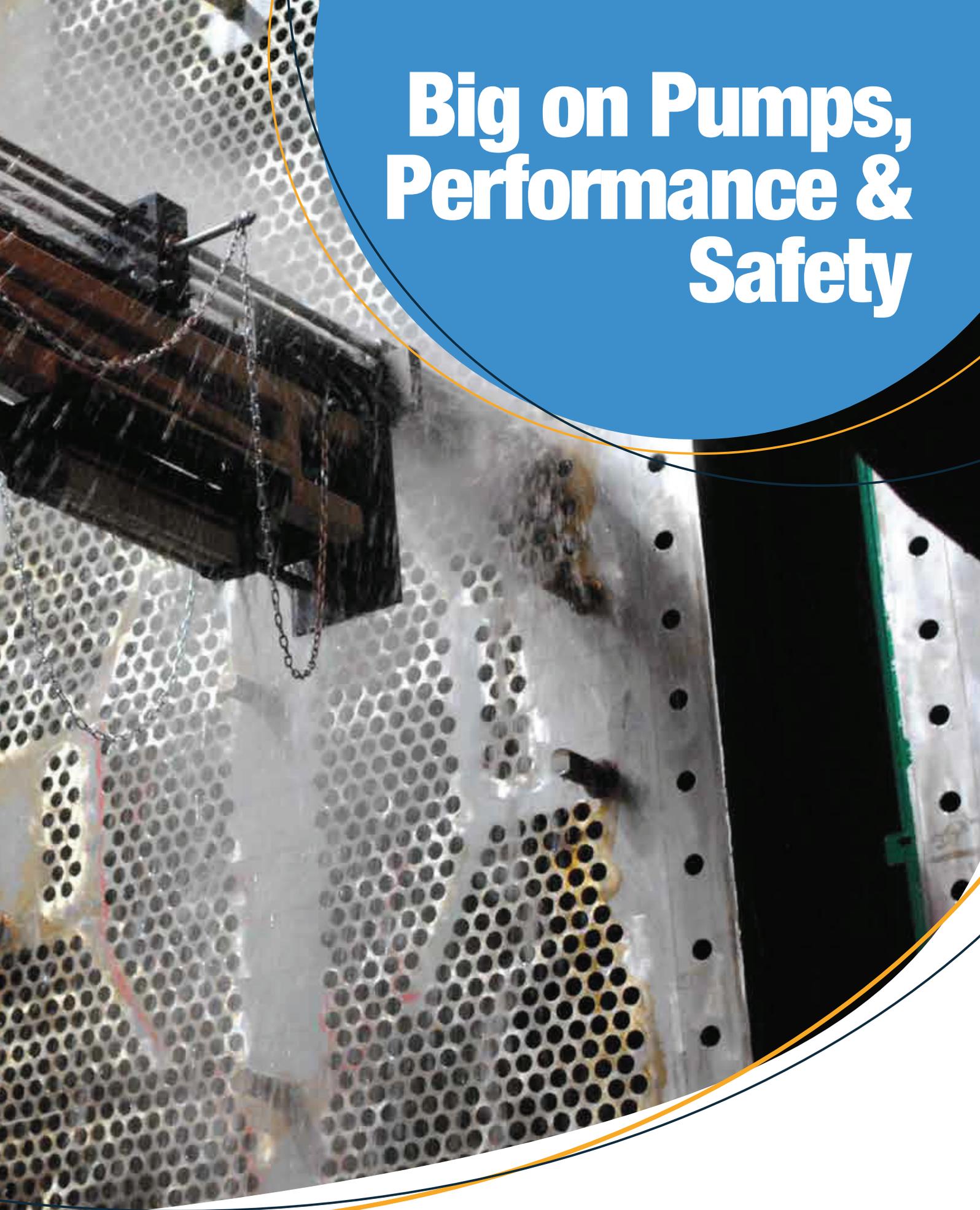


# Big on Pumps, Performance & Safety



*Hydrojet Systems* PTY LTD



# ▶ About Us

- ▶ Hydrojet Systems was established in 2002 in Australia where we have been providing cleaning and maintenance solutions to the industrial, construction, civil engineering and power industries.

Daily on-site research and development resulted in an in-house manufacturing department which develops and improves the equipment, delivering a better result to our customers who have become accustomed to improved quality and a shorter turn around window.

