

ENVIRONMENTAL DIRECTION

Issued under Section 70E(1) of *the Mining Act 1971*

TO: Buckland Dry Creek Pty Ltd (**BDC**)

C/- Director, Petar Jurkovic

OF: PO Box 234 Port Adelaide SA 5015

RE: Mineral Lease (ML) 234, 235, 237, 357, 358, 359, 360, 361, 389, 390, 391, 392, 404, 405, 406, 416, 417, 418, 421, 429, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 587, 600, 605, 606, 607, 608, 617, 618, 702, 5205, 5206, 5207, 5208, 5209, 5210, 5908, 6514, Private Mine 199 and 248, known as the "**Dry Creek Salt Fields**".

RE: Program for Environment Protection and Rehabilitation (**PEPR**) 2017/001

PURPOSE OF THE ENVIRONMENTAL DIRECTION:

1. This Environmental Direction is issued pursuant to Section 70E(1) of the *Mining Act 1971* ("**the Act**") for the purpose of directing you to take action to prevent or minimise damage to the environment because mining operations are being conducted in a way that results in, or that is reasonably likely to result in:
 - (a) undue damage to the environment; or
 - (b) a breach of the environmental outcomes under a program under Part 10A of the Act.

BACKGROUND

1. On 18 September 2020, Authorised Officers from the Department for Energy and Mining conducted an inspection of the Dry Creek Salt Fields and immediate surrounds in response to a notification from the Department for Environment and Water (**DEW**) and observed the following:
 - (a) Substantial dieback of mangroves and other vegetation at the start of the St Kilda boardwalk on both sides and along the old seawall approximately 300 metres to the south.
 - (b) Seepage of Brine from Salt Fields pond PA6 from outward west-facing PA6 bund wall in various locations.
 - (c) The ponds identified as PA6 to PA9 (Section 2 of the Dry Creek Salt Fields) were full to capacity with Brine.¹

¹ PEPR2017/001 Page 2, **Brine** – water saturated with or containing large amounts of salt, especially sodium chloride.

2. On 28 September 2020, DEM issued a Formal Letter requiring BDC to commission an investigation by a suitably qualified expert addressing the following matters:
 - An assessment of whether the impacts are likely to have been a consequence of the operation of the Dry Creek Salt Fields, and if so:
 - Identification of remedial steps that can be taken to limit current impacts and restore mangrove health, and
 - Identification of steps that can be taken to prevent, or minimise as far as reasonably practical, any new impact, and
 - A plan for implementing those measures.
3. BDC submitted a report to DEM (Nick Withers, Report 5 October 2020) which contained insufficient evidence of an assessment of the potential impacts associated with pumping Brine through Section 2 into Section 1.

GROUNDINGS ON WHICH THE ENVIRONMENTAL DIRECTION IS ISSUED:

4. On 6 November 2020, Authorised Officers from the Department for Energy and Mining conducted an inspection of the Dry Creek Salt Fields and observed the following:
 - (a) Mining operations including the pumping of Brine south from ponds PA6 to PA9 through ponds PA10 to PA12 within the Dry Creek Salt Fields to the newly granted ML 6514 and on to the Section 1 crystallisers (Section 1 of the Dry Creek Salt Fields) contrary to PEPR2017/001 and in contravention of Section 70D(3) of the Act.
 - (b) Mining operations, including the pumping of Brine into Section 1, have been conducted within the new ML 6514 without an approved PEPR, contrary to Section 70B(1) of the Act.
5. The mining operations described in 4(a) and 4(b) are contrary to the Environmental Outcomes under PEPR2017/001 and Sections 70D(1) and 70D(3) of the Act as follows:

Failure to comply with the following Outcomes and Criteria, PEPR2017/001:

