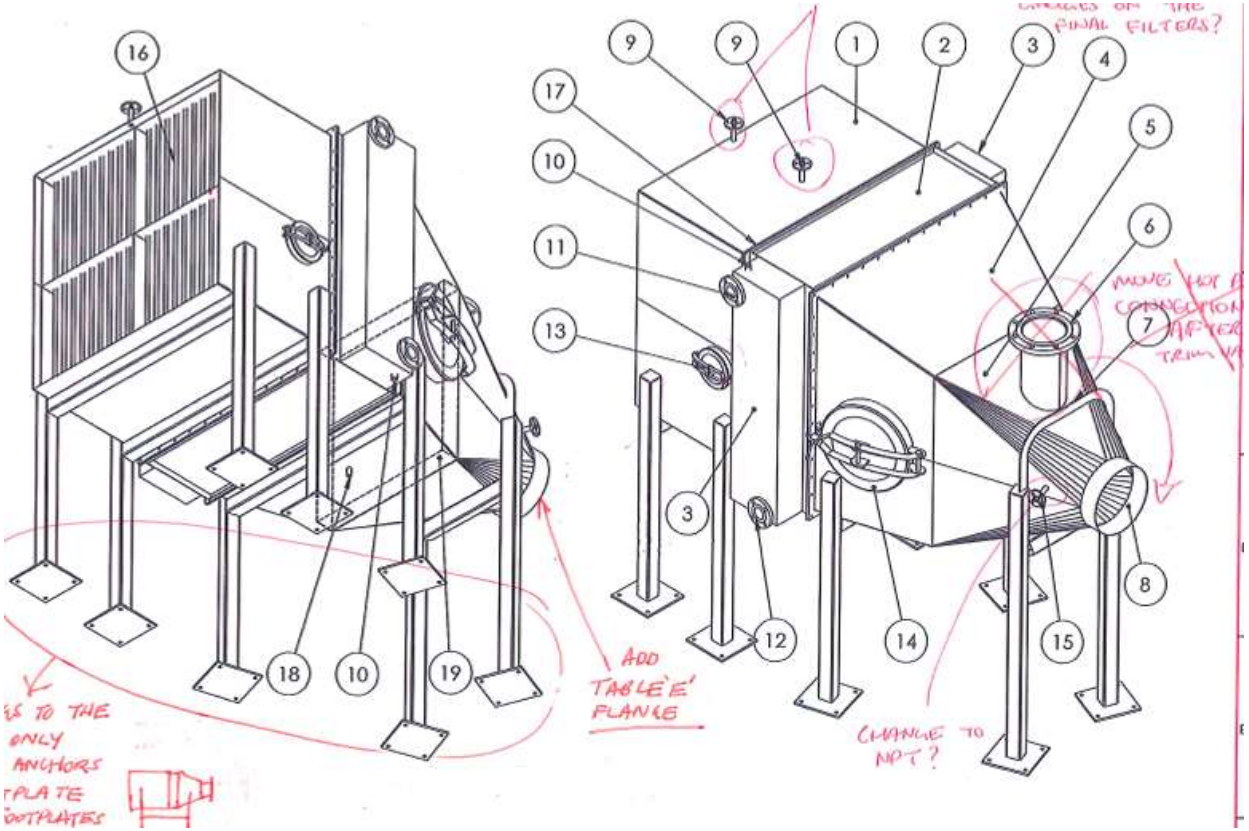
Air Handling Units

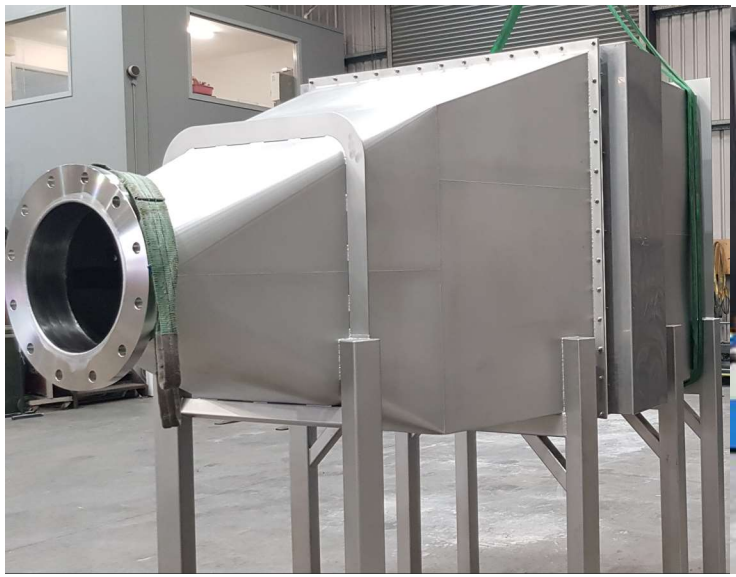
Detailed Design

- Thermal and design of the cooling coil
- Hydraulic calculations and duct sizing
- Mechanical strength calculations to AS1210
- Fabrication shop drawings
- Quality Control documentation

Project Management

- Subcontractors' management
- Fabrication supervision and support
- Budget and schedule monitoring
- Shipment to site





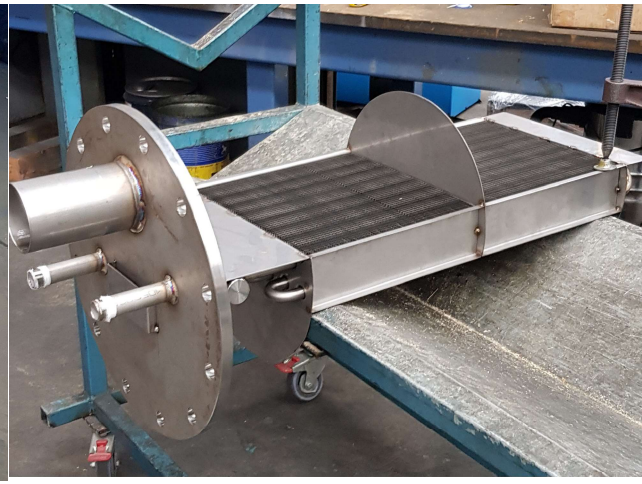
