



## ▶ FLINDERS POWER ASH DAM Frequently asked questions - UPDATED

Issued Friday 3 February 2017

### What is being done about the odour coming from Bird Lake?

Landowner Port Augusta City Council is leading the process of identifying and implementing a solution to the drying out of the lake, and working to identify a long-term solution to this issue, with support from the EPA and the state government.

Specially trained EPA staff have commenced odour surveying around Bird Lake and in the residential community. Staff are using a Nasal Ranger® Field Olfactometer, which is a portable odour detecting and measuring device, to determine ambient odour 'Dilution-to-Threshold' (D/T) values objectively. Please see the **Odour legislation and Bird Lake** fact sheet for more information.

Residents are also encouraged to record specific data around the odour they are experiencing and at what times. This work is being undertaken to understand the nature and intensity of the odour being experienced in the community and to help determine what actions under the *Environment Protection Act 1993* should be undertaken by responsible parties to address the odour.

Odour diaries have been distributed to residents who have contacted the EPA and handed out in the community for the purpose of developing full and accurate recorded history and trend of odour observations. **Please contact us on the details below if you would like to assist the EPA to record your experiences.**

Port Augusta City Council engaged an environmental consultancy firm to explore three options to determine the most viable solutions for the long term rehabilitation of Bird Lake. The council have an executive summary of the preferred option that has been reached by all experts consulted, and will be engaging with the community and providing opportunities for residents to have input into providing feedback. Please contact the council for a summary of the preferred option and the Augusta Lakes Stakeholder Engagement Plan.

The EPA advises that any solution must also prevent any freshwater (eg rainfall or stormwater runoff) from ponding in the dried-out lake bed, so that midges do not become an issue again. The EPA has been providing assistance and advice to the council, and assisted it to draft the consultancy brief for the long-term management of Bird Lake.

### Why has the odour returned?

The EPA understands that in the late 1960s the power station operator diverted water to create an artificial lake on dry clay pans, to improve the appearance of the entrance to the city, leading to the creation of Bird Lake. In the mid-1970s, midge flies became a problem due to their breeding in the lake. Drying out was tried, but decomposing algae caused odour problems. The solution was to manipulate the salinity of the water in Bird Lake, to make it too salty for midge flies to breed in.

Now that the power station has closed and sea water is no longer able to be used to reduce dust from the ash dam, Bird Lake is drying out and odour has become an issue. The odour is likely from decomposing algal and other organic material within Bird Lake, which is dying due to the rise in salinity.

### **What caused so much dust to leave the ash dam site during January?**

In late December 2016, approximately 60mm of rain flooded parts of Port Augusta. Rainfall created pooling and ponding on the ash dam surface and caused the degradation of the dust suppressant layer. Immediately after this happened, strong southerly winds caused dust from the ash dam to blow over the Port Augusta township.

### **Who is legally responsible for the dust?**

Dust control is the legal responsibility of Flinders Power, and since it was announced the power station would cease operation in May 2016, the EPA placed a number of conditions on Flinders Power to ensure it met environmental requirements (see below: What are the EPA licence requirements?).

### **What has the EPA done about it?**

From 1 January 2017, the EPA worked to ensure Flinders Power brought the situation under control as soon as possible to alleviate the impact on the community. The EPA met with Flinders Power on 3 January and required:

- evidence of a dust suppressant order placed for full coverage
- re-application of the dust suppression aerially, informed by aerial photography and observations on source areas of priority
- further actions to inform the community and respond to questions and concerns on immediate and long-term closure of the ash dam
- information on timing of commissioning of continuous PM<sub>10</sub> monitoring stations at the ash dam and installation for continuous air monitoring within the township (at locations approved by the EPA)
- water carts on roadways to suppress dust on the edges of the ash dam until aerial application could continue
- monitoring of weather conditions and proactive measures for dust suppression across the Flinders Power site; and
- close monitoring of polishing pond water levels, odour generation and application of odour suppressant.

