Case Study Project 1.3

Post Mining Land Use – Practice Mapping Options: Ensham Coal Mine Case Study

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PROJECT PARTNERS

STATEMENT OF ACADEMIC INDEPENDENCE

The members of Steering Committee for Project 1.3 are named in the principal report, *Mapping the Regulatory Framework of Mine Closure*, May 2022. All members of the Steering Committee have had the opportunity to provide comment on drafts of this case study. The authors specifically sought the feedback of Queensland members of the Steering Committee and some other research contacts arranged through the CRC, including representatives of Ensham Resources, the operator of the mine. The authors have also benefited from feedback from independent consultants who reviewed an early full draft of the case study, Ms Revel Pointon and Mr Robert Milbourne.

The authors appreciate the assistance of Steering Committee members, research contacts and consultants, and their recognition of our academic independence. The views in the Case Study are our own, as are any errors.

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Executive Summary

This case study considers three issues with Queensland's mining rehabilitation regulatory framework:

1. rehabilitation of voids of pre-existing open cut mines at the time of recent legislation reforms;
2. insufficient progressive rehabilitation of pre-existing open cut mines;
3. lack of transparency in the operation of the regulatory framework.

We explore these issues using the Ensham thermal coal mine (referred to as the **Ensham Mine**, **Mine** or **Ensham** in this writing) in central Queensland as the case study.

The Ensham Mine is a large mine that has been operating since the 1990s. It comprises both above ground (open cut) and underground (pillar and bord) mining. Idemitsu Australia Resources Pty Ltd (a subsidiary of a Japanese parent company) is the majority owner. The coal is exported to several markets in Asia.

The Mine is adjacent to the Nogoa River. It has seven open pits (described as 11 in total as some pits have subdivisions). Some of these are located partly in the Nogoa floodplain and flooded in 2008. Rehabilitation of the voids located in these flood plains and management of their residual risks are major challenges for the Ensham Mine's rehabilitation program.

Ensham's open-cut operations are scheduled to end in 2024. Rehabilitation of the open cut pits is in progress and has been the subject of some scrutiny and debate by sections of the community and in media. Ensham's mining leases will expire in January 2028 unless an extension application is made by Ensham under the *Mineral Resources Act 1989* (Qld) (**MR Act**), which cannot be made more than one year before expiry.[1] Ensham has submitted a proposal to government to expand its underground operations (the Ensham Life of Mine Extension Project) to approximately 2037,[2] which will require underground access via two open cut pits.

Queensland reformed its mine rehabilitation legislation in 2018 through the *Mineral and Energy Resources (Financial Provisioning) Act 2018* (Qld) (**MERFP Act**). Details of these reforms can be found in the Project 1.3 Regulatory Mapping Report (**P1.3 RMR**). For this case study, pertinent reforms concerned rehabilitation requirements for voids, progressive rehabilitation and financial assurance (including the relationship between the latter two). The Ensham case study highlights the following challenges of this reformed regulatory framework:

- Rehabilitation of Voids

  Under the amended *Environmental Protection Act 1994* (Qld) (**EP Act**), a holder of an environmental authority may identify, in its progressive rehabilitation and closure plan and schedule (**PRCP**) land as a 'non-use management area' (**NUMA**),[3] which is land that will not be rehabilitated to a 'stable condition' and not have a post-mining land use. The ability to specify land as a NUMA is not applicable to mining voids wholly or partly in flood plains—these voids must be rehabilitated to a 'stable condition',[4] as defined in the legislation. However, the transitional provisions of the mining

1 MR Act s 286.

2 See 'Ensham Life of Mine Extension Project' *Queensland Government* (Web Page) <https://www.qld.gov.au/environment/pollution/management/eis-process/projects/completed/ensham-life-of-mine-extension-project>; 'Ensham Life of Mine Extension Project' *Idemitsu* (Web Page) <https://www.idemitsu.com.au/mining/projects/ensham-life-of-mine-extension-project/>.

3 EP Act s 126D (2).

4 EP Act s 126D (3).

rehabilitation reforms delineate the rehabilitation obligations of pre-existing mines (those existing at the time of the reforms, such as Ensham) and new site-specific mines.[5] For pre-existing mines, criteria for rehabilitation or management of a void in a flood plain established under a 'land outcome document' supersede these rehabilitation requirements if the document presents an outcome similar to a NUMA; the result is that pre-existing mines can specify voids in flood plains as NUMAs.[6]

These transitional provisions were intended to avoid 'retrospectively breach[ing] existing rights and [to] provide[ ] certainty to industry on the transitional process'.[7] However, this grandfathering is arguably disconnected from the environmental risks of such residual voids, creating two classes of mines on the basis of timing of a mine's existence (pre-existing versus new). This Ensham case study provides an example of a pre-existing mine's use of a 'land outcome document' to exempt rehabilitation of residual voids in a flood plain but without clarity around the non-use management status of the area of the residual voids.

