



## ▶ **FLINDERS POWER ASH DAM** Frequently asked questions – UPDATE #3

Issued 26 March 2018

Please refer to [previous FAQs](#) for further information.

### **How does the Flinders Power closure plan compare with other power station closure plans interstate such as Hazelwood and Munmorah?**

The EPA is aware of other power station closures and during its assessment of the *Flinders Power Closure and Post-Closure Plan*, it made contact with government agencies in other Australian states to better understand the sites and their requirements. This includes contact with the Victorian EPA regarding the Hazelwood Closure.

It is important to note that each closure must be assessed taking into consideration site specific factors, including the nature and scale of the processes and activities that have occurred on a site, site location, topography, and legal considerations, including lease arrangements.

In regards to the Hazelwood closure, EPA's communication with the Victorian EPA highlighted a number of significant physical differences between the two sites. For instance, the exposed surface area of the Port Augusta ash dam is significantly larger than the exposed areas of ash at the Hazelwood sites. This is partly due to the progressive rehabilitation of ash at the Hazelwood sites, and the manner in which the ash is deposited and managed. It is important to note that progressive rehabilitation wasn't required during operations at the Flinders Power site, due to provisions contained within privatisation legislation.

The EPA will continue to engage with other jurisdictions regarding power station closure plans, to ensure latest information and learnings from other jurisdictions is taken into consideration in the EPA's assessment process.

### **What information was considered in determining that 150mm of topsoil would be sufficient to sustain vegetation on the ash dam?**

While the EPA does not have any specific guideline regarding the rehabilitation of ash dams, the *Environment Compliance Agreement* ('Clause 5' of privatisation legislation) referenced an *End of Life Plan* (agreed by Flinders Power and the Minister for Environment and Heritage on 14 February 2000) for the ash dam, describes capping and revegetating the area, such that it 'must prevent wind borne dust to the reasonable satisfaction of the EPA'.

The *End of Life Plan* identified that a key element of the power station closure would be the successful rehabilitation of the ash dam to ensure the community would be protected from adverse impacts such as dust.

To achieve this, Flinders Power provided a range of long-term options for ash dam rehabilitation to the EPA and other government agencies in May 2016 for assessment. These options were assessed by the EPA against the following objectives for the long-term management of the ash dam:

- provide a long-term and stable separation layer between the ash and the final surface that protects human health and the environment.
- minimise the generation of leachate.
- safeguard the protected environmental values of surface water and groundwater in accordance with the *Environment Protection (Water Quality) Policy 2016*.
- provide land that is compatible with the intended after-use.

The EPA guideline *Environmental management of landfill facilities* outlines objectives for the closure of landfills. Although the EPA was guided by these objectives, it is important to note that this document provides guidance to landfill operators and regulatory bodies on closure and post-closure management of municipal solid waste, commercial or industrial general waste landfill facilities. These facilities can generate leachate through the breakdown and decomposition of waste material.

The closure objectives for both landfills and the ash dam are similar in that they utilise a capping layer. The detailed design for the ash dam however, was assessed against modern practices for the specific type of work being proposed. It was determined that in this site's specific circumstances, a 150mm soil layer would achieve the environmental objectives of the ash dam rehabilitation project. As the ash from the Port Augusta Power Stations is relatively inert, the risk of leachate generation is minimal. Therefore an impermeable barrier is not required. In addition, it is important that any rainfall is available for the 150mm soil layer to establish native vegetation and is not directed away from the site.

The soil layer depth was assessed and approved by native vegetation specialists within the Department for Environment, Water and Natural Resources to ensure objectives of the *Revegetation Management Plan* would be achieved, and endorsed by the site contamination auditor who is overseeing the site contamination assessment and remediation work across the whole site. In addition to this, the EPA sought a review of the *Ash Dam Rehabilitation Plan* by specialists within the Mining Regulation Division of the Department of State Development, as a comparison was made between the ash dam and a tailings storage facility.

The [Ash Dam Rehabilitation Plan](#) is available on the Flinders Power section of the EPA website.

## **Do other states have different requirements for the remediation of closed down power stations?**

During the time in which Flinders Power was scoping long-term rehabilitation options for the ash dam in 2016, the EPA undertook research into ash dam remediation and rehabilitation in both Australia and overseas. The EPA also contacted the New South Wales EPA and the Queensland Department of Environment and Heritage to better understand how similar operations have been managed in their jurisdictions. This information assisted the EPA in its assessment of the final detailed design and rehabilitation plan for the Flinders Power ash dam.

Each power station closure is assessed individually, as each site presents a different level of complexity. Site specific factors must be taken into consideration in determining remediation requirements, including the nature and scale of the processes and activities undertaken, site location, topography, and legal requirements.

At the cessation of power generation in May 2016, it was expected that flooding the ash dam with sea water would be successful in managing dust, prior to the implementation of the long-term solution of capping the ash dam with soil and revegetating. As such, following closure, Flinders Power commenced new pumping arrangements to flood the surface of the ash dam with sea water to maintain the crust to manage dust emissions. However following dust events in July and August 2016, it was determined that sea water flooding was an ineffective dust control measure, and the EPA required Flinders Power to reassess its dust management strategy for the ash dam. Following the January 1st 2017 dust event, planning and implementation of the long-term plan for capping and revegetation the ash dam was brought forward, to provide the long-term and stable separation layer between the ash and the final surface that protects human health and the environment.

