

Dry Creek Salt Fields – NGO and community questions

A number of questions have been collected from community groups and non-government organisations (NGOs) regarding the Dry Creek Salt Fields and St Kilda mangroves. The questions and responses are available for reading below. To ensure an accurate representation of community and NGO concerns, the questions asked are presented as they were received. Answering the question should not be interpreted as accepting any assertion inherent in the question itself and is intended to provide updated information only.

1. [Who are the advisors to Buckland Dry Creek Ltd who've prepared the 'updated program for environment protection and rehabilitation for the Dry Creek salt fields' and does the program outline a timeline for implementation?](#)

The Program for Environmental Protection and Rehabilitation, or PEPR, is the plan that describes how the site owner will operate the Dry Creek salt field. It is important to note the current PEPR authorises the approach to environmental management of the site, not the harvesting of salt. If BDC wish to produce salt, a new PEPR will be required to be submitted and assessed by government.

The updated PEPR, which was approved on 24 December 2020, was prepared by Buckland Dry Creek Pty Ltd using consultants from Withers Environmental Risk Strategies Pty Ltd and JBS&G Australia Pty Ltd.

The changes included in this PEPR relate to reinstatement of a mining tenement following the compulsory acquisition of a portion of land for the Northern Expressway corridor by the Department of Planning, Transport and Infrastructure.

The PEPR (MPEPR2020/039) is available online at:

https://www.energymining.sa.gov.au/minerals/mining/mines_and_quarries/dry_creek_salt_field#q=dry%20creek.

2. [Given the approval by DEM on 24/12, and the continuing crystallisation of the salt, what action has Buckland Dry Creek taken, given no progress is apparent yet?](#)

Measures have been implemented in both sections 1&2 and 3&4 in order to control the impacts to vegetation, to quickly re-establish environmental stability of the Dry Creek salt field, and to reinstate the environmental conditions necessary for recovery of the impacted areas.

This includes the works required by BDC to address matters set out in environmental directions issued by DEM, and involves:

- Cessation of water pumped from section 3 to 2
- Prevention of seepage at the Para River (pond PA 12) and pond PA 11.
- Removal of water from the ponds south of St Kilda, involving pumping from ponds PA 6 to PA 9 and the use of excavators to remove blockages and improve flow to pump infrastructure.
- Entrainment of water into the Holding Pattern area and movement of water from section 4 to 3, diluting hypersaline ponds and preparing for resumption of discharge via the Bolivar outfall channel.



Government officers have observed that reducing the water level in PA6 has had the immediate effect of reducing the 'head' that has likely caused mounding of hypersaline water and impacts on the adjacent mangrove and saltmarsh vegetation.

It is expected that lag effects of the hypersaline water in the mound and seepage from the ponds will continue to present environmental stresses, however the reduction in head has reduced the probability of expansion of the impacted area in this location arising from the likely key impact mechanisms of sustained exposure of the vegetation to hypersalinity and water-logging.

Analysis is underway by government to determine whether there is a further mechanism related to water chemistry/mobilisation of acidity from within the ponds or the intertidal environment, which may be compounding the impact resulting from the key impact mechanisms.

Ensuring the retreat of the likely key environmental stressor – the hypersaline groundwater mound – and ensuring the stressor does not cause further impact in additional locations, is the critical priority. Groundwater monitoring confirms this is occurring.

In parallel, moving the northern half of the salt field back into a holding pattern in order to protect the environment and provide time for planning an orderly transition to an acceptable future management approach for the salt field is a critical priority.

Government site inspections to monitor company actions and environmental risk are occurring daily.

3. [Since DEM requires Buckland Dry Creek Ltd to remove brine 'as far as reasonably practical' how can DEM ensure that Buckland Dry Creek Ltd takes urgent action? \(it's quite possibly in their commercial interest to go slow\).](#)

The Environmental Direction issued to BDC on 24 December 2020, required BDC to take immediate action to remove the water from the relevant ponds. BDC responded by commencing pumping, preparing pumps and ensuring pumping redundancy, reinstating power supply to previously idled and vandalised locations, and identifying blockages in the uneven pond floors that could be eliminated using excavators to improve flows to pumping infrastructure.

Consistent with the observations made by Peri Coleman from Delta Environmental Consulting, there are likely three modes by which water levels in the ponds adjacent the impacted vegetation are reducing: active pumping, evaporation and seepage.

Monitoring has confirmed that the resultant reduction in water levels in PA6 has caused the retreat of the groundwater mound that has likely caused the vegetation dieback, preventing the likely primary impact mechanisms from causing further harm. It is important to note, however, that lag effects are expected as a result of the salinity in the groundwater and seepage.