- Progressive rehabilitation

  In conjunction with the issues identified in point 1 above, Queensland's 2018 reforms concerning progressive rehabilitation are designed to improve rehabilitation for future or newly established mines. However, the reforms may not effectively address instances in which progressive rehabilitation has been lacking in large, open cut, mature mines in operation at the time of these legislative changes.

  As of 2021, 33% of the Ensham Mine's 4,944.7 hectares scheduled rehabilitation areas had been progressively rehabilitated. According to Ensham's PRCP, this level of progressive rehabilitation exceeds that of other open cut mines in Queensland. For established mines, such as Ensham, that are approaching closure and have large voids that have not been substantially progressively rehabilitated, the most economical rehabilitation option may be to rehabilitate residual voids to accord with legislated requirements. Under Queensland's legislation, 'rehabilitation' does not necessarily mean these voids will be re-filled. This may be contrary to community understanding of what 'rehabilitation' is.

- Transparency and Community Engagement

  This case study also highlights issues concerning the level of information transparency (particularly public access to information) in the regulatory framework. This raises issues of accountability, quality of community engagement and, ultimately, social licence on the part of mining companies and government.

  This case study highlights that the *Right to Information Act 2009* (Qld) has an important role in the operation of Queensland's mining rehabilitation regulatory framework. It also demonstrates relevance of transparency to community engagement and expectations for rehabilitation, such as the meaning of 'rehabilitation' of residual voids (i.e., refilling to establish a pre-mining state versus the legislated 'stable condition' standard).

This case study explores these issues as follows. Section 1 presents the physical, social, legal and operational context of the Ensham Mine, and describes the operational history of flooding and its relevance to rehabilitation and management of post-mining residual risks. Section 2 discusses the reform of Queensland's

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5 Queensland Government, 'Non-Use Management Areas' *EP Act Information Sheet* ESR/2019/4954 v.1 (11 March 2020) 2 <https://environment.des.qld.gov.au/__data/assets/pdf_file/0023/95441/rs-is-numa-policy.pdf>.

6 EP Act s 750.

7 *Mineral and Energy Resources (Financial Provisioning) Bill 2018, Explanatory Notes for Amendments to be Moved During Consideration in Detail by the Honourable Jackie Trad, Deputy Premier, Treasurer and Minister for Aboriginal and Torres Strait Islander Partnerships* 17.

rehabilitation legislation framework as it concerns residual voids (including the transitional provisions of the EP Act). It also explores the Residual Void Project (**RVP**) for the development of the rehabilitation criteria for Ensham's residual voids, highlighting the community engagement process and concerns about that process. Section 3 includes comments on transitional regulatory design issues observed in Queensland's framework, as well as observations on transparency and issues concerning progressive rehabilitation of pre-existing open cut mines such as Ensham. The paper concludes in section 4 with suggestions for future research. This case study makes several references to the P1.3 RMR and should be read in conjunction with that document.

1 Physical, Social, Legal and Operational Context of the Ensham Mine

This section presents the physical, social, legal and operational context of the Ensham thermal coal mine. A timeline of key events is provided in Table 1.1, which shows tenement awards, key legislation and regulatory events, physical events (flooding) and scheduled mine closure.

Table 1.1: Ensham Mine Timeline.