Special Heat Exchangers

Detailed Design

- Thermal design
- Pressure vessel calculations –AS1210
- Fabrication shop drawings
- Quality Control documentation

Production Management

- Leading 3rd party inspection and design verification
- Plant registration
- Special items procurement Fabrication supervision and support
- Schedule monitoring
- Shipment to site

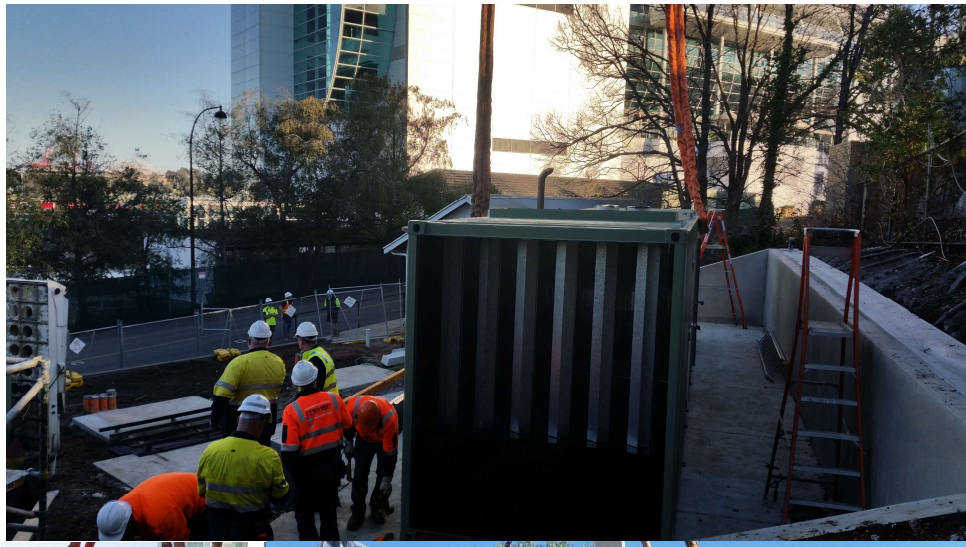


Heat Recovery-Veolia-SA

- Hydraulic calculations
- Transmission Detailed design
- Fabrication supervision