Given the salinity levels in these ponds, and the fact that the pond floors are not perfectly flat, not easily accessible and not neatly connected for the purposes of draining, salt will crystallise in this area. On balance of risk, the crystallisation of residual brine into salt in these ponds presents a lesser immediate concern that can be deliberately and carefully rehabilitated at a later time.

The actions required by the Directions issued by government are focussed on protection of the environment.



4. How much damage needs to occur before DEM decides that Buckland Dry Creek Ltd is either unwilling or unable to manage the situation?

Environmental instability and external impacts arising from the management of the salt field are unacceptable. The measures taken to date are intended to restabilise the site and avoid further impact, however lag effects are likely to be observed until stability has been achieved.

Consistent with the Mining Regulation Compliance and Enforcement Policy, a Formal Letter and three Environmental Directions have been issued to the site owner upon the reporting of the impacts. In response, BDC immediately implemented the actions (set out above) to limit environmental impact, reinstate the environmental conditions necessary for restoration of the impacted areas, and re-stabilise the salt field ahead of a transition to a sustainable future management arrangement.

BDC has implemented the actions required of the Environmental Directions issued by government to date. Government is closely monitoring the site to ensure the actions continue to facilitate the re-stabilisation of the site and prevention of further impact.

Investigations under a number of potentially applicable laws are underway.

5. Do DEM, DEW or PIRSA have the power to intervene, based on the 'precautionary principle'? Could any of the agencies for example have the 'program' implemented, with costs to be recovered from Buckland Dry Creek?

In some circumstances, it is possible for escalation of compliance actions to prevent environmental harm, including implementing works with cost recovered from the site owner.

BDC has implemented the actions required of the Environmental Directions issued by government to date, and these actions continue. The actions being undertaken, the environmental status of the site and any requirement for further regulatory action are being closely monitored and assessed daily by the key government agencies.

6. Why was Buckland Dry Creek Ltd recently granted a 21-year licence given they have no experience in running a commercial salt field?

Applications for renewals of mining tenure are assessed against the requirements of the Mining Act. In this instance the purpose of the tenements is the production of salt, a process which takes years to initiate, undertake, and rehabilitate, and accordingly the tenure is of a duration appropriate to the conduct of that activity.

To date, no application for operational approval to recommence commercial salt production has been submitted by current owners BDC. In order to apply for salt production, a revised PEPR would need to be submitted and then assessed and approved.

7. Does the Govt have the power to assume control of any part of the salt fields, given the extent of environmental harm, and to remediate the area from the Extractive Areas Rehabilitation Fund?

No, the government does not have the right to assume control of the salt field, and salt operations are - by law - not eligible for the Extractive Areas Rehabilitation Fund as salt is an 'industrial' rather than 'extractive' mineral.



8. When did DEM issue an Environment Direction to deal with the St Kilda mangrove and samphire debacle to prevent further environmental harm?

DEM has issued 3 Environmental Directions to BDC:

- 1) to initially stop further pumping on 19 November;
- 2) to address a seepage issue at the Little Para River on 10 December 2020; and,
- 3) on 24 December to remove the water from the 7km of ponds south of St Kilda.

9. Has BDC been issued an Environmental Direction to stop pumping and remove the head pressure from the pond that is leaking into the St Kilda mangroves?

Yes. The Environmental Directions are publicly available on the website.

10. Please clarify whose responsibility it is to check the veracity of the information that is contained in the PEPR.

The PEPR is assessed by regulatory staff in the Department for Energy and Mining, Environment Protection Authority and Department for Environment and Water. During the assessment process, assessment officers and other government specialists from both DEM and relevant agencies such as the EPA, complete a detailed review of the technical aspects of the PEPR to determine whether it is likely that the environmental objectives will be achieved. They focus on the appropriateness and achievability of the environmental objectives including whether the expected level of impact to the environment is appropriate considering the control and management strategies described, and whether the proposed control and management strategies are likely to achieve the proposed objective.

For the Dry Creek salt field, DEM is primary regulator of the mine site under the Mining Act. BDC also holds a licence from the Environment Protection Authority for the operation of the salt field under the Environment Protection Act.

11. Please clarify whose responsibility it is to check the veracity of the various compliance reports.

Per response to question 10:

The PEPR is assessed by regulatory staff in the Department for Energy and Mining, Environment Protection Authority and Department for Environment and Water. During the assessment process, assessment officers and other government specialists from both DEM and relevant agencies such as the EPA, complete a detailed review of the technical aspects of the PEPR to determine whether it is likely that the environmental objectives will be achieved. They focus on the appropriateness and achievability of the environmental objectives including whether the expected level of impact to the environment is appropriate considering the control and management strategies described, and whether the proposed control and management strategies are likely to achieve the proposed objective.

For the Dry Creek salt field, DEM is primary regulator of the mine site under the Mining Act. BDC also holds a licence from the Environment Protection Authority for the operation of the salt field under the Environment Protection Act.