 - Residual Operations (Section 1) and Holding Pattern (Sections 2-4) Table 17-1 Page 195, "No adverse impacts to adjacent land use".
 - No loss of abundance or diversity of native vegetation on or off Sections 2-4 of Salt Field through clearance arising from holding pattern, unless prior approval under relevant legislation is obtained, Page 197.
 - No adverse impacts on the environmental values of marine waters due to water discharge, Page 198.
6. The mining operations described in 4(a) and 4(b) constitute a failure to comply with PEPR2017/001, Care and Maintenance Holding Pattern, so as to prevent harm to the surrounding environment including but not limited to, coastal natural communities comprising mangroves and samphire, fauna (including aquatic fauna), habitats, tidally influenced native vegetation and sensitive adjoining sites

such as the Adelaide Dolphin Sanctuary, Adelaide International Bird Sanctuary [PEPR 2017/001 p55].

7. Mining operations have been conducted by you in a way that has resulted in, or that is reasonably likely to result in, undue damage to the environment, including but not limited to:
 - (a) Dieback of native vegetation including but not limited to mangroves and samphire;
 - (b) Impacts upon fauna (including aquatic fauna) and habitats.

REQUIREMENTS OF THE ENVIRONMENTAL DIRECTION:

You, BDC, are directed to immediately cease all unauthorised mining operations including but not limited to the pumping of Brine into ML 6514.

You, BDC, are directed by not later than **27 November, 2020** to:

- A. Advise DEM in writing of the current status of a revised PEPR for salt production for the Dry Creek Salt Fields, including provision of data to support any required modified discharge arrangements, and an appropriate date for submission to DEM. Please note that submission of a PEPR review must be in accordance with Section 70C of the Act.
- B. Advise DEM in writing of the timeframe within which modified discharge arrangements would be critical for supporting stability, and minimising potential environmental harm, in management of the Dry Creek Salt Fields under the modified pumping arrangements BDC has now implemented.
- C. Advise DEM in writing of the likely timeframe within which the modified pumping arrangements will, in the absence of approval to produce salt (being salt harvested as a consequence of brine pumped to the crystallisers since October 2020), result in the total holding capacity of the Dry Creek Salt Fields being reached.

You, BDC, are directed by not later than **2 December, 2020** to:

- D. Provide to DEM a written assessment of immediate action(s) that will be taken by BDC to minimise and/or prevent potential environmental harm resulting from the unauthorised flooding of the ponds PA10 to PA12, including the investigation of opportunities to address the siltation issues identified in Nick Withers report, 5 October 2020;

- E. Incorporate in BDC's assessment referred to in paragraph D justification of the action(s) that should be taken (or not taken) and an accompanying implementation plan including timing for completing actions.
- F. Submit a contingency plan detailing how stable operation of the Dry Creek Salt Fields and protection of the environment (including in relation to BDC's obligations under all relevant State legislation and the *Environment Protection and Biodiversity Conservation Act 1993* (Commonwealth)) managed to cater for ongoing operations until such time as a reconfigured operation with modified discharge arrangements is approved. It is noted that on balance of environmental risk, this may require resumption of extant 'holding pattern' arrangements.

This Environmental Direction will be provided to the Environment Protection Authority, the Department for Environment and Water Native Vegetation Unit for further investigation into unauthorised clearance of native vegetation.

Please note that under Section 70G of the Act, you may apply to the Environment Resources and Development Court for a review of this Environmental Direction within 28 days of receipt of it, or such longer period as the Minister for Energy and Mining may allow in a particular case.

Failure to comply with this Environmental Direction may result in the Department for Energy and Mining bringing prosecution proceedings against you under the Act in relation to these matters. A maximum penalty of \$250,000 is prescribed.

In addition, the Minister may take any action required above and may recover reasonable costs and expenses from you.

Should you require any further information regarding this Environmental Direction, please contact Mark Stewart, A/Manager Mining Compliance and Regulation on 08 8429 2450 or email mark.stewart2@sa.gov.au.

