

ALGA Annual Industry Excellence Awards
Submission for: Award 2: Best Remedial Project (<\$1M)
Submission by:



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Project Overview

The Augusta Power Stations (APS) have a long and valued history providing reliable electricity generation to the South Australian and National Electricity Market since 1954. The APS site is located near the township of Port Augusta, approximately 300 km north of Adelaide. Power generation was secured through the utilisation of coal from the Leigh Creek Coalfields, transported along a dedicated 250km rail line connection. The mining and power generation industries at Port Augusta and Leigh Creek contributed significantly to the region's economy for over 60 years.

In 2015, the site's operator announced plans to cease coal mining and power generation activities, and commenced plans to decommission, rehabilitate and address site contamination at both the APS and the coal fields. Flinders Power Partnership (Flinders Power) managed the demolition and rehabilitation, and engaged Kleinfelder in 2017 to undertake remediation of hydrocarbon-impacted soil and groundwater contamination at both sites. The remedial works at APS were conducted to achieve Flinders Power's objective of leaving the site in a safe and stable condition suitable for going industrial/commercial use. The remediation was performed in accordance with the requirements of a Voluntary Site Remediation Proposal (VSRP) with the South Australian Environmental Protection Authority (EPA) and was subject to a Site Contamination Audit.

The remediation and regulatory closure of these two high profile sites was the first of its kind for a large coal-fired power generation facility in Australia. Stakeholders and regulators included the EPA, Dept. of Environment and Water (DEW), local government, local and national media, and community groups. Kleinfelder worked closely with Flinders Power to develop a strategy that would successfully deliver the site remediation, in compliance with EPA guidelines.

The remediation strategy included defining risk in terms of source-pathway-receptor linkages, followed by targeted excavation and bioremediation of contamination sources to reduce ongoing monitoring liabilities. This required a close working relationship with the appointed Site Contamination Auditor to define the strategy and key actions and ensure a 'no surprises' outcome. Key responsibilities included managing the civil contractor to ensure earthworks were performed safely and to the required standard, and supporting Flinders Power in maintaining effective and transparent community engagement.

Kleinfelder adopted a staged remediation approach to areas of contaminated soil, including the establishment of bioremediation pads for the stockpiling and bioremediation of excavated contaminated soil, and implementation of reinstatement strategies in accordance with regulatory guidelines. Groundwater assessments were undertaken to establish baseline concentrations. Subsequently, the primary contamination sources were remediated and validated through sampling and analysis. Post-remediation groundwater monitoring was conducted to demonstrate the success of the remediation.

Evidence of significant environmental, economic & social obstacles & benefits

Environmental: Following their closure, hydrocarbon impacted soil and groundwater was identified in eight areas across the two sites. This was deemed to present an environmental risk if not addressed. Kleinfelder bioremediated over 3,000 m³ of impacted soils on-site, using purpose-built treatment pads, bio-augmenting the soils with the application of di-ammonium phosphate and aerating the material through turning over using mobile plant. The soil piles were carefully managed to reduce environmental impacts from dust and sediment runoff. Groundwater in the excavations and the saturated soils were dosed in-situ with a persulfate-based chemical oxidant to enhance groundwater remediation. Validation soil sampling and post remediation groundwater sampling was performed to confirm the success of the remediation. The on-site re-use treated soil was maximised, including the filling of an existing void within a former basement at the APS. The adopted remediation approach enhanced natural processes, reduced energy requirements and meant soils were re-used at site without disposal to off-site landfills.

Economic: The remediation of the APS site has transformed a potential liability into an asset that will be re-purposed to support new industry and development. The remediation works resulted in a site contamination audit statement and site closure which facilitated the sale of the property. The new site owners plan to develop the site into a \$250 million port facility capable of handling iron ore, grain and other commodities. This will see the return of commercial shipping to Port Augusta for the first time in almost half a century and support diversification of the local economy.