We are confident that our expertise and experience will benefit existing and potential customers. Our success stands squarely on our insistence that we go the extra mile in order to achieve what our clients expect first time, every time.

We are noted for our pioneering spirit and ability to turn a Research and Development Budget into increased performance for our clients.



# WE PLACE EMPHASIS ON...

03

## ➤ Safety

There is no compromise, our mission is to ensure our clients a 100% safety record.

## ➤ Quality

Our cleaning operation will ensure that the specifications of the client will be met.

## ➤ Efficiency

We strive for minimum disruption to the client and the environment.

## ➤ Performance

We ensure that our operation is constantly monitored and developed to provide improved production levels and output.



**QUALITY  
EFFICIENCY  
INVESTMENT**

# Services

We have been servicing the Power, Refinery and Construction industries for over **30 years.**

Industrial Cleaning  
Concrete Demolition  
Dam Maintenance  
Sugar Industry  
High Pressure Pumps  
CNC Engineering  
Equipment Manufacturing



# Industrial Cleaning

## Heat Exchanger Maintenance

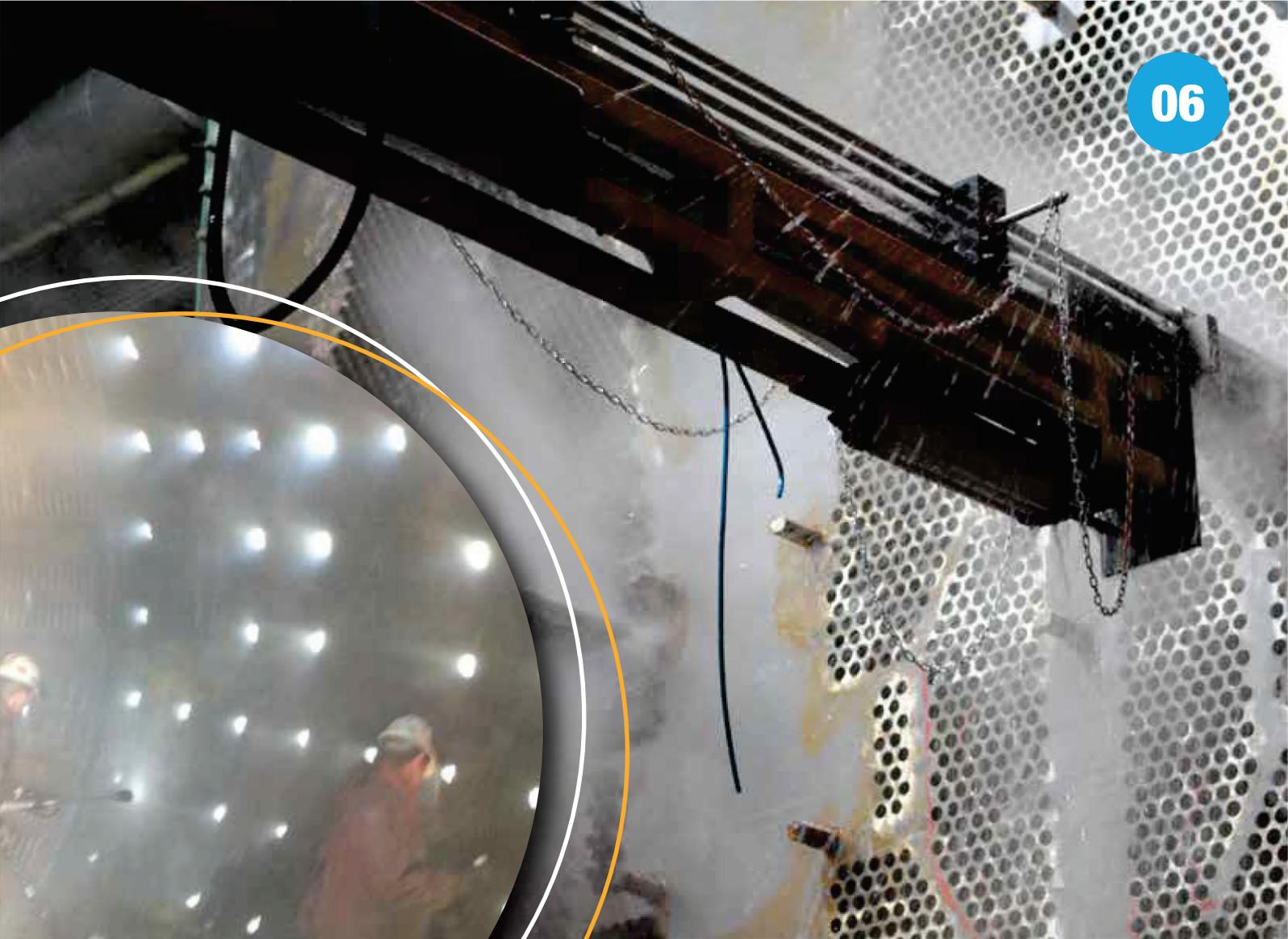
- Hydrojet Systems specialises in industrial cleaning using high pressure water jetting. We have the experience required to review the particular condition of the task and employ the appropriate cleaning technique for every unique application.

