



COMPANY PROFILE

AR PROCESS PROJECTS (PTY) LTD



“A Process and Project Management Solution Based Company”

PROCESS ENGINEERING DESIGN
FEASIBILITY AND PROJECT COSTING STUDIES
PROJECT MANAGEMENT
ENGINEERING SERVICES

www.process.co.za

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Directors: A Houghton (British) / TP Mathews / R Owens



PROFILE AND CAPABILITY STATEMENT

THE COMPANY

Process Projects is a BBBEE (Level 2) engineering contracting company comprising sales, engineering, project management, project services, quality and commercial services.

For larger projects, we design and build chemical plants on behalf of our clients on an EPCM basis:

Engineering	Basic and detailed
Procurement	Enquiries, orders, sub-contracts, expediting
Construction	Management, safety, environment and quality
Management	Project management and services, accounting, risk management

For other projects, we design and build other plants on behalf on a lump sum turnkey basis.

Our focus covers a wide range of applications. Process Projects operates mainly in the water treatment, chemical, mining, power, fertilizer, nuclear and pulp and paper industries. Process Projects are also strongly involved in renewable energy including biomass conversion and power generation.

BRIEF HISTORY

- 1973 Process Plant (Pty) Ltd was formed providing lump sum turnkey chemical plants particularly in evaporators and crystallisers.
- 1988 The IMS Group took over Process Plant and it became IMS Process Plant and continued to carry out the same business.
- 2000 IMS sold the Swenson licence and withdrew from the contracting market. The balance of the Process Plant Division was sold in a management buy out and AR Process Projects (Pty) Ltd was formed.
- 2005 A 30% share of the company was taken by two Black South African chemical engineers thus forming a BEE entity.
- 2009 Awarded "one million injury free hours" certificate by IRCA for site work
- 2012 Level 3 BBBEE rating
- 2016 Black ownership increased to 51%

CURRENT SHAREHOLDING AND DIRECTORS

Alan Houghton:	Managing Director
Thabo Mathews:	Business Development Director
Richard Owens	Technical Director



BUSINESS OVERVIEW

Process Projects' main strength is process engineering. In our history we have built over 150 chemical plants of various types including evaporators, crystallisers, chlor-alkali, polymer, distillation, drying and effluent treatment plants.

Process Projects has a highly developed project management system developed over decades of project execution. Combined with experienced project managers and support staff, projects are executed with a high degree of control. This reduces project risk when carrying out projects for clients on an EPCM basis.

Process Projects has over 15 full time employees plus an additional 20 contractors. Process Projects uses alliance partners for specialist engineering such as pressure vessel design, civil and structural engineering.

FEASIBILITY STUDIES AND PROJECT COSTING

Process Projects carry out feasibility studies and costing exercises that enable our clients to develop capital cost budgets suitable for funding applications. These studies range from detailed comprehensive studies that include testwork, design, EIA's, marketing plans and HR studies to simple exercises involving costing a process and producing the project financial plan.

Costing exercises generally involve preliminary engineering in order to obtain sufficient data for estimating and enquiry purposes. The level of accuracy required for the estimate determines the level of engineering carried out. This varies from project to project.

OWNER'S ENGINEERS

Process Projects would be responsible for the procurement, supervision and contract administration of the contract between the Client and the EPCM contractor ("EPCM Contract"), and various other project management and peer review services. We would report directly to the Client's internal project management team.

ENGINEERING

Our professional teams cover a wide range of engineering which is required for all types of projects and typically include the following:

Process Design

Process design is carried out by experienced process engineers using a variety of tools. The design generally follows the following sequence:

- Flowsheets and layouts
- Mass and Energy balances
- P&ID's and PFD's
- Equipment, valve, instrument and line lists;
- Hazops and design reviews,
- Detail design calculations and datasheets



- Process descriptions and functional design specifications;
- Schedules and technical specifications of sub-systems for tender purposes
- Commissioning planning and Operations Manual
- Training and Commissioning

Electrical

Most projects include the design, supply, installation and commissioning of low voltage (400V & 550V) MCC's. However, we also have experience with higher voltage systems (3.3kV, 6,6 kV and 11 kV) both incoming and outgoing. We have experience in power generation with Eskom grid connection including pure island operation and grid synchronised power production. In addition Process Projects have supplied power factor correction equipment at various voltage levels.

Instrumentation and Control

Process Projects services include full instrumentation and control engineering. Instruments are generally specified to meet client requirements. Control systems are typically PLC plus SCADA or DCS based systems.

Mechanical

We provide mechanical design and engineering support to all our projects. These include the design of stressed piping systems, vessels, tanks and heat exchangers.

Designs are based on international and locally accepted codes including ASME VIII Div 1 & 2, ASME B31.1 and 31.3, API, BS EN 14015:2004, PD5500 and associated and AD MERKBLATTER. For glass fibre vessels: BS4995 Categories 1, 2 and 3 are used. Design software used includes TANK, Caesar II, CodeCalc, NISA and HEATRAN.