Further information regarding the interim dust control measures can be found in the [detailed report](#) which is available on the EPA website and was produced by the EPA in response to the January 1st 2017 dust event.

In the case of the Flinders Power ash dam, placing a soil layer over the ash and revegetating the area will play an important role in closure and post-closure care of the site, meeting the environmental objectives for the site.

### **Can anything be done to expedite the vegetation growth?**

A *Post-Completion Monitoring and Maintenance Plan* has been developed by Flinders Power. This Plan provides for the ongoing monitoring of the ash dam following rehabilitation, and the completion of maintenance activities. This Plan provides for a 10 year period of monitoring and is an essential component in ensuring that the guiding principles of rehabilitation are achieved and sustained in the medium and long term.

One of the potential management strategies outlined in the Plan is the consideration of irrigation.

The EPA is aware that the SA Water Waste Water Treatment Plant (WWTP) may provide a potential water source for irrigation and/or dust management. However, there are a number of factors that would need to be carefully considered, if water was sourced from the WWTP. This includes quantifying the costs and water available, determining whether tertiary treatment is required to be installed to manage health and safety risks, and receiving advice from revegetation experts as to the likely impact of the waters' nutrient and salinity concentrations on native plant germination and growth. The EPA is continuing work with SA Water, Flinders Power and its contractors to determine whether water from the WWTP is a viable option for irrigation and dust management.

## What approach is being used for revegetating the old coal stock pile area?

In accordance with [Closure and Post-Closure Plan](#) requirements, Flinders Power planted tubestock and undertook seeding of the coal stockpile area in 2016. At a site inspection in July 2017, the EPA observed a poor success rate in survival of tubestock. The EPA subsequently recommended that Flinders Power engage vegetation specialists to review the coal stockpile revegetation project, and provide a report to the EPA on the monitoring, the success of tubestock, and outlining any replanting/contingencies that need to be activated for the coal stockpile area.

Subsequent to this, in August 2017 Flinders Power engaged revegetation specialist Succession Ecology to undertake a site inspection of the coal stockpile. Succession Ecology noted in their report that revegetation efforts had been moderately successful, however there remained bare patches with limited coverage. A series of management options were recommended to Flinders Power and in September 2017 Flinders Power undertook supplementary re-seeding of the coal stockpile using endemic native chenopod species.

In January 2018 Flinders Power engaged a third-party independent expert to review the coal stockpile revegetation project. A report recommending a number of management options was subsequently prepared and provided to Flinders Power and the EPA. The approach to the coal stockpile revegetation is currently being reviewed by Flinders Power, and will be informed by recommendations within the report. The EPA will recommend to Flinders Power that it provide an update on this matter at a future CRG meeting.

As part of the final site contamination audit report, the EPA-accredited site contamination auditor will ensure the land, including the coal stockpile area, is fit for purpose and poses minimal threat of ongoing or future harm to the environment or human health.

## What site contamination remediation is being undertaken at the site?

An EPA-accredited site contamination auditor engaged by Flinders Power is conducting an audit of the site to determine the nature and extent of any contamination at the site (this includes soil, groundwater and surface water). The auditor is also determining the remediation measures necessary to ensure the land used in power station operation (including the ash dam) is fit for purpose and poses minimal threat of ongoing or future harm to the environment or human health.

The EPA has been advised by Flinders Power that the mills system is installed on a concrete plinth which is contained within the significant concrete foundations of the Northern Power Station. The treatment of the void space including the gerb springs that support the concrete plinth under the mills remains subject to engineering review and site contamination auditor review and endorsement. This area is not accessible until such time as the northern boilers have been processed.

The concrete foundations act as a large bund. There is no contamination that EPA is aware of in the vicinity of the Northern Mills, based on the work completed to date. The final site contamination audit report will include a determination of the nature and extent of any site contamination present or remaining on or below the surface of the site and what remediation is or remains necessary for a specified use or range of uses.

Further information regarding site contamination is available on the Flinders Power section of the EPA website, this includes the detailed site investigation report.

## Will concrete footings and foundations left on site affect future use?

An objective of the Flinders Power closure program is to dismantle the Northern and Playford Power Stations in a safe manner and return the site in a safe and stable condition suitable for future industrial/commercial use. The EPA-accredited site contamination auditor engaged by Flinders Power determines the remediation measures necessary to ensure the land used in power station operation is fit for purpose and poses minimal threat of ongoing or future harm to the environment or human health.

A State Government Task Force has coordinated many elements of the closure plan, including gaining agreement with Flinders Power on infrastructure to be retained at the site.

## Which entity is responsible for providing the necessary funding to ensure the site is remediated appropriately?

Flinders Power is responsible for the closure and remediation of the Port Augusta Power Stations in accordance with agreements with the South Australian Government, which include approved demolition and dismantling plans. In addition, Flinders Power is required to complete demolition and remediation in accordance with its Environment Protection Authority Licence conditions and relevant laws. The EPA understands that in establishing Flinders Power as a separate entity, expected closure and remediation costs, as well as appropriate contingency allowances, were fully funded by Alinta Energy in agreement with the South Australian Government.

### FURTHER INFORMATION

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SA Health also has a fact sheet on dust and advises to stay indoors, use air conditioners wherever possible, and seek medical advice if you are experiencing any problems.