Diesel Genset Enclosure and fuel system - Flemington Racecourse

- Detailed Design
  - Fuel Tank and piping design – AS1940
  - Air requirements calculations – AS1668.2
  - Exhaust Pressure drop calculations
  - Attenuator and muffler detailed design
  - Acoustic louvre detailed design
  - Structural calculations and shop drawings
- Project Management
  - Procurement
  - Sub-contactor management
  - Fabrication supervision and support
  - Budget and schedule monitoring
  - Shipment and installation



Diesel Genset Enclosure and fuel system – Cummins WA

Detailed Design

- Fuel Tank and piping design – AS1940
- Air requirements calculations – AS1668.2
- Exhaust Pressure drop calculations
- Attenuator and muffler detailed design
- Acoustic louvre detailed design
- Structural calculations and shop drawings

Project Management

- Procurement
- Sub-contactor management
- Fabrication supervision and support
- Budget and schedule monitoring
- Shipment and installation

530 Collins street- New Diesel Gen Exhaust and fuel system

Detailed Design

- Exhaust piping detailed design
- Air requirements calculations – AS1668.2
- Exhaust Pressure drop calculations
- Special exhaust one way plenum design
- Acoustic louvre detailed design

Project Management

- Procurement
- Sub-contactor management
- Fabrication and site installation supervision and support
- Budget and schedule monitoring

Collie Power Station - Caustic Tank Hatch New Manhole

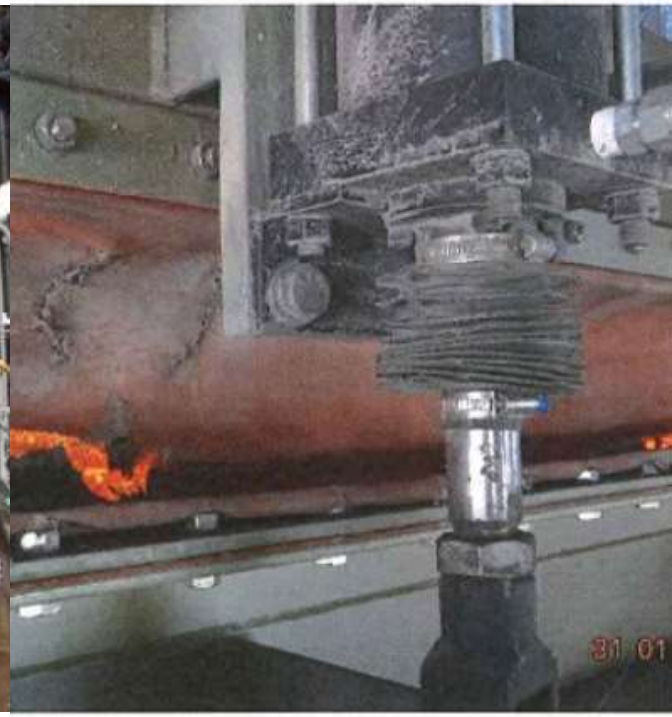
As project engineer, I was responsible for:

- Review/ approval of the design sub-contractor fabrication drawing
- Engagement and supervising tank cleaning , and cladding sub-contractors
- Developing SOW and choosing contactor for the fabrication and installation
- Conduct risk assessment, review JSA and execution supervision
- Project budget and schedule monitoring

Collie Power Station – SDCC Seal upgrade project

As project engineer, I was responsible for:

- Conducted investigation to understand root cause of the constant failure and established design criteria for the upgrade replacement.
- Engaged and worked with Europe based R&D team of an international vendor to produce a solution.
- Handed over the proposed solution to the asset management team



