



Ingenia advises that we are operating through the current COVID-19 situation well in Adelaide, South Australia. In addition, we have safety precaution systems and processes in place at the office and on site, ensuring that staff and clients are protected against spread and infection.

2020 IN-REVIEW

Key projects completed last year:

Olympic Dam Electric Slag Furnace **Condition Review**
 Osbourne Naval Shipbuilding Precinct **Jig Wagon Design**
 Remark Observation **Jetty Design**
 Chimney **UAV Inspection and Condition Assessment**
 Cement **Plant Design**
 Sky City **Roof Pipe Platform**
 Woomera Air Base Hangar **Door Automation**
 Pump Station **Skid Design**
 Quarry **Structural Condition Assessment**
 Container **Folding Access Platform Design**
 Gantry **Crane and Structure Registration**
 Compressor Room **Design and Drawings**
 Dispatch Plant **Structural Design and Drawings**
 Various clients **HAZOP & SiD Facilitation**
 Food packaging **Machine Design**
 Custom Machine **Lifting Analysis**
Elevated Water Tank Design for a NT remote community.

CURRENT PROJECTS SNAPSHOT

- Process Hazard Analysis for a material handling client in SA
 - Pump Station Investigation for a major mining client in SA
 - Design of an API 650 tank for a client in WA
 - Tower dust collector suction ducting for a material handling client in SA
 - Crusher slab analysis for a quarry client in SA
 - Concrete pier moulds for the Regency to Pym Road infrastructure project
 - Modification to Filler for Food production client in SA
 - Spatial Point Cloud Scans for Various Clients in SA
 - Mechanical roof for prominent defence infrastructure
 - Tank Floor plate replacement
 - Crane Structural inspections
 - Mezzanine Platform Design
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MURRAY RIVER JETTY DESIGN



Ingenia was recently engaged by Maritime Constructions to design the Renmark Waterfront Park Observation Deck / Jetty. The Waterfront Park located in the town centre of Renmark will provide recreation facilities to the local community and surrounding areas. The 26m long structure forms part of the new waterfront development and provides views from the Western side of the Murray River. The unique design was completed by our structural / maritime engineering team in consultation with Maritime Constructions. The design incorporated the use of sustainable decking materials using 100% post-consumer plastic.

INTRODUCING NEW TEAM MEMBERS



Ingenia is delighted to have Steven Huddy who would have taken over Business Development for Ingenia to enhance the Sales and Marketing of the brand through his skills and experiences in consumer electronics. Steven is currently working with existing clients and on a fresh look to Ingenia marketing and social media platforms.



Ingenia is glad to welcome Chris Strange to the team. Chris brings many skills, capabilities, and a wealth of knowledge with his experience in the Commercial, Industrial and Mining spaces. Currently, Chris is working on some interesting projects within the Defence, Mining, and Industrial spaces. He has fitted in well and has provided immediate impact to Ingenia's already strong structural and civil capabilities.

CASE STUDY: OLYMPIC DAM

Back in 2016 Ingenia assisted one of their clients with the dynamic analysis of some large pump skids to address vibration issues which were limiting pump performance and operation. Based on the analysis outcomes, Ingenia provided several recommendations to minimise the impact of the vibrations occurring. The pump skids consisted of large multi-stage pumps, driven by diesel engines with power ratings between 600 kW and 1100 kW and the skids with the pumps and engines themselves were mounted on large concrete foundations with a thickness of 1200 mm.

Given that the pump skids were reaching a stage where replacements were being considered, it made sense to readdress any remaining vibration issues and an intended redesign of the pump skids provided for an ideal opportunity to do just that. Further to that, additional value could be gained by making the pump skid design more flexible to accommodate alternative engines and pumps. Another modification to be considered was whether it would make it easier to maintain the pumps and engines, if a modular setup could be adopted with the pumps and engines installed on their own dedicated skids. A similar approach had been trialled at other pumping station locations and worked quite well. Based on this, it was decided to incorporate the modular setup in the new design as well.

The maximum power rating of the current engines was also limited by the available engine cooling water system capacities, and, because of this, the engines and pumps could not operate at their maximum capacities. To address this, several cooling water system layouts were evaluated ranging from stock standard radiators to using the water pumped as cooling water. As an alternative to the use of radiators, the use of stand-alone cooling water units with their own circulation pumps was considered.

These options had to cope with ambient temperatures more than 45 to 50 degrees for most days of the year which added to the design challenge and meant that the cooling water systems had to be scaled up to work as intended. As a result of the pump and engine vibrations, the grouting underneath the current skid frames had started cracking allowing increasingly unrestricted, unwanted, movement of the frames. Ingenia proposed to apply its positive anchoring method to mitigate the impact of grouting failures.