Dated: 19/11/2020



Paul De Ionno

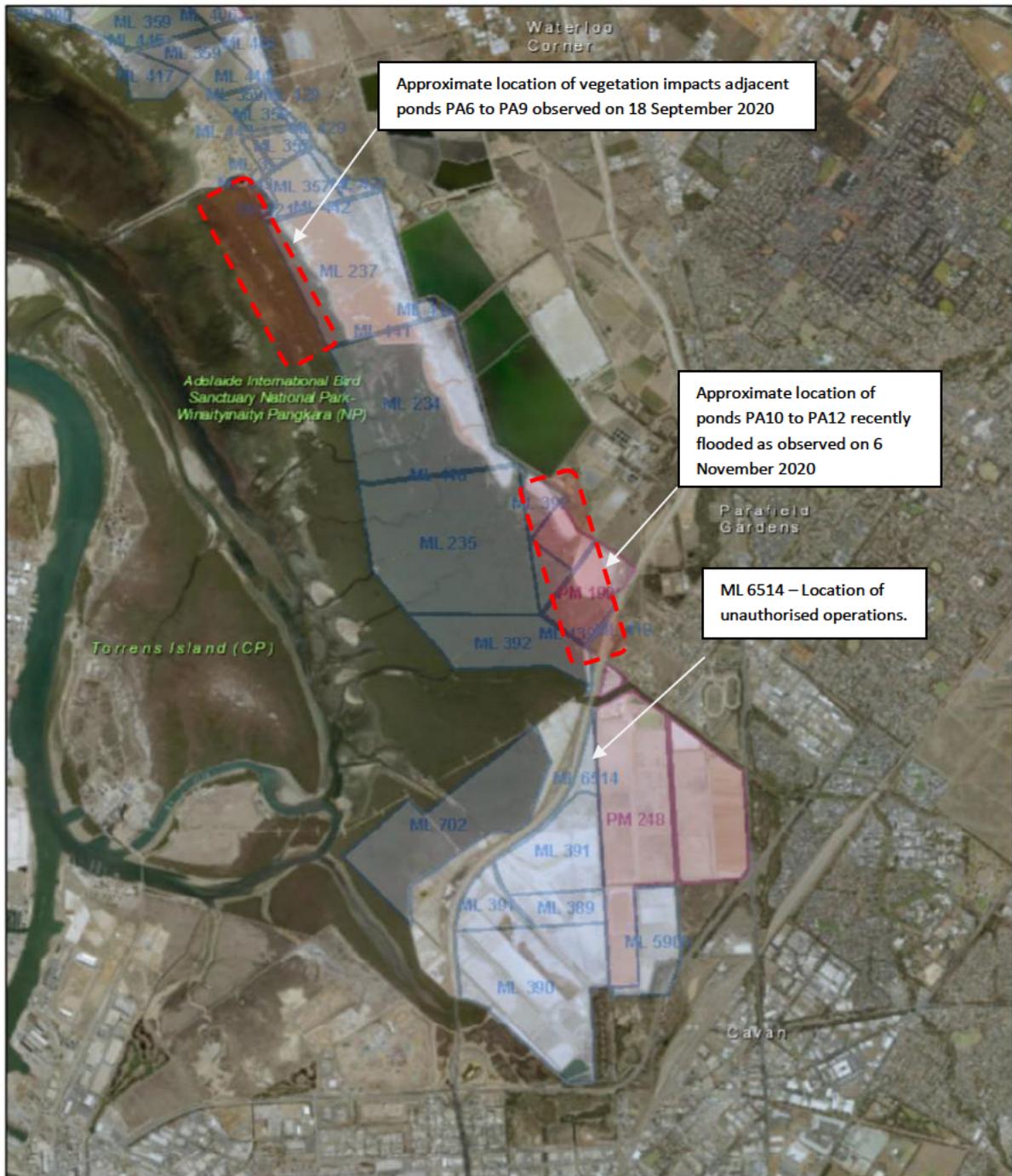
ACTING DIRECTOR MINING REGULATION
DELEGATE OF THE MINISTER FOR ENERGY AND MINING