Every year we use our specialised high pressure water systems to clean on average 3.5 million metres of tube. In our cleaning experience since 1991 we have found that other tube cleaning methods such as bullets, hosing, pickling etc. have proved to be ineffective in removing the scale embedded in the tube pits.



Our high pressure water jetting care system is a package designed to provide complete 360° I.D. tube cleaning without harming the tube base metal. If required, this care system is also able to leave behind a protective oxide layer. Our aim is to restore and maintain maximum operating efficiency for every condenser and heat exchanger we clean.



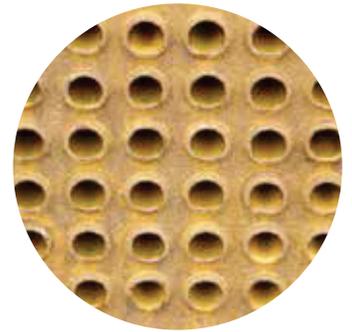


- Hydrojet Systems has engineered tube cleaning methods that promote a safer, faster and better cleaning operation.

## Tube and Pipe Cleaning

- Our aim is to promote the longevity of the tubes and as an added bonus, bring down the overall production cost of a plant. Our high pressure water jetting system is a superior cleaning method and has cost saving benefits for the immediate and the long term life of the tubes.

As safety is a priority at Hydrojet Systems the rotational lance is inserted into the tube under strictly controlled conditions. The operator has no hand contact with live equipment. It delivers a thorough clean in both directions and the number of tubes penetrated is twice that of a two lance hand held operation and four times that of the surface area cleaned. The effective cleaning rate is twenty times more efficient than a hand held operation and the tube entry point is part of the cleaning area. It is not susceptible to tube misses and it does not have a fatigue factor.



## External Heat Exchanger Cleaning

- We have the experience required to review the particular conditions and employ the appropriate cleaning technique for every application. Our mission is to provide our clients with a level of service that prioritises: Safety, Quality and a Return on their investment.



## Internal Heat Exchanger Cleaning

- Hydrojet Systems has developed customised tools for the internal descaling and cleaning of heat exchanger tubes.

These systems have a high level of safety and productivity with reduced manpower. Our lancing systems are portable and can be adapted to suit all heat exchangers.

- Our equipment is designed and built for safety and incorporates the following advantages:
  - Ability to clean 4 or 5 tubes simultaneously as compared to traditional single hand held lance operation.
  - The operator has no hand contact with the live equipment.
  - It cleans in both directions.
  - It does not have a fatigue factor.
  - The process can be finely tuned to ensure a thorough clean without damaging the tube.



## Tank Cleaning

- Hydrojet Systems has engineered a solution to eliminate the need for personnel to enter the tank or vessel. However, should physical entry be required Hydrojet Systems' staff are trained for the entry and regress of confined access tank scenarios.



# Refractory Removal

- Hydrojet Systems remove refractory material from boiler tubes, furnaces, kilns and reactors. Using high pressure water jetting systems, we can remove refractory materials quickly and safely.

Before

After Water  
Jetting

After Water  
Jetting with  
Grit

## Boiler Maintenance

Boiler Tube Surface Preparation

### World's First Online Boiler Clinker Removal Tool

- This unit was developed to work in a controlled and safe manner inside the boiler under very high temperatures, whilst applying the necessary amount of energy for the removal of clinker attached to the boiler surface.