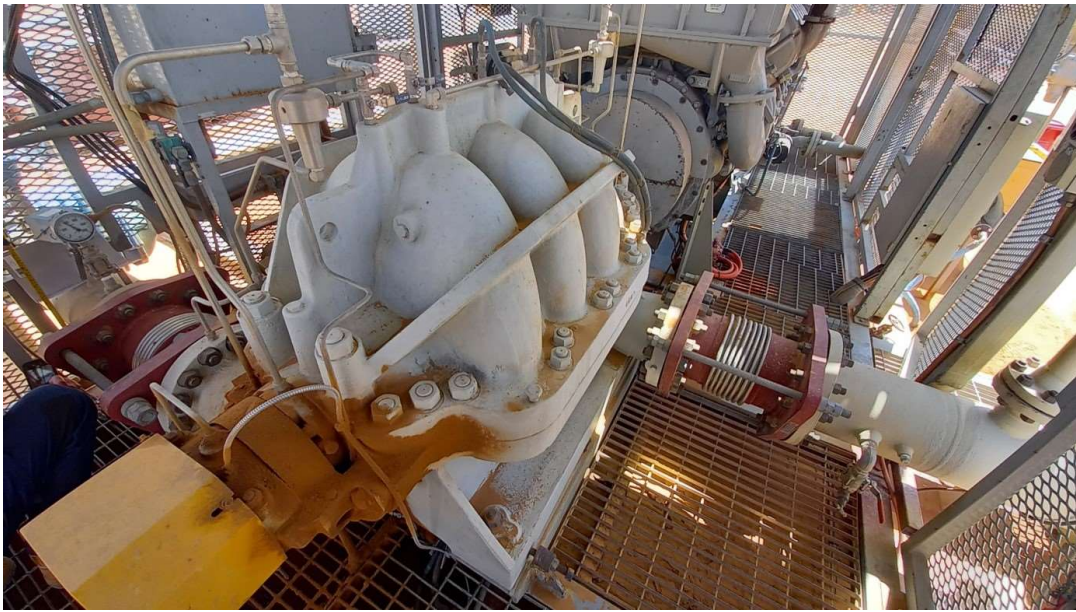


Figure: PUMP AND ENGINE SKID

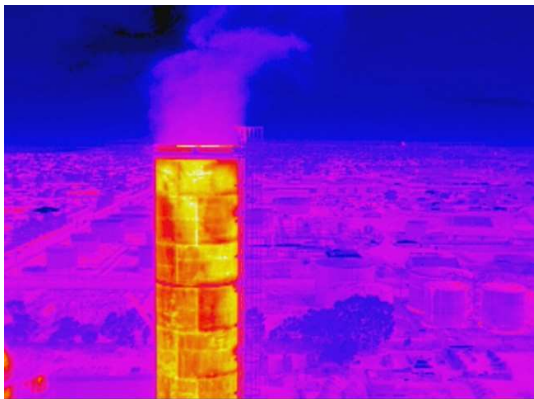


Figure: Thermal UAV Inspection

SHORT STORY

Ingenia has been busy working over the Christmas break completing a complete aerial and ground level thermal inspection of a cement production facility prior to their shutdown. The investigation by our experienced engineers identified several key areas which, without the inspection, would have been missed in the shutdown resulting in further downtime and associated costs.

MESSAGE FROM THE GM



To our customers and friends at Ingenia,

Happy New Year!

I hope you have had a great Christmas break and are ready to see what is possible in 2021!

Looking back, what a year we have had, with COVID-19 lockdowns, working from home and a complete change to the work environment. When all businesses were hard hit at the beginning of the year we managed to adapt and transition to the working from home environment seamlessly, keeping projects and deliverables on track.

As we transition into 2021, I am excited about the future, with growth of our teams and capabilities, new opportunities and building on what we do best! We are committed to keep our business customer focused and agile, while expanding our capabilities and service offering.

On behalf of everyone at Ingenia, I thank you for your engagement, feedback, and business during 2020. We are looking forward to working with you again in 2021!

Sincerely,
Daniel Halls
Ingenia General Manager

General Manager, Daniel Halls and partner Danielle Strobel welcomed a new addition to their family, baby girl Mikayla. She is the newest member of the Ingenia family.

The Ingenia team wishes Danielle and Daniel for a lifetime of happiness for their growing family.

Congratulations!



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