**An [Environment Protection Order \(EPO\)](#) was served on Flinders Power on 9 January 2017 to ensure its environmental responsibilities to the community were being met.**

An EPO is a formal statutory order issued under the *Environment Protection Act 1993* that requires Flinders Power to take actions to prevent further environmental harm. Under the Act, it is an offence for Flinders Power to fail to comply with the requirements of the EPO. The requirements include:

- re-applying dust suppressant to achieve full coverage of the ash dam in accordance with the November 2016 approved Flinders Power Dust Management Plan; and
- undertaking a Root Cause Analysis (RCA) of all contributing factors that caused the recent dust event and to provide the EPA with a satisfactory report.

A copy of the EPO is available on the EPA website. The EPA has also undertaken the following actions:

- staff worked through the night on Saturday 7 January to set up HIVOL air sampling devices at their temporary accommodation and held further discussions with Flinders Power to arrange air monitoring at the facility
- residents adjacent to the ash dam also kindly allowed us to set up a mobile unit on their property to collect 24-hourly samples

- distributed community service announcements on local radio stations advising people to stay indoors when necessary to avoid dust
- community engagement staff and the EPA Emergency Response Team respond to phone calls and emails, providing a 24-hour service, including weekends; and
- liaised with the Port Augusta City Council to advise the Aboriginal Community. Community safety messages were distributed via council networks, Aboriginal Liaison Officer, texts, Community Safety Patrol Officers, and commonwealth government officers.

**Flinders Power advised the EPA that dust suppression was completed on 25 January 2017. Inspections were undertaken by the chemical supplier on Monday 30 January 2017 and by EPA officers on Tuesday 31 January 2017.** Aerial photos of the Flinders Power ash dam shows rainfall has not had a detrimental effect on the dust suppressant.

## What is in the dust?

Enquiries about what's in the dust continue, and **the EPA wants to make sure residents can access the information about what's in the dust that's affected them and what the health impacts of that could be. We've taken samples and had them analysed. The full laboratory results are on the EPA website.**

SA Health reviewed the results and advised that the dust contains 'minimal toxic metals and substances'. This assessment is also the EPA website under 'Advice from SA Health'. Exposure to any dust is not good for our health and senior SA Health staff will be attending the community information session on the 6 February 2017 to answer questions and provide health related information.

The EPA is regulating Flinders Power under the *Environment Protection Act 1993* to ensure it manages the dust coming from the site. Community Update #2 provided further information on the long-term management plan to control the dust and is also still available on the EPA website.

The ash sample was taken from next to the ash dam in October 2016. The EPA has since taken further samples for analysis and updates are published frequently on our website.

- [Dust sample result](#)
- [Mineralogy report](#)
- [Port Augusta metals in air](#)

## Is there asbestos in the dust?

Flinders Power advised that no asbestos would be contained in the dust from the ash dam, however the EPA treats all asbestos reports very seriously and on receiving information from the community, acted immediately to analyse existing dust samples following claims that ash may contain asbestos.

These results confirm that **no asbestos fibres are present** and revealed a high level of red dust and salt crystals. To further confirm these results, six samples were sent to an independent laboratory (NATA accredited) and the [results](#) confirmed that asbestos was not detected in the samples. Five out of six samples were collected on 1 Jan 2017 in residential areas and the other sample was collected immediately adjacent to the ash dam over two and a half weeks in October 2016.

Nevertheless, the information received has been provided to the Independent Site Contamination Auditor for the site.

## How does the EPA report chemicals in the coal ash storage?

The National Pollutant Inventory (NPI) is a Commonwealth and State government initiative. Its goal is to collect information on emission and transfer of potentially harmful substances from a broad range of

industries, and to disseminate the information to the community in a useful, accessible and understandable form. It reports on emissions to the environment and also on transfers of reportable wastes to destinations such as tailings dams, landfills and recycling depots. Transfer data include the tailings from the Port Augusta power stations to the ash dams.