Combining this tool with Hydrojet's other methods of cleaning we are able to provide our clients with the degree of scale removal suitable to their needs. This system is remote controlled so the operator has no contact with live equipment. It also has the capability to work in a 800°C environment whilst the unit being cleaned is still online.



# High Pressure Water Air Heater Cleaning

- Hydrojet Systems has produced cleaning solutions for cleaning and maintaining air heater baskets whilst in situ. The systems incorporated are capable of running a variation of pressures and flows to suit basket conditions. Regular cleaning of air heater baskets has been found to not only improve the differential pressures but the longevity of the baskets.



**BEFORE**

**AFTER**



## Air Heater Cleaning...

- The advantages of scheduling regular maintenance on the air heater baskets is performance and monetary driven and is a must for those power stations looking for a natural cost cutting procedure.

By our estimate, regular cleaning with the Hydrojet technology we can double or even triple the life of the baskets.

- The operation is performed from both top and bottom simultaneously, usually in three to four days depending on the severity.
- The equipment fabrication by Hydrojet Systems is versatile and can be adapted to suit a variety of power stations.
- The actual operation is designed to cater for zero risk in terms of the safety of personnel and equipment.



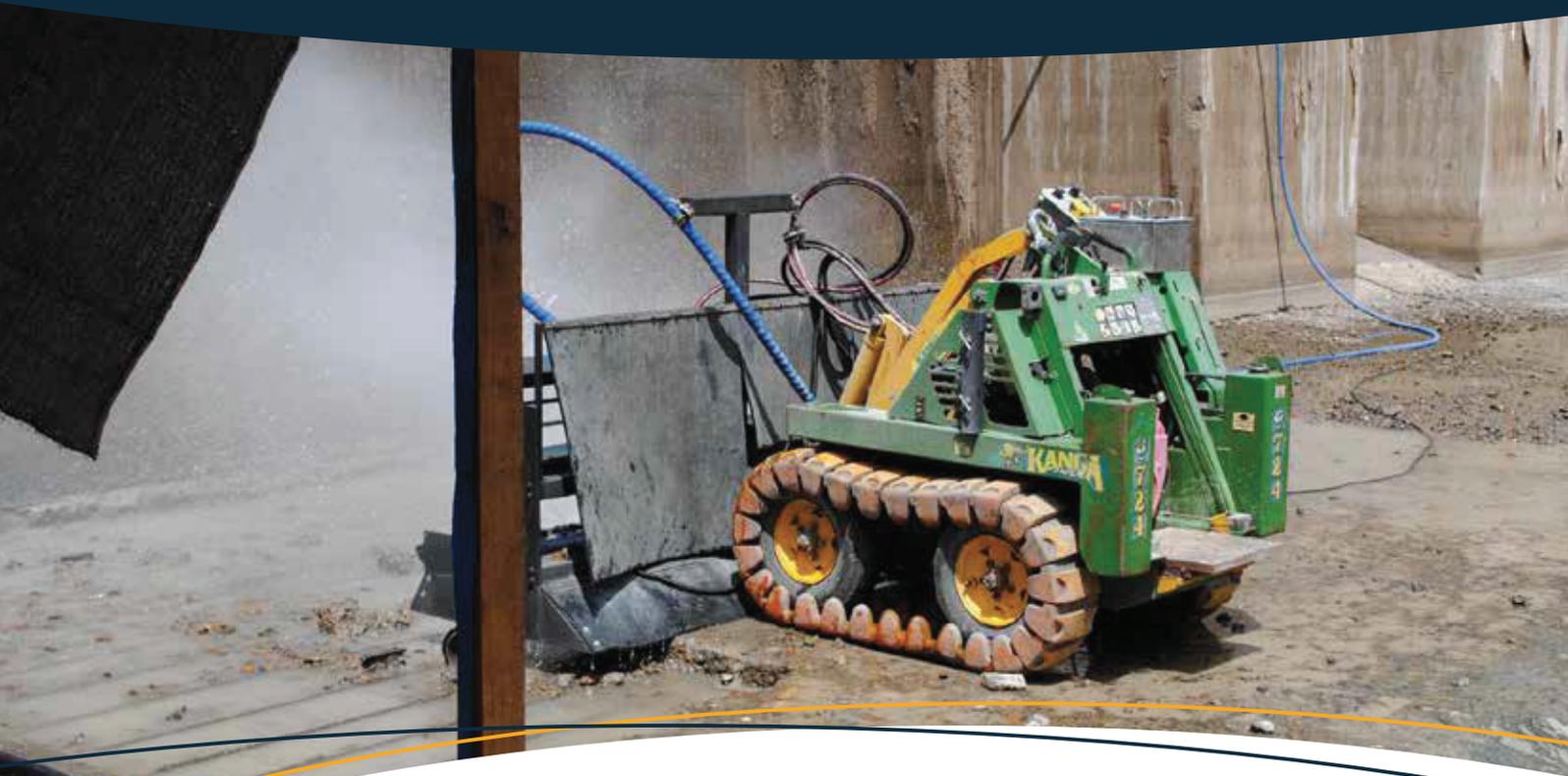
Cleaning from underside