Collie Power Station – Fire pumps upgrade

Investigations and tests conducted by several fire consultants reveal that the existing fire protection system for conveyors B1& B2 and tripper gallery would not operate effectively in the event of a fire. A CAPEX project was initiated to rectify this issue. Leading the feasibility study stage as project engineer :

- Studied existing fire pumps spec
- Contacted OEM in US to request missing technical info such as performance curves
- Calculated new pumps' requirement to comply with AS2941-2008 Australian standard for fixed fire protection installations-Pumpset systems.
- Established SOW for next phase of the project.

c) Pumps Requirement

The minimum requirement to make the current fire system functional is 3391 l/m @ 700 kpa at ground level deluge valve according to WP hydraulic calculation. Pressure loss from this point to electrical pump discharge point is calculated using Hazen-Williams equation and the results are summarised as below:

Pipe ND	Pipe length (m)	Number of fittings	Number of valves	Equivalent pipe length for fitting and valves(m)	Pressure loss per meter of the pipe (Kpa/m)	Pressure loss in total length of the pipe(Kpa)
250	120	6	5	110	0.0614	14
200	220	11	5	66	0.114	9
150	5	3	1	15	0.74	15

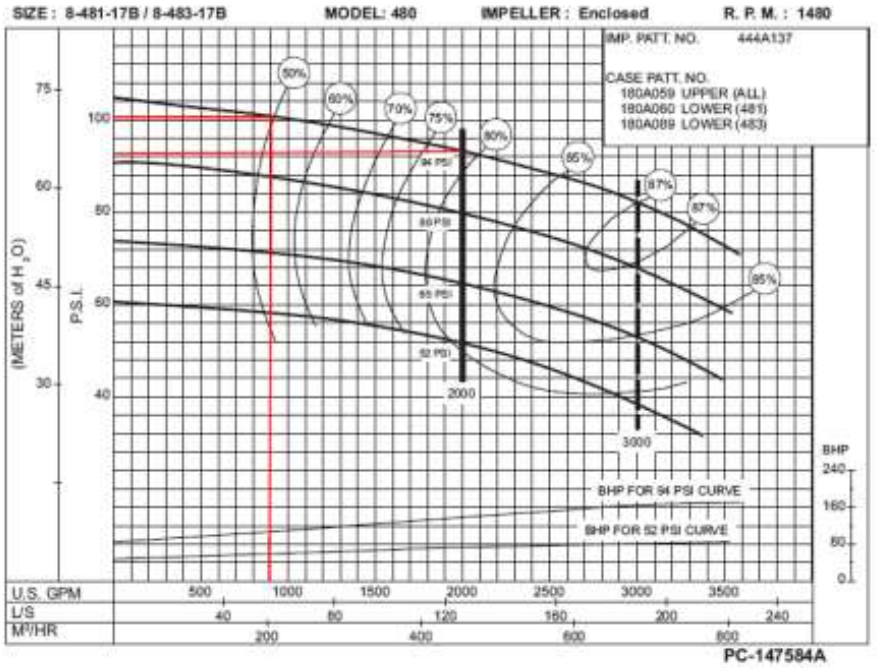
This method is suggested by AS 2118.1

$$P = 6.05 \times \frac{Q^{1.85}}{C^{1.85} \times d^{4.87}} \times 10^{7}$$

2000 G.P.M. 912 SERIES

50 HERTZ ELECTRIC MOTOR DRIVE

Section **912** Page **615**
Date **April 2000**
Supersedes Section 912 Page 615
Dated August 1992



52 to 94 P.S.I.

Collie PowerStation – Mini SDCC upgrade

The main function of the Mini-SDCC (Submerged Dragged Chain Conveyor) at CPS is separating solid mill rejects from handling medium water and conveying them to a designated area for removal b truck. This system was suffering from several operational and maintenance issues. A CAPEX project was initiated to address these issues. Leading 1st stage of the project, I studies the system to establish SOW for the next stage of the project.