The NPi database can be [searched by industry or location](#). The transfers for the Port Augusta power stations to the ash dams for the most recent reporting year can be found at [www.npi.gov.au](http://www.npi.gov.au). Information about air emissions from the Power Station during operation are also available via this location.

### **Which authority has responsibility over stored materials reported on the NPI that leave the site?**

Business and Industry report directly to the National Pollutant Inventory (NPI) Program and it is this data that is validated by NPI Officers within the responsible State and Territory environmental agencies/departments. Now the power station has ceased to undertake its operational activity – it is no longer required to report emissions to the NPI Program. Any and all fugitive emissions from the facility are incorporated/administered as part of the Closure Plan overseen by the State Government Taskforce and the EPA.

### **Why isn't real-time monitoring data being provided by Flinders Power for**

There are still some conditions in the current license that are left over from the station's operational phase. This requirement refers to stack emissions from the power station, and are not particles but gaseous pollutants that are a result of the combustion of fossil fuels. Licenses are reviewed and updated periodically, and when this is next updated these requirements will be removed.

### **Is there a health risk?**

For health advice, please visit the SA Health publication [Dust and your health](#). Residents with health concerns or questions, please contact (08) 8226 7100. This is a 24 hour call-back service, so please be sure to leave your name and number.

The EPA has been working closely with public health experts in SA Health to ensure that any potential health impacts are identified. The EPA sent its monitoring data and samples to an accredited laboratory and provided the results to SA Health for [assessment](#).

SA Health has provided the following general advice during any significant dust event, regardless of the source:

- Stay indoors, and close windows and doors where possible.
- Avoid exposure to outdoor dust clouds.
- Seek medical advice if experiencing increased symptoms.
- Avoid prolonged or heavy exertion in areas of high dust pollution.
- Air conditioners are safe to use because of their filter systems.

Residents who are experiencing non-emergency symptoms relating to dust should contact their local GP. SA Health has contacted all local GP clinics and the majority are available for appointments. Several clinics in Port Augusta bulk bill, but if there is a gap the state government will reimburse patients for any out-of-pocket expenses.

Residents who are unable to attend their local GP clinic and who have symptoms relating to dust exposure can attend a clinic at Port Augusta Hospital between 10 am and 2 pm, where they will be examined by clinicians. The clinic began on Tuesday 10 January.

As usual, anyone requiring urgent medical attention is encouraged to ring 000 or present to the emergency department of their local hospital.

### **Is it safe to drink my rainwater?**

SA Health advises the dust in Port Augusta will not reduce the safety of rainwater collected from roof catchments. Please contact SA Health on (08) 8226 7100 for health-related information and advice. Information on rainwater safety is available on the [SA Health website](#).

### **Is it safe to swim in my pool?**

SA Health advises that the dust will not reduce the safety of water in swimming pools and recreational pools are safe to use. Please contact SA Health on (08) 8226 7100 for health-related information and advice.

### **Where are the dust monitors?**

Permanent dust monitors maintained by Flinders Power are located at Stirling North (Mosely Street), Lea Memorial Oval, the Pigeon Club, the Tennis Club and the Port Augusta Hospital. [Data from this monitoring network](#) is available in the form of monthly reports. In response to the recent dust event, the EPA has directed Flinders Power to increase sampling frequency from 1-in-6 day sampling to daily sampling. Data will be provided to the EPA and published on the EPA website as soon as it becomes available.

At the direction of the EPA, Flinders Power has recently installed three continuous dust monitors adjacent to the ash dam to provide real-time information to inform dust management measures during the earthworks for the long-term rehabilitation plan for the ash dam. This equipment is now being calibrated and further data validation work is being undertaken.

Last year, the EPA also set up an air monitor adjacent to the ash dam at the SA Water wastewater treatment site. A sample was taken and analysed in October 2016 with an [assessment by SA Health](#). The EPA is currently taking further samples for analysis and will publish the results as soon as they are available.

The EPA has also required further changes to be made to the Flinders Power dust monitors within the community. The monitors at Lea Memorial Oval and Stirling North have been changed to provide continuous dust monitoring. Flinders Power received delivery of the units in the week beginning 23 January 2017. Installation and commissioning is now occurring.