Drawing Office

Our drawing office presently accommodates 8 workstations running mainly on AutoCad and CADWorx 3D with Microstation capability. Our draughtsmen are qualified in various disciplines. These include structural, mechanical, pressure vessel and piping areas and can provide design, general arrangement, 3D modelling, detail draughting and tracing. Draughting is done in accordance with BS, NSI, DIN and SABS standards.

Civil and Structural

Civil and structural work is normally carried out by our alliance partners. This includes civil layouts, and civil and structural design.

ENVIRONMENTAL

Process Projects utilises a number of experienced companies to carry out environmentally related activities such as impact assessments (EIA's) and environmental management plans (EMP's), interacting with governmental organisations and other interested and affected parties, etc. Generally we take responsibility for managing this activity only.



PROJECT EXECUTION

Award of the contract triggers a number of activities and appointments of discipline engineers and key personnel to the project team. At the start of the process, a formal handover from Sales to Projects takes place. All aspects of the project from tender documents to budget to scope of supply to commissioning and handover are discussed in a structured manner. On acceptance of the project from Sales, the project team assembles and a formal project launch is held. This is followed shortly thereafter with a kick off meeting with the Client.

Most projects are executed in a multi-disciplined manner i.e. with a team comprising specialists carrying out their specialist functions. These projects are generally large and complex in nature. Smaller, more multi-functional teams are used to carry out smaller, simpler projects and studies.

TECHNICAL AUDITS / DUE DILIGENCE SERVICES

Technical due diligence of plants and facilities involves the technical and engineering evaluation of facilities including operating plants and associated infrastructure and equipment by applying comprehensive and efficient review and analysis of the plant and facilities.

PROJECT MANAGEMENT AND PROJECT SERVICES

Process Projects has developed a comprehensive set of project management and project services procedures. These procedures allow the project teams to carry out projects in a systematic manner that ensures a high probability that projects are completed as expected.

Our project management systems include:

- Full cost control using Microsoft Dynamics Solomon software
- Planning using Primavera P6 and Microsoft Projects;
- Procurement with the procurement plan integrated into the master equipment list;
- Document control using QDMS and Doc-IT software to track all the documentation which details its status including turnaround periods. This software is used to release sub-contractor payments;
- Expediting and inspection prior to release from vendors;
- Project accounting;
- Risk and vulnerability management;
- Project close out reporting.

Cost Control

Process Projects recognizes that successful project management and control is heavily dependant upon accurate and up to date cost and cash flow information. To achieve this, we use an integrated project management and cost control system using Solomon software to record orders committed, costs incurred and performance against budget, estimate to completion and estimate at completion. Monthly meetings with the project managers keep the management team fully informed on the financial progress of the projects.



Planning

The planner co-ordinates the input and utilizes software planning packages to perform time analysis and scheduling of project activities. Each discipline is planned at a level that ensures that all the relevant physical and information interfaces are coordinated.

Progress is monitored during the design, draughting and procurement phases to ensure timely identification of deviation from plan. The progress frequency at suppliers is tailored to the criticality of the items supplied and progress on site is monitored daily.

Planning is based on Microsoft Project planning packages to perform time analysis and scheduling of project activities. Progress reports are in the form of S-curves per discipline supported by updated bar chart schedules. Reports can easily be tailored to suit specific requirements.

Procurement

The Project Buyer drives procurement activities from receipt of the enquiry requisition to the delivery on site in accordance with the project schedule.

Prior to procurement, the project team performs a risk assessment on the preferred suppliers taking historical performance into consideration. The risk management actions are incorporated into the procurement plan and the relevant expediting plans, quality plans, purchase orders and sub-contracts as applicable.

Engineering performs all the technical adjudications whilst the commercial adjudications are performed by procurement.

Document Control

All project documentation is managed in accordance with Configuration Management system implemented in accordance with ISO 10007:2003 Guidelines for Configuration Management and NQA1. The Document Control Department controls the revision status and flow of all documentation on the project and the control documentation with all project stakeholders.

The information required for operation and maintenance manuals is also maintained and compiled in this department. QDMS (Quality Document Management System) and VDMS (Vendor Document Management System) software programmes are used to support the tracking of documentation required to fulfil the project requirements.

Process Projects have stalled the Doc-IT document management system for the retention and control of revision status of all project documentation.

CONSTRUCTION MANAGEMENT

Process Projects has a construction management system that is used to run all site activities. Sites are operated under the Process Projects Health and Safety Programme and Management System plus any requirements of the client.

Each site has a Site Manager appointed in terms of the requirements of the Occupational Health and Safety Act who is responsible for all site management activities and conformance to the site Environmental Management Plan.



QUALITY ASSURANCE CAPABILITIES

We have an ISO 9001 quality management system in place and are ISO 9001:2015 accredited by the SABS. We have also been given certificate of recognition for 20 years with by SABS in 2014.

OCCUPATIONAL, HEALTH AND SAFETY MANAGEMENT SYSTEM (OHSMS)

The company implemented an Occupational, Health and Safety Management System (OHSMS) in accordance with OHSAS 18001:2011 designed to meet our Health and Safety objectives. The OHSMS requirements are complementary to the requirements of our operations, products and services.