Social: Owing to the high-profile nature of the site closure within the local community, the project team planned for a high degree of community interest and sensitivity. Through implementation of a robust community and stakeholder engagement plan, including close consultation with a Community Reference Group, the local community were

Project Highlights

Project Duration:	November 2017 to April 2019
Remediation Areas:	Eight
Impacted Soil Treated:	3,000 m ³
Validation Samples:	391
Groundwater Monitoring:	3 Events
Audit Report Submitted:	May 2019
Audit Report Accepted by EPA:	June 2019

regularly updated on the objectives, progress and outcomes of the site remediation, reducing potential uncertainty and concern.

Evidence of practical application of regulatory requirements (Incl WHS)

In July 2018, part way through the remediation works, the EPA released their “Guidelines for the Assessment and Remediation of Site Contamination” (the “GAR”). Prior to and following the release of the GAR, Kleinfelder consulted with both the EPA and the Site Contamination Auditor to develop a remediation and site management reporting framework that met the new requirements of the GAR.

The site was in active demolition during remediation works which Kleinfelder managed through establishing exclusion zones and fencing, barricades and signs around open excavation. Kleinfelder used the behavioral based tools that form the loss prevention system (LPS) to ensure the remediation work was completed with no injuries or equipment damage.

Quarterly progress meetings were held between Flinders Power, Kleinfelder, the EPA and the Site Contamination Auditor to enable all parties to understand the current status of works in accordance with the key milestones set out in the VSRP. The meetings ensured alignment between the regulator, auditor, consultant and client, allowed issues to be raised and solved early on and mitigated surprises or delays to the project. This approach was fundamental to achieving the safe, on-schedule and under-budget program of work. As a result, the site audit report was prepared concurrently with the final remediation and site management reporting, and the EPA accepted the audit report within a month of its submission with no amendment.

Evidence of productive engagement with all project stakeholders

This was the first major integrated mine and coal-fired power station closure in Australia. This made it a high-profile project; locally, state-wide and nationally. Multiple stakeholders, including Government, regulators, community, employees, unions and media were watching carefully.

Flinders Power developed a comprehensive Community and Stakeholder Engagement Plan, which consisted of multiple communication channels to provide the right level of technical and non-technical information to the right stakeholders at the right time. These channels were utilised for the site contamination works program and included:

- Regular website updates, including a mailing alert notification list;
- Weekly progress report updates to over 30 key stakeholders;
- Regular fact sheets and project newsletters posted to all 15,000 residents of neighboring communities;
- Regular media releases, television and radio interviews and ‘infomercials’ in the local newspaper;
- Open Days and a standing invitation in the local newspaper for residents to tour the site.

A Community Reference Group was formed, which met bi-monthly and consisted of representatives from the Port Augusta City Council, the Local Member of Parliament (the Minister for Energy and Mining), residents and the EPA. The group was independently chaired and conducted 16 meetings, many of which included a site tour. Kleinfelder, Site Contamination Auditor and the EPA attended the meetings at various times to discuss program progress.

Overall, some 250 people have toured the site, including pupils on visits from a number of local schools, during which information on the site contamination assessment and remediation works has been presented.

Evidence of effective communication of new knowledge to the industry

Brad Williams, Program Manager from Flinders Power presented at the ALGA SA Chapter technical forum on “Better Communication and Community Engagement” in Adelaide in October 2017. Brad presented alongside the SA EPA’s Principal Adviser, Community Engagement on his experience in engaging with the community regarding dust impacts from closure activities at Port Augusta, and lessons learnt in improving the community engagement strategy.



Photo 1 – Community Reference Group Site Visit During Open Day



Photo 2 – School Group Site Tour



Photo 3 – Covered biopiles at APS



Photo 4 – Soil excavation and movements at APS



Photo 5 – Soil excavation adjacent to former power station at APS



Photo 6: Addition of chemical oxidant to saturated soils within open excavation to enhance biodegradation