### **Why isn't Flinders Power pumping water over the ash dam like they used to?**

When the power station was operational, dust was controlled by the ongoing pumping of an ash and seawater slurry into the ash dam, producing a salt crust that effectively sealed the surface. After the power station's closure in May 2016, this pumping arrangement was changed to the application of seawater only. This eventually proved to be ineffective and alternative arrangements were investigated and negotiated with the EPA. Flinders Power then trialed a dust suppressant, which required the dams to be dry in order for the sealant to adhere.

Flinders Power undertook aerial spraying of the dust suppressant in November 2016 as an interim measure until long-term rehabilitation with soil and revegetation, in accordance with the [Station Closure Plan](#). This long-term work will take approximately six months and the dam has to be dry for the works to be completed. Dust suppressant is the best option in the shorter term.

## What is Flinders Power going to do to manage dust in the long term?

Covering and revegetating is the most effective option to deliver dust management, surface water and groundwater management, and improved amenity to the entire area. The long-term plan for the ash dam is revegetating with seeds sourced locally and using soil from Flinders Power land that already sustains vegetation. Vegetation growing around the ash dam is evident of the ability for the plan to be successful in the longer term.

Flinders Power has commenced laying topsoil on the ash dam in the form of 'access fingers' across the surface, which establishes the preparation work required in order to construct the final capping solution. The EPA requires Flinders Power to have implemented a successful long term solution for the ash dam before it can surrender its licence. Before it can be implemented, the plan must be assessed and approved by the Department for Environment, Water and Natural Resources and endorsement by the independent Site Contamination Auditor for the site.

## What about the proposal to reuse the ash to make bricks?

As the site owner, Flinders Power is the only party able to enter into a commercial arrangement for the long-term management of the ash dam including any proposals to re-use the ash into building materials. The EPA's legal authority is to ensure that Flinders Power meets its environmental obligations under its licence. The proposed long-term strategy does not preclude future re-use if a process and market is established. Any questions regarding the likelihood of this proposal being implemented should be directed to Flinders Power on (08) 8372 8605.

## Where will the soil come from, and will it create more dust?

A long-term solution for the rehabilitation of the ash storage area has commenced and involves the application of topsoil, seeded with native plants and grasses, which will cover the entire ash storage area.

Flinders Power is sourcing the soil from its own site, and has sought and obtained necessary native vegetation and EPA approvals. Since 8 January 2017 topsoil has been placed on the surface of the ash dam and is being pushed out to construct 'access fingers'. At the direction of the EPA, Flinders Power has recently installed three continuous dust monitors adjacent to the ash dam to provide real-time information to inform dust management measures during the earthworks for the long-term rehabilitation plan for the ash dam.

The application of topsoil over the ash is considered the most effective process for the long-term management of the area. This work will continue over the next six months which will include the appropriate mitigation measures in place to manage dust which may be generated during the earthworks.

## What are the EPA licence requirements?

The Flinders Power site is regulated by the EPA under the *Environment Protection Act 1993* for several activities of environmental significance. Since the announcement that the power stations would cease operation, the EPA placed a number of conditions on Flinders Power to ensure it met environmental requirements, including development of a Closure Plan and a Dust Management Plan for the site.

Conditions of the EPA licence include:

- Dust Prevention (S-9): develop and implement a Dust Management Plan approved by the EPA.
- Closure and Post-Closure Plan (U-251): develop and implement a closure and post-closure plan to address environmental considerations at the site. This includes, but is not limited to:
  - decommissioning and decontamination of coal burning equipment
  - removal of coal from the coal stockpile and other coal handling areas
  - ash dam rehabilitation

- assessment and removal of chemicals and hazardous materials
- removal of waste including appropriate disposal of asbestos.
- Ambient Monitoring and Reporting (U-124): to monitor and report ambient pollutants including TSP (total suspended particles) and PM<sub>10</sub> (particulate matter 10 micrometres or less in diameter).