Figure-2 Reject box

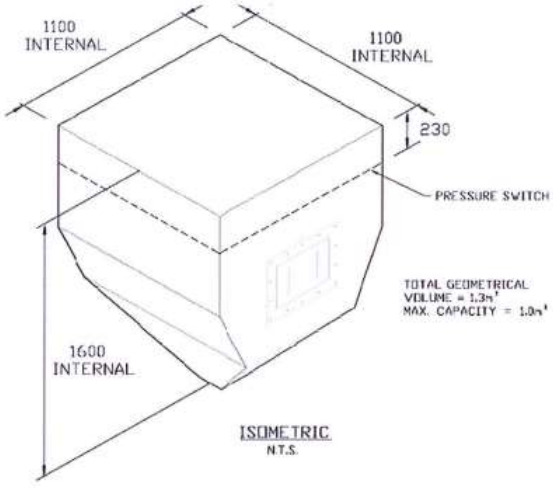


Figure-4 Reject box sketch

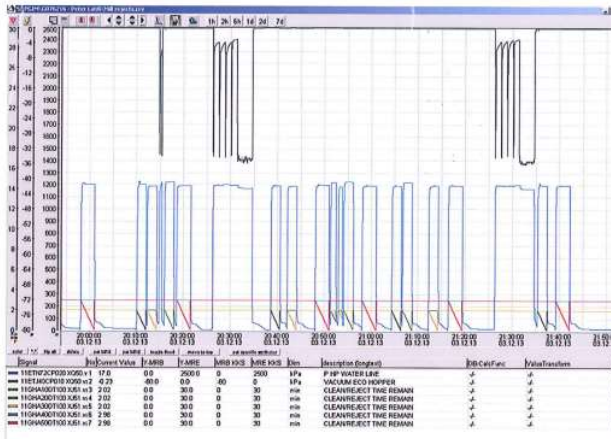
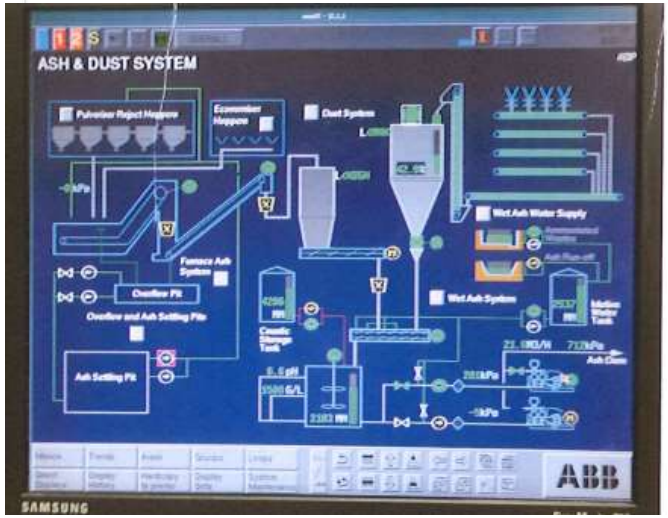


Figure-5 Mill 50 rejects sample



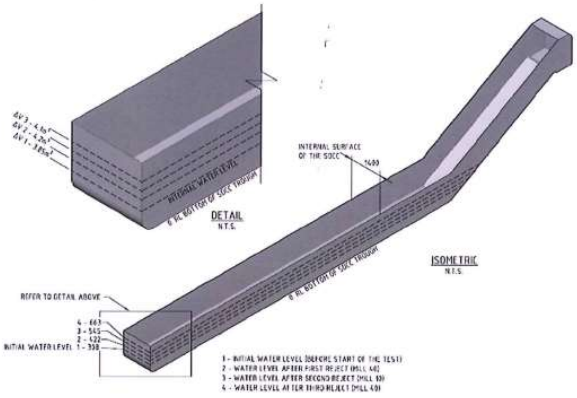


Figure-8 Main SDCC water level change 3D Sketch