# Concrete Demolition

## Hydro Scabbling

- Surface preparation is a critical factor in the performance of coatings and repair materials applied to concrete. Our method consists of directing a high velocity, high-pressure water jet to the concrete surface through a specially designed nozzle that travels transversely along a boom. The boom sweeps back and forth across the concrete surface as the equipment advances incrementally. The equipment can be used in applications ranging from laitance removal to hydrodemolition of concrete to depths of up to 300 mm (12”).



# Advantages of Hydro Scabbling

There is no dust and noise is minimal.

There are no mechanical vibrations that may cause structural damage.

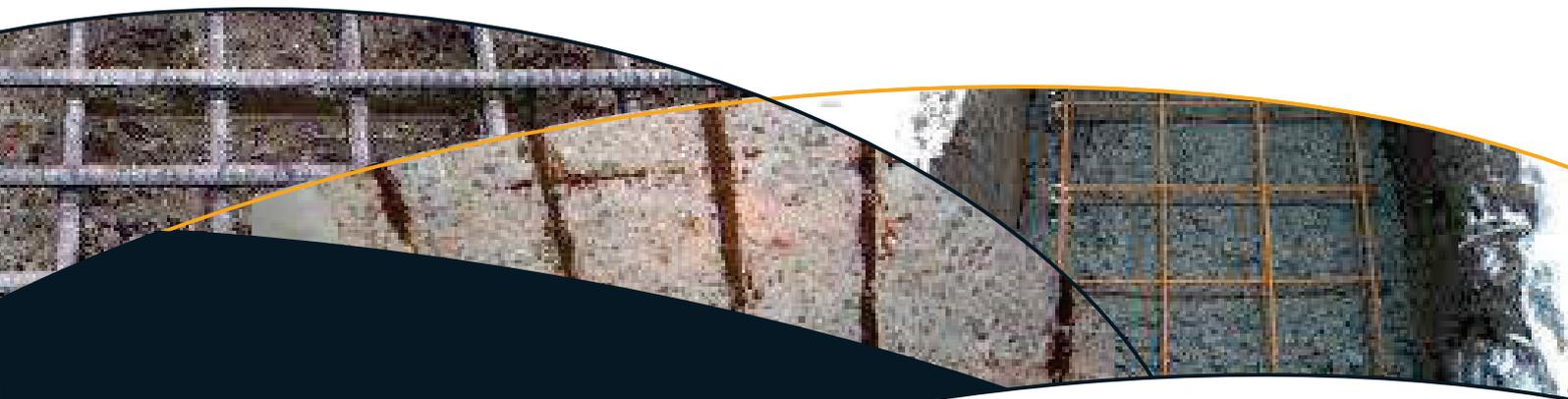
The machine selectively removes deteriorated concrete and leaves healthy concrete intact.

The reinforcing steel is not damaged.

The removal of deteriorated concrete is faster than by conventional methods such as jackhammers. The removal rates can range from 0.28 - 0.85 m<sup>3</sup> /h and 46.45 - 74.32m<sup>3</sup> /h (500 - 800ft<sup>2</sup>/h) when used as a scarifier to remove surface material to a depth of 6 mm (1/4").

## Concrete Cutting and Cold Cutting

- Abrasive, ultra-high pressure water jetting is suitable for effectively cutting a range of materials used in industry. Materials include alloyed construction resources, steels, concrete and reinforced concrete. The high pressure water jetting cutting process has no vibrations, creates no dust, vapour, gas, slag, thermal or mechanical stress, and can be automated.