12. Please clarify which agency will be monitoring which key variables.

DEM is the lead regulator and regulates the Dry Creek salt fields as a mine site under the *Mining Act 1971*.



DEM is undertaking inspections of the integrity of pond structures, pumping activities, water levels, pond chemistry and discharge chemistry.

The EPA is undertaking water sampling, has installed and is monitoring of a piezometer network to collect information on groundwater levels around the ponds, and monitors compliance with discharge criteria.

DEW is responsible for provision of advice on ecosystem function and compliance with other relevant environmental legislation.

13. Please clarify which government is supposed to be regulating the actions of a company that would appear to need some more independent guidance on how they are supposed to maintain the site for the benefit of all South Australians, whose land it is, at the end of the day.

DEM is the primary regulator of the Salt Field, working in collaboration with the EPA and DEW to control the current impacts on vegetation, reinstate stability across the site, and regulate the site in accordance with the relevant laws.

The land within the boundaries of the Salt Field is a mix of Crown and privately held freehold land.

14. When will DEM get the brine out of the old gypsum ponds?

Per response to question 3.

The Environmental Direction issued to BDC on 24 December 2020, required BDC to take immediate action to remove the water from the relevant ponds. BDC responded by commencing pumping, preparing pumps and ensuring pumping redundancy, reinstating power supply to previously idled and vandalised locations, and identifying blockages in the uneven pond floors that could be eliminated using excavators to improve flows to pumping infrastructure.

Consistent with the observations made by Peri Coleman from Delta Environmental Consulting, there are three modes by which water levels in the ponds adjacent the impacted vegetation are reducing: active pumping, evaporation and/or seepage.

Monitoring has confirmed that the resultant reduction in water levels in PA6 has caused the retreat of the groundwater mound that has likely caused the vegetation dieback, preventing the likely primary impact mechanisms from causing further harm. It is important to note, however, that lag effects are expected as a result of the salinity in the groundwater and seepage.

Given the salinity levels in these ponds, and the fact that the pond floors are not perfectly flat, not easily accessible and not neatly connected for the purposes of draining, salt will crystallise in this area. On balance of risk, the crystallisation of residual brine into salt in these ponds presents a lesser immediate concern that can be deliberately and carefully rehabilitated at a later time.

The actions required by the directions issued by government are focussed on protection of the environment.

15. Will the mining leases for the area between St Kilda and Dry Creek be rescinded?

The future management approach to the site has not been determined, will be informed by the current issues, and is the subject of current consideration. The mining tenure at Dry Creek exists for the production of salt, which remains a potential approach to the future management of the site. It is premature to consider the cancellation of mining tenure. Current tenure, amongst other actions, will ultimately support the rehabilitation of the site at a future time.



16. Will DEM or DEW be submitting a referral to the compliance branch of the Commonwealth environmental regulator about the damage to a protected environmental community (temperate coastal saltmarsh, a community which also includes the rushland vegetation of the deltaic estuary of the Little Para)?

The Commonwealth Department of Agriculture, Water and the Environment has been briefed on the status of the salt field by the South Australian Government, and will consider the outcomes of regulatory investigations completed under the relevant state legislation.

17. Why was the miner allowed to flood these moribund ponds without undertaking environmental impact and risk assessments?

DEM, DEW and the EPA are working collaboratively to investigate the cause of the dieback. This cross-agency government assessment is looking at the potential causes of (and responses to) this dieback and this will include the flooding of the ponds.

The technical team is conducting surveys, and undertaking testing and monitoring, to ensure immediate actions are focused on the prevention and mitigation of further environmental harm.

18. Why does DEM not audit compliance reports submitted by miners for completeness and accuracy?

DEM audits compliance reports submitted by miners for completeness and accuracy and as part of its regulatory function. In the interests of transparency and timely availability of compliance information, compliance reports are generally made available prior to DEM completing its audit, as is the case in this instance. For more on compliance please see the annual compliance report on the Dry Creek Salt Fields page on the DEM website.

19. How can a compliance report for July '19 to June '20 that does NOT report impacts outside that period, manage to report changes to the PEPR that were made AFTER that reporting period?

Compliance reports completed after the end of the reporting period may include additional information, however, reporting of compliance against the PEPR relates specifically to the reporting period.

20. Does DEM consider that a miner who acts outside the operations detailed in their PEPR, who then writes changes to their PEPR that would permit those actions, is still compliant?

The impacts to the vegetation adjacent the salt field at St Kilda is unacceptable, and accordingly the compliance or otherwise of BDC with the requirements of the PEPR is a matter currently under investigation. Current actions are focussed on environmental re-stabilisation; potential regulatory actions arising from a regulatory investigation will be considered at the appropriate time.