Enclosed:

Attachment 1: Maps and Plans of the Dry Creek Salt Fields

Attachment 2: Photo 1-5

ATTACHMENT 1 – Maps and Plans of the Dry Creek Salt Fields

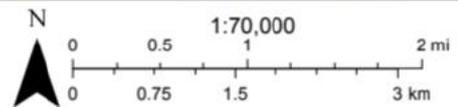


Approximate location of vegetation impacts adjacent ponds PA6 to PA9 observed on 18 September 2020

Approximate location of ponds PA10 to PA12 recently flooded as observed on 6 November 2020

ML 6514 – Location of unauthorised operations.

November 19, 2020



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ATTACHMENT 2 - Photos

Photo 1: Northern section of mangrove dieback, start of old boardwalk, 18 September 2020.

Lat: 34°44'43.9546 Long: 138°32'18.8153



Photo 2: Southern section of mangrove dieback (pond PA 7 to left), east of old boardwalk, 18 September 2020.

Lat: 34°44'45.0394 Long: 138°32'19.1523



Photo 3: Southern section of mangrove dieback (pond PA 7 to left), west of old boardwalk, 18 September 2020.

Lat: 34°44'46.3077 Long: 138°32'19.0918



Photo 4: Mangrove boardwalk showing dead mangroves, 18 September 2020.

Lat: 34°44'46.1497 Long: 138°32'16.5944

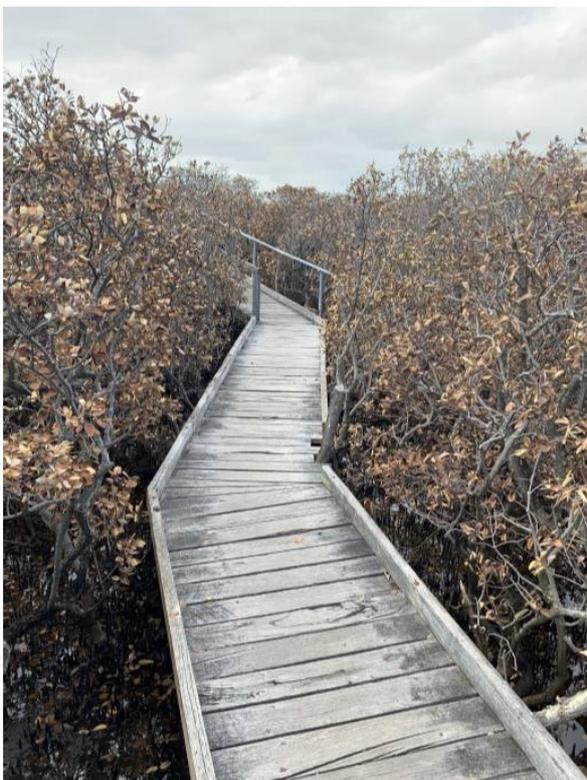


Photo 5: Seepage from bund wall (taken of western side of ML 421), salinity recorded at approximately 172 psu, 21 September 2020.



Photo 6: Brine flowing into Pond PA10 on route to ML 6514, 6 November 2020.
Lat: 34°46'20.6144 Long: 138°34'16.0928



Photo 7: Brine flowing through ML 6514, 6 November 2020.





Ref: MO6628.055
ID NO: 2020D032249

28 September 2020

Mr Matt Size
General Manager
Buckland Dry Creek Pty Ltd
PO Box 234
Port Adelaide SA 5015

Dear Mr Size,

**SITE INSPECTION OF MINERALS LEASES (MLs) 237, 357, 421, 442 AND 443
(SECTION 2 OF THE DRY CREEK SALT FIELDS)**

On 18 September 2020, an authorised officer from the Department for Energy and Mining (DEM) conducted a site inspection on Minerals Leases, 237, 357, 421, 442 and 443 (section 2 of the Dry Creek salt fields) to investigate a recent report of mangrove dieback in and around the St. Kilda Mangrove trail. This investigation was followed up by further inspections in the week of 21-25 September 2020, in conjunction with the Department for Environment and Water (DEW) and the Environment Protection Authority (EPA).