## Hydro Demolition

- Hydrojet Systems use high pressure water jets to demolish and remove concrete whilst leaving the rebar intact. Our method is mainly used to remove concrete from sensitive structures such as dams, tunnels, turbine linings, bridges, parking decks, harbours and docks under repairs.

The variable parameters of the technique, water pressure, jet size and speed of application, make it possible to remove concrete in a very precise and controlled way.



## Concrete Truck Drum Cleaning

- Our technique enables the speedy removal of remnant concrete in the interior of the drum, without personnel physically entering the drum.

# Dam Maintenance



## Weep Hole Video Inspection

- Our specialised equipment allows us to video the weep holes. We are able to identify obstructions in collapsed holes and establish the overall effectiveness of the weep hole.

## Weep Hole Drilling

- Hydrojet Systems has designed and fabricated specialised equipment to perform in unusual drilling environments such as high access and confined spaces.



## Pipe Weir and Sewer High Pressure Cleaning

## Concrete Demolition

- Hydrojet Systems owns one of the largest high pressure machines in Australia, producing 257 litres per minute at 1500 Bar. This enables us to demolish large structures in a very short space of time. The advantages are no dust generation, no vibrations, no stress fractures or damage to the reinforcement. The tasks are performed faster and more efficiently than traditional methods. The Hydrojet method is ideal for working on sensitive areas such as dam structures.



## Concrete Rehabilitation

- Hydrojet Systems specialised equipment can provide a surface from a 5mm profile to a 300mm profile that is suitable for painting applications or a concrete repair.



# Sugar Industry

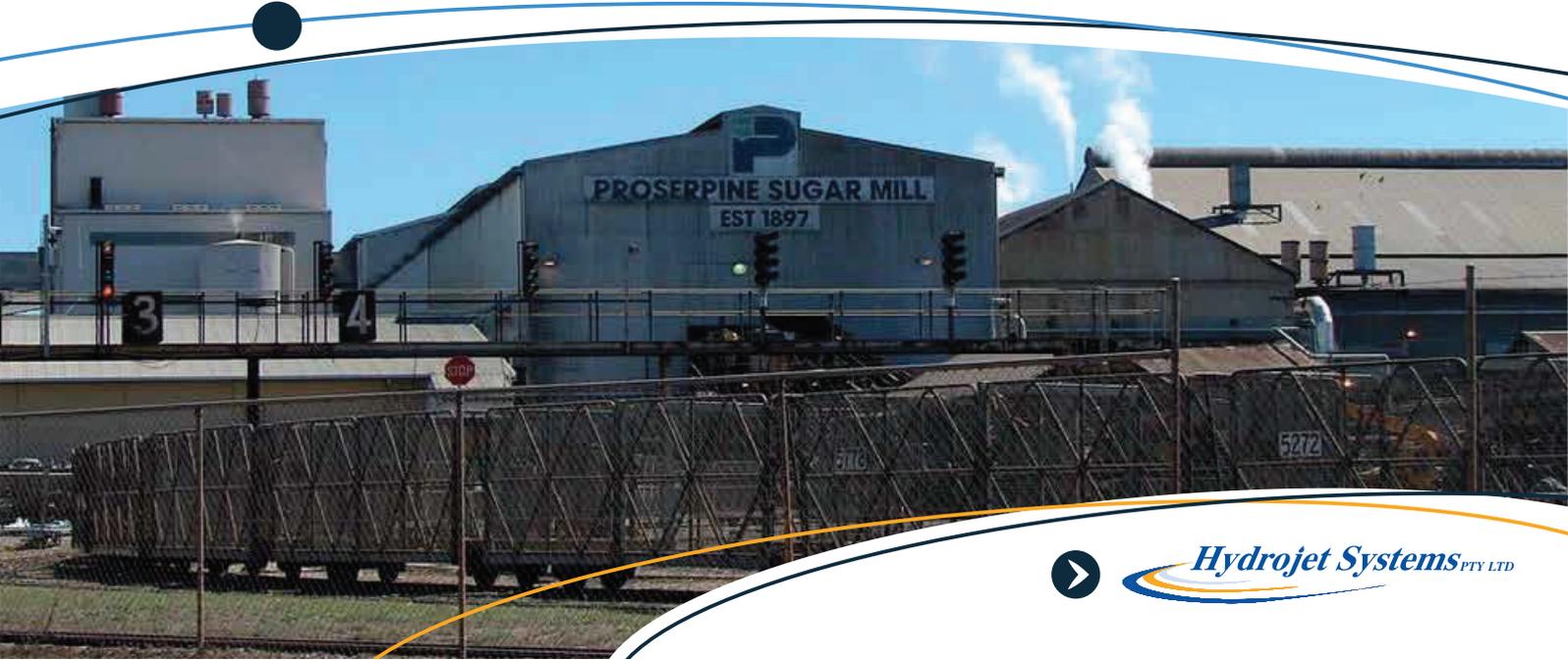
## Service History in the Sugar Industry