21. Was DEM aware that BDC had withdrawn their EPBC application to “develop” the Dry Creek Saltfield? And what exactly does that mean? Background: Does this mean all sale of crystalliser land must cease? This withdrawal has occurred five years after the closure was deemed to trigger the EPBC Act. The questions the Commonwealth asked the proponent, in order to make a final ruling on the development, were never answered. The proponent ignored the need to have this application approved before proceeding. Now the proponent has withdrawn their application. About one third of the operational ponds (both crystallisers and preliminary area concentrators) have been drained and a significant amount of that has been filled ready for sale. Does this mean those lands must be reinstated as Salt field? The many tonnes of fill removed?

Referral details: SA: 2015/7418 Ridley Land Corporation Pty Ltd/Commercial Development/former Dry Creek Salt Field, 10 km north of Adelaide, South Australia/Dry Creek Salt Field Closure, SA Notification of Proposal Withdrawn

State government understands that as part of routine administrative clean up, in November 2020 Commonwealth staff contacted the applicant for a referral lodged in 2015/16. The applicant, the former owner of the salt field Ridley Corporation, indicated that it should be withdrawn as they were no longer the owner. Commonwealth subsequently withdrew the referral.

State government understands that there is no relationship between the existing controlled action relating to matters of national environmental significance under the EPBC Act and the rehabilitated land in section 1 adjacent Port Wakefield Road. The requirements and obligations on BDC under the EPBC Act have not changed.

22. Why did DEM provide 21-year leases to the miner instead of the normal 7-year leases?

Per question 6.

Applications for renewals of mining tenure are assessed against the requirements of the Mining Act. In this instance the purpose of the tenements is the production of salt, a process which takes years to initiate, undertake, and rehabilitate, and accordingly the tenure is of a duration appropriate to the conduct of that activity.

To date, no application to recommence commercial salt production has been submitted by current owners BDC: in order to apply for salt production, a revised PEPR would need to be submitted and then assessed and approved.

23. Has DEM seen a business case for the proposed reinstatement of salt production?

As part of the mining tenure renewal process DEM was briefed by BDC on concepts for the reinstatement of salt production. DEM confirmed with BDC at that time the requirement for assessment and approval of any such proposal.

To date no proposal to reinstate salt production has been submitted and BDC company does not have authorisation to resume commercial salt operations. Any renewed operations if they were to be considered would require new approvals including detailed impact assessments, mine plans and operator capability assessments.

24. Is anyone monitoring the dam at PA11 to make sure it isn't leaking into the Little Para?

Remedial engineering works are currently underway at PA11 to prevent seepage through the south western bunds as brine from PA6 is pumped to the south.



Daily physical monitoring of the Little Para river is being undertaken by DEM; it is also one of the current photo monitoring points. The Little Para river was an explicit focus of the second of the three Environmental Directions.

25. What is happening in the ponds to the north? PA4-5 is half dry this morning.

Water entrainment into the holding pattern area has increased (including at Chapman Creek), and flows have been accelerated from sections 4 to 3 in support of re-stabilising the northern area and enabling sustainable future management approaches to be determined.

26. I am deeply concerned about the salinity gradient north of St Kilda, as well as being concerned that the transfer arrangement at the Little Para is being closely monitored. Is that the case?

Monitoring of the Little Para River is ongoing and was an explicit focus of the second of the three directions. This specific direction on the integrity of brine transfer arrangements at the Little Para River is available on the salt fields website and has now been closed out by the company.

Government is closely monitoring the actions underway in section 2 to avoid further environmental impacts.

27. What evidence do you have that the Holding Pattern is being maintained, and that regular evaluations of the ponds' benthic and pelagic flora and fauna are providing evidence that the biodiversity and shorebird food resource is being maintained?

Actions are underway to reinstate stability of the 2014 holding pattern.

The holding pattern was carefully designed on expert scientific advice to mitigate environmental risk from acid-producing soils and to support a mosaic of ponds providing important habitat for local and international fauna. The sustainable approach to achieving these critical intents going forward will be reviewed as part of current actions to restore stability to the site.

Shorebird population monitoring undertaken by Birdlife Australia to June 2020 did not identify a material change in the salt fields that would have a negative impact on bird habitat. The 2020 report did identify decreased populations of shorebirds and migratory birds in the greater coastal environment, which was attributed to global factors. In accordance with the PEPR, BDC will be required to show evidence that shorebird population monitoring is occurring as required.

The information contained in this presentation has been compiled by the Department for Energy and Mining (DEM). Although all reasonable care has been taken in the preparation and compilation of the information, it has been provided in good faith for general information and does not purport to be professional advice. DEM and the Crown in the right of the State of South Australia does not accept responsibility for and will not be held liable to any recipient of the information for any loss or damage however caused (including negligence) which may be directly or indirectly suffered because of use of these materials.