Substantial dieback of mangroves was observed at the start of the St Kilda boardwalk on both sides, and along the old seawall approximately 300 meters to the south. It is estimated that approximately 10 hectares of mangroves and other vegetation have been impacted (see Attachments A and B). Review of satellite imagery indicates most of these impacts have occurred between May and September 2020 (see Attachment C).

During the inspections Government officers identified hypersaline water approximately 4 to 5 times the salinity of seawater (see Attachment D) in the impacted mangrove area and in adjacent salt marsh areas towards the salt field bund wall (the western bund of Pond PA7). Seepage was observed from the bund wall in various locations.

From the investigations undertaken to date, DEM, DEW and the EPA consider there is significant potential that the observed impacts to the St Kilda mangroves is related to the refilling of ponds in Section 2 of the Dry Creek salt fields with hypersaline water, that may have resulted, or is likely to result in undue damage to the environment.

As such, I require Buckland Dry Creek to commission an investigation by a suitably qualified expert addressing the following matters:

1. An assessment of whether the impacts are likely to have been a consequence of the operation of the salt fields, and if so:
2. Identification of remedial steps that can be taken to limit current impacts and restore mangrove health, and
3. Identification of steps that can be taken to prevent, or minimise as far as reasonably practical, any new impact, and
4. A plan for implementing those measures.

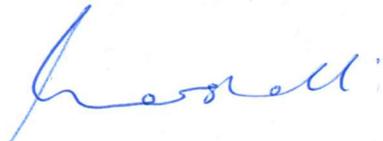
Buckland Dry Creek should also review the PEPR submitted on 18 September 2020, to ensure adequate measures have been proposed for assessing risk and monitoring performance relating to future recommissioning of other parts of the salt fields.

I also encourage Buckland Dry Creek to consult with DEM officers during the investigation who can facilitate access to existing knowledge and expertise from DEW, the EPA and Salisbury Council to assist with identifying corrective actions, and the future safe operation of the salt fields.

Within **two weeks** of the date of this letter, Buckland Dry Creek are required to provide written correspondence that contains a plan to address the abovementioned points including specific completion timeframes.

Should you wish to discuss this matter, please contact Mr Ross Stevens, Senior Mining Regulator on 0458 181 534 or email ross.stevens@sa.gov.au.

Yours sincerely,



Greg Marshall

DIRECTOR, MINE REGULATION

Attachment A: Approximate area of impact (red line) and Mineral leases (black lines)



Attachment B: Photos taken by DEM 18 September 2020

Photo 1: Northern section of mangrove dieback, start of old boardwalk



Photo 2: Southern section of mangrove dieback (pond PA 7 to left), east of old boardwalk



Photo 3: Southern section of mangrove dieback (pond PA 7 to left), west of old boardwalk



Photo 4: Mangrove boardwalk showing dead mangroves



Photo 5: Seepage from bund wall (taken of western side of ML 421), salinity recorded at approximately 172 psu.