- ▶ Hydrojet Systems has been servicing the sugar industry since 2005 performing a variety of tasks. These include general gun work, pipe line cleaning/unblocking, tank/vessel cleaning, heat exchanger tube cleaning, confined space entry, removal of flanges, pipe work, installation of new gaskets and pressure testing for tube leaks.



## Tube Cleaning

Hydrojet Systems is highly effective in the cleaning of juice heaters. We are able to complete an outage in 4 days, where previously it would take 3 weeks. We also have the ability to undertake other complete works such as the removal of pipe work, gaskets and headers, high water pressure cleaning and the refit of all related components. Since beginning in 2005, we have expanded into many other areas of high pressure water jetting at the mills such as; pan cleaning, vessel storage cleaning, pipeline cleaning and many more.



# High Pressure Pumps

- Our specialised facilities, equipment and highly knowledgeable staff allow us to design and fabricate purpose built machinery ensuring 100% efficiency and performance.

We have a fleet of 29 ultra high pressure pumps ranging from 80 litres per minute @ 800 Bar to 400 litres per minute @ 1000 Bar for condenser / bundle / tank cleaning. In addition to these pumps, we have four 850Hp by 440m<sup>3</sup> per hour at 2000 PSI liquid transfer pumps. Our pumps are custom developed to best suit the application for which they are required, with regard to the different water pressures and flow rates necessary for each specific application.

## In-House Manufactured Ultra-High Pressure Water Pumps



250 HP Unit  
80 l/min  
750 Bar (10000 psi)



450 HP Unit  
140 l/min  
1100 Bar (16000 psi)



550 HP Unit  
170 l/min  
21000 psi

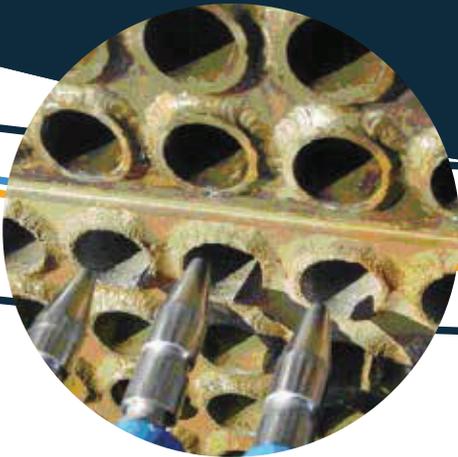


900 HP Unit  
360 l/min  
15000 psi



# CNC Engineering

- Hydrojet Systems provides clients with the best suited cleaning systems and maintains an ongoing Research & Development department which has kept Hydrojet on the forefront of Industrial Cleaning.



Custom designed nozzle manufactured to suit each cleaning system, obtaining best results.



In-house engineering department complete with CNC technology.



Before and after photographs after using Hydrojet Systems methods.

- All our equipment and components are tested in-house to the required design criteria. This ensures that our projects are completed on time and in the safest possible manner. Hydrojet Systems covers all aspects of Ultra High Pressure water cleaning and can supply the best suited system for the specific requirements of the market.

Nozzles for every different application are manufactured to meet specific requirements. The nozzles are designed, manufactured and tested in-house. Flow rates and water jets are matched to the application as well as the pumps and lances to the best possible result. We give clean tubes from 11mm up to 1m.

# Equipment Manufacturing

## Flexible Lance Feeders

- The twin flexible lance feeding system was developed to move the operator away from the nozzle tips and to have the lances fed through the tube at a uniform speed and in a controlled manner.

Our lancing systems are portable and can be adapted to suit all heat exchangers.