The OHSMS may be used by external parties, including certification bodies, to assess our ability to meet customer, regulatory and our own requirements. The OHSMS has have been assessed by IRCA and we have been awarded a 4 star rating. We have also been given an award by IRCA for achieving one million lost time injury free hours worked on a local project.

ACCREDITATION

We hold membership of Construction Engineering Association – CEA, CIDB and SABS



SELECTED REFERENCES

Major EPCM Clients

- Extractive Technologies Polymer Project
This is a new greenfields production facility which started late 2007 and was commissioned in 2010
- NCP Chlor Alkali Expansion Project
Commissioned in 2009
- PBMR Pilot Fuel Plant Engineering
PP carried out the bulk of the design of PBMR nuclear fuel plant. The project started in 2003 and was cancelled in 2010 due to lack of funds
- LignoTech Lignosulphonate Plant Expansion
Overall project manager for the expansion project including engineering, erection and commissioning. This was completed in 2003
- Tongatt Hulet Starch Alidex Project
Overall project manager for the project including engineering, procurement and site management. This project was completed in 2015
- Senmin Xanthate Plant Project
Overall project manager for the project including engineering, procurement and site management. This project was completed in 2018

[See more on detailed project reference list](#)

LSTK Projects

- Paladin/LHU Pilot flash/splash heat exchange system
Completed and operational
- LHU Full scale flash/splash heat exchange system
commissioned 2nd quarter 2011
- Bateman/Afleases Autoclave Scrubbers
Supply of two specialist scrubber systems for the autoclaves installed at Uranium One



- Sappi Ngodwana Foul Condensate Steam Stripper
This stripper was supplied to reduce plant odour and recover methanol
- Impala PMR Effluent Crystallisation Plant
The project was for the precious metal refinery effluent was completed in 2006
- Bateman Impala BMR Ammonium Sulphate Crystalliser
The project was for Impala base metal refinery and was completed in 2005
- Sasol Synfuels Seal water system completed in 2006
- Eskom Matla Upgrade of the Water Treatment Acid Plant

[See more on detailed project reference list](#)

Feasibility Studies, Costing and Engineering Projects

- Alfluorco 90% cost budget estimate for an aluminium fluoride plant
- Foskor Basic and detailed engineering for a tail gas scrubber plant and dust extraction in the granulation plant
Basic and detailed engineering for a fluorine recovery plant
90% cost budget estimate for an anhydrous HF and aluminium fluoride plant
- Necsa 90% cost budget estimates for 2 projects
Evaluation of spent radioactive waste carried out by Nukem
- Pelchem EPCM cost estimate for the fluorine plant expansion
- Impala Platinum Overall cost estimate for an expansion in the BMR plant
Debottlenecking study on the BMR
Strategic alternate use of existing equipment
- VWSE (Anglo Plats) Basic Engineering for a nickel sulphate evaporator and a sodium sulphate crystalliser
- Senmin 90% cost budget estimate for a new polymer plant



Process Projects

- Tongaat Hulett Starch 90% cost budget estimates for 3 projects at their Kliprivier and Meyerton mills
- AEL Two small engineering projects
- Chemcity Pilot trials, scale up and budget pricing for a new polymer production process
- Sappi Cogeneration plant feasibility and costing at Sappi Lomati
Sodium Lignosulphonate Plant 20% Cost Estimate for Sappi Tugela Mill
- CCE Solutions Biomass Power Station feasibility
- Msoka Mining Mineral processing evaluation and cost estimate
- Tivani Mineral processing project employed as part of owners engineering team
- Botswana Dev. Corp. Bankable feasibility study for a fertilizer plant
- LignoTech Class 10 estimate for a plant expansion
- Sastech Study on the disposal of fertilizer residue
- AECI Technical services for cost estimate reviews and engineering oversight on various projects
- Western Utilities Corp Study on the disposal of acid mine water treatment residue
- AREFCo Bankable feasibility study for 1000mt/day fertilizer plant
- Rand Water Project Management, Construction Management and Engineering Services
- Frontier Rare Earths Pre-Feasibility Study for 240 t/pa HCl Plant
- Trivalent Chrome Bankable Feasibility Study for Chromium Hydroxide Waste Processing Demonstration Plant
- NCP Project Management, Construction Management and Engineering Services for Chlorine Storage Plant Expansion Project
- IDC Foskor Detail engineering and cost estimate for a Gypsum Dry Wall Plant manufacturing plant at Foskor Richards Bay
- Moreteng Investments Polyelectrolyte Dosing Plant engineering and project management for Rand Water Zuikerbosch Pumping Station



- Foskor Detail engineering of pumps and piping system
- Chlor Alkali Holdings Salt plant engineering for plant modifications
- LHU Design review of new flash/splash heat exchange system
- Mzansi Tyre Pre-Feasibility study of tyre recycling plant
- Senmin Low Temperature CMC Basic Engineering and Cost Estimate

[*See more on detailed project reference list*](#)