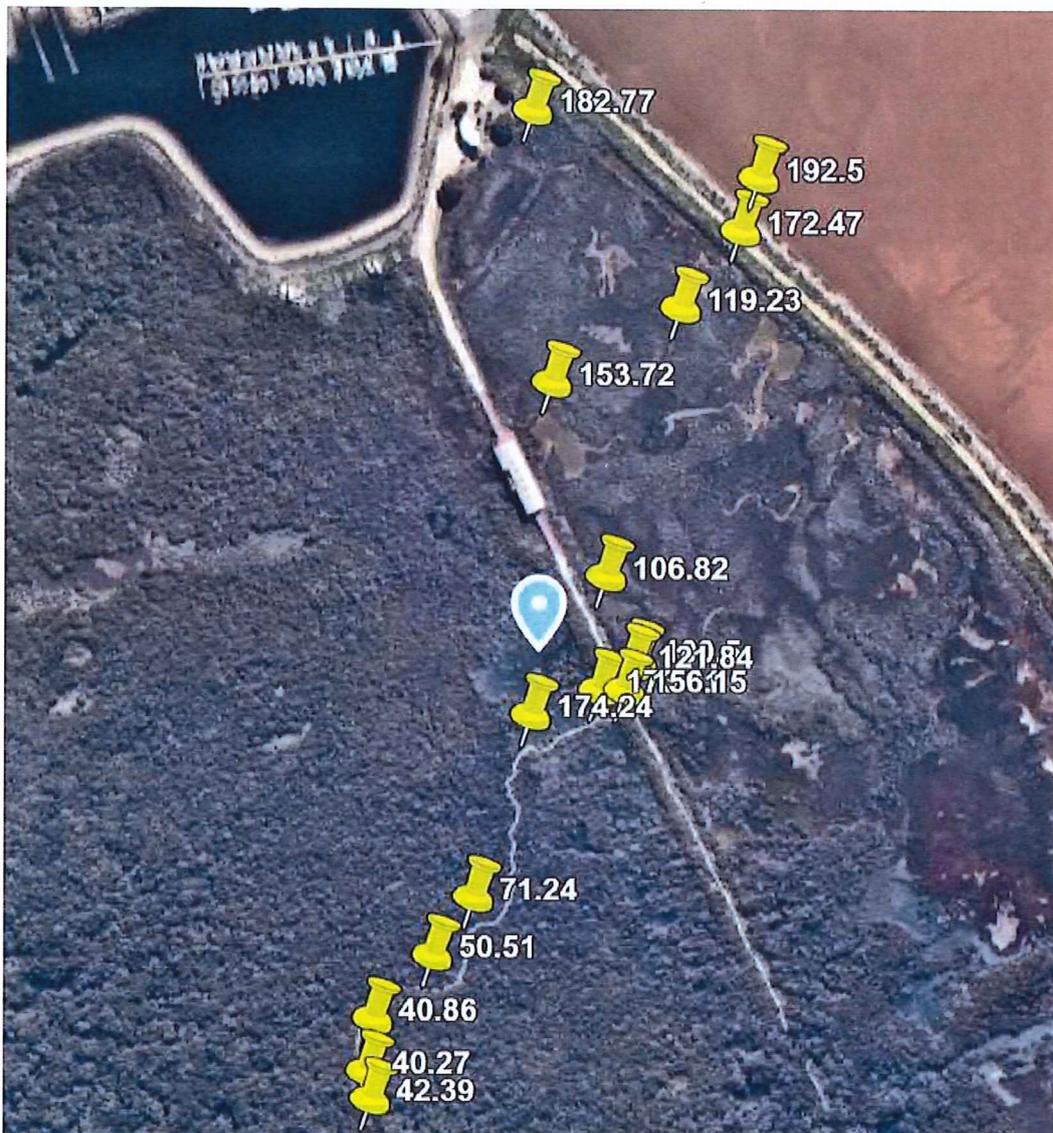
Attachment D: Salinity measurements

Measurement 1 :DEW 21 September 2020 (low tide)

Salinity observations on 21 Sept 2020 in the area along and adjacent to the St Kilda "Mangrove Walk"

Salinity readings were recorded using a calibrated YSI Pro DSS water quality meter. Salinity values below are in practical salinity units (psu) – "normal" salinity in the coastal seawater is approx. 35-40 psu.

Extremely hypersaline water (approx. 4 to 5 times seawater salinity) was observed in the dead mangrove area, and adjacent salt marsh area towards the salt pond bund. Salinity returned to typical seawater values (approx. 40 psu) towards the seaward side of the mangrove board walk, after the dead mangrove area had ended.



Measurement 2: EPA 23 September 2020 (after high tide)