[Dust management plan](#)

[Station closure plan](#)

## How many years into the future are Flinders Power responsible for the site, including the ash dam?

The EPA requires Flinders Power to fulfil all the actions and milestones in its closure plan before it can surrender its licence. Therefore Flinders Power must maintain the site until these outcomes are met, rather than a specified number of years.

## Is there groundwater contamination coming from the site?

Flinders Power has entered into a [voluntary site contamination assessment proposal](#) with the EPA. Included in this is the assessment of soil and groundwater which will involve extensive assessment works until the end of 2017.

A site contamination auditor has been engaged at the site to determine the nature and extent of any contamination present or remaining on or below the surface. The audit will also determine what remediation is or remains necessary for the final intended use of the site.

Site contamination consultants engaged by Flinders Power have undertaken groundwater investigations across the sites to target potential contamination source areas. There are more than 700 groundwater monitoring wells within the site and in Port Augusta to the north.

A number of groundwater monitoring wells have been installed around the ash dam, coal-loading areas, railway line and in the wider area with chemical analysis including heavy metals. In all, more than 2,000 soil and water samples have to date been taken. Elevated concentrations of petroleum hydrocarbons identified at the site due to spills and underground storage tanks. Metals and nutrients were identified in the groundwater around the ash pond in 2014. The consultants consider this to be due to leaking sewage ponds.

The site investigation work and audit report will be placed on the EPA Public register and made available on the EPA website once complete. All assessment and identification of remediation requirements will be undertaken as part of the site contamination assessment proposal and the audit.

## Is toxic material leaching into the gulf?

The first power station on this site was commissioned in the 1950's and at the time, the decision was made to store the ash above ground. Ash was delivered to the ash dam in a sea water slurry which created a crust, minimising dust.

The ash dam has earthen levees around it to prevent ash from escaping laterally into the Gulf. The ash dam configuration slows any water runoff and during operation this allowed ash to settle out and also to hold water on the ash dam.

The EPA understands that the polishing pond at the northern end was established in the 1970s. During operation, this further improved or 'polished' water quality prior to discharge to the Gulf via Hospital Creek. Because ash and seawater is no longer delivered to the ash dam, any stormwater collected in the ash dam is now soaking into the ash dam, or being captured in the polishing pond. The chemistry of the surface layer of ash has been analysed and it is of low toxicity.

To rehabilitate the site, Flinders Power proposes to cover the ash with soil and revegetate with plant species suited to local conditions in order to prevent ash from leaving the site.

This proposal is being assessed by the EPA and the detailed design will be assessed by Native Vegetation specialists of the Department of Environment, Water and Natural Resources. It must also be endorsed by an independent Site Contamination Auditor and further approved by the EPA as part of the closure process.

This assessment will help to ensure the following objectives for the long term management of the ash dam are achieved:

- 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.

### Will the dust suppressant get into the waterways and cause contamination?

Prior to use, the dust management via suppressant was assessed and determined as unlikely to cause any impact in the marine environment. The dust suppressant contains acrylic polymers, and the EPA's understanding based on published studies is that this material has low degradation and bioaccumulation potential.

Though the dust suppressant was washed from the surface of the ash dams in the recent heavy rains, it is expected that it would be contained within the ash dam and polishing pond areas. EPA water quality officers are on-site and are inspecting Hospital Creek to ensure it has not affected waterways.

#### FURTHER INFORMATION

*For further information please contact:*

Telephone:  
(08) 8204 2004

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[www.epa.sa.gov.au](http://www.epa.sa.gov.au)

(Click on the link if viewing this publication online) or follow the link at the bottom left hand corner to Port Augusta Power Station Site.

To request any of this information in the post, please do not hesitate to call us on the above number.

*For health related information please contact:*

Telephone:  
(08) 8226 7100

Website: [www.sahealth.sa.gov.au](http://www.sahealth.sa.gov.au)

(Click on the link if viewing this publication online, or type into the search window 'dust Port Augusta'.)

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.