Hydrojet Systems has also developed a fully automated rotating lance system for descaling and cleaning. Our 5 lance machines clean 5 tubes simultaneously. This equates to 1500 tubes, each 6m long, being cleaned in 4 hours.

Hydrojet Systems has a specialised department where custom made equipment is manufactured to best suit our clients' needs.



Our lances have the capacity to clean bundles from 1m to 8m in diameter. The lances are powered by ultra-high pressure water pumps ranging from 200Hp to 900Hp, depending on the configuration. The system boasts both increased safety and productivity with reduced manpower. All equipment is built and manufactured by Hydrojet Systems. For applications where automated systems are not suitable, an extensive range of hand held flexible lances are also carried.



# Hydro Vacuuming Services

- Hydrojet Systems' Industrial Vacuum Truck fleet consists of both jetting and vacuum units. A High pressure water system is also provided on our units and is used for drain cleaning and hydro excavation.

Hydrojet Systems specialises in every facet of liquid waste. This includes waste collection and documentation. All waste is transported to the appropriate EPA (Environmental Protection Agency) waste treatment disposal point, where it is either treated and/or recycled to the highest possible environmental standards.

## Industry Applications Include:

### COMMERCIAL

Flooding mishaps; contaminated water/effluent; blocked drains

### CONSTRUCTION

Settling ponds; sediment tanks; excavation/drillers mud; temporary toilet blocks; concrete slurry; footings; trenches; piling operations

### MINING

Settling ponds; drillers mud; water leakage from tunnelling; silt traps

### AGRICULTURE

Effluent ponds; settling ponds

### INDUSTRIAL

Contaminants; concrete slurry; containment traps; refuelling depots

### MUNICIPAL & LOCAL GOVERNMENT

Flooding relief; drain/culvert/water course repair/maintenance; wash bays; silt traps

### PROPERTY SERVICES

Septic tanks; drain cleaning/unblocking

### UTILITIES

Vacuum excavation; drain cleaning; settling ponds; effluent removal

### MARINE

Oily water, ships bilges; holding tanks; bunker sludge tanks

### FUEL & GAS

Forecourt run-offs; spill rectification; oily water; holding tanks



- ▶ Hydrojet Systems PTY LTD has achieved and been certified for ISO 9001:2015 Quality Management Systems - ISO 14001:2015 Environmental Management Systems - AS/NZS 4801:2001 Occupational Health & Safety Management Systems.

## Safety and Training

Our mission is to give our clients a 100% safety record. Safety has always been a top priority for Hydrojet Systems. Our personnel adhere to strict safety guidelines and undergo extensive in-house training.

Our equipment is very safe to operate, it is fully automated. Our state-of-the-art high pressure water jetting pumps and accessories undergo continuous design review, engineering improvements and preventative maintenance in order to maximize reliability, results and user safety. Our in-house Training Programs compliment the technology and skills we have developed to service our clients.

Compliance	To comply with the Federal, State and Local Regulations and Industry Standards.
Prevent Pollution	To prevent pollution and provide a rapid response to incidents in order to minimize any negative impact on the environment.
Awareness	To promote an awareness of environmental matters to all involved.
Best Practices	In implementing this Environmental Policy, Hydrojet Systems Pty Ltd will adopt the best available practices and procedures to promote the protection of the environment.

## Environmental Policy

- ▶ Hydrojet Systems maintains an Environmental Policy to ensure that any potential negative environmental impact of its operations is minimized. It is the responsibility of all employees to be aware of our Environmental Policy. All staff members are obligated to ensure that they and their colleagues' health and safety and the environment are protected by all operating practices and procedures.

# Projects

## Australian Contracts

GAWB - Gladstone Area Waterboard	GHD Pty Ltd - Engineering Consulting
BP Refinery – BP Bulwer Island (Brisbane)	Caltex Refinery – Kurnell (Sydney)
Caltex Refinery – Lytton (Brisbane)	Stanwell Power Station
Comalco Alumina Refinery	Shell Refinery (Sydney)

## International Contracts

Malta Power Station	Engen Refinery	Sasol 2 & 3 Refineries
Tutuka Power Station	Kriel Power Station	Sapref Refinery
Lethaba Power Station	Arnot Power Station	







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***Hydrojet Systems*** PTY LTD