DECADE	YEAR	EVENT
1990s	1993	Yongala ML 70049 issued
	1994	Ensham ML 7459 and Ensham 2 ML 7460 issued
	1996	MDL 217 and MDL 218 issued
2000s	2000	*Land Court Act 2000 (Qld)* enacted
	2004	Ensham Central Project Initial Advice Statement published
	2005	White Hill ML 70326 issued
	2008	Flooding
	2009	Fitzroy Model Conditions developed
2010s	2010	Dorrigo ML 70366, Volga ML 70367, Maria ML70365 issued
	Late 2010 – early 2011	Flooding
	2012	Qld Floods Commission of Inquiry
	2016	(Mar) – Ensham tenement holders submit Rehabilitation Management Plan & Residual Void Management Plan to regulator. These are rejected and Residual Void Project (RVP) required
	2017	(Feb) – EA requiring RVP issued (Mar) – RVP terms of reference due to regulator (May) – RVP commences; Ensham Resources Rehabilitation Management Plan submitted to regulator, showing 25% of disturbed land has been progressively rehabilitated (Oct) – First RVP Community Reference Group Meeting
	2018	RVP Community Reference Group Meetings (Nov) – MERFP Act assent
	2019	(Feb) – Final RVP Community Reference Group Meeting (Mar) – Final report due to regulator (land outcome document) (Apr) – MERFP Act commencement
2020s	2020	(Sept) – EA with residual void rehabilitation requirements issued
	2021	(Apr) – Life of Mine Extension Project Proposed; PRCP submission deadline (July) – DES issued PRCP info request to Ensham

1.1 Mine Description and Location

The Ensham Mine is in the Bowen Basin in central Queensland,[8] approximately 35 kms northeast of the town of Emerald (population of approximately 14,300)[9], 49 kms northwest of Blackwater (population approximately 4,700)[10] and 200 kms west of Rockhampton[11]. It is located in the Nogoa River catchment in the Fitzroy Basin.[12] The Western Kangoulu People are native title claimants of the Ensham Mine area.[13] Although they do not currently have a registered native title claim, the Garingbal and Kara People have a connection to the land within Ensham's existing mining leases.[14]

The Mine is a surface (open cut) and underground (bord and pillar) thermal coal mine. Open-cut mining has been in operation since 1993. Underground operations commenced in 2011 as a brownfields project—the Ensham Central Project.

The Ensham Mine is variously described as comprising seven or eleven mining pits (Pits A, B, C, D, E, F and Y), as some are further subdivided (A Pit South, A Pit Central and A Pit North; F Pit South and F Pit North; and Y Pit South, Y Pit Central and Y Pit North).[15] Underground operations are accessed through Pit C. These 'portals' are also used to move extracted coal to the coal handling plant where, once processed, coal is transported by rail to the Gladstone Power Station and to port for export.[16]

Post-mining land use will largely comprise grazing. Presently, the Nogoa Pastoral Company actively grazes 'a large portion of [the] area [of]' ML 70326, ML 70365, ML7459, and ML 70366 as part of its pastoral activities.[17]

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8 See slide 4 in an Ensham Resources presentation that is available online (and referenced in RVP meeting minutes of 4 June 2018), which provides a useful graphic of the Mine and voids at <https://www.dropbox.com/s/r4xwfz1a59k8zjk/4241%20CRG%20Meeting%20PowerPoint%20040618%20%28003%29%20%28002%29.ppt?dl=0>. The 4 June 2018 meeting minutes are at <https://www.idemitsu.com.au/mining/projects/ensham-rv-community-reference-group/ensham-rv-scommunity-reference-group-meeting-minutes/>.

9 According to the 2016 Australian census. See '2016 Quick Stats' *Australian Bureau of Statistics* (Web Page, 30 October 2020) <https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC30982>.

10 Based on 2016 census. See '2016 Quick Stats', *Australian Bureau of Statistics* (Web Page, 30 October 2020) <https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC30283>.

11 'Ensham Life of Mine Project', *Idemitsu* (Web Page) <https://www.idemitsu.com.au/mining/projects/ensham-life-of-mine-extension-project/>.

12 'IESC Advice on Ensham Life of Mine Extension Project – Expansion' *Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development* (Web Page, 13 July 2021) <https://iesc.environment.gov.au/news/2021/07/13/iesc-advice-ensham-life-mine-extension-project-%E2%80%93-expansion>; Idemitsu Australia Resources, *Ensham Life of Mine Extension – Project Overview* (Report prepared by AECOM for Idemitsu Australia Resources, July 2020) 1 <https://www.qld.gov.au/__data/assets/pdf_file/0022/134842/ensham-life-of-mine-extension-project-ias.pdf>.

13 Western Kangoulu QC2013/002 (7 June 2013); see also Idemitsu Australia Resources, *Ensham Life of Mine Extension – Project Overview*: Supporting Documentation for Application to Voluntarily Prepare an Environmental Impact Statement' (Report prepared by AECOM for Idemitsu Australia Resources, July 2020) 12 <https://www.qld.gov.au/__data/assets/pdf_file/0022/134842/ensham-life-of-mine-extension-project-ias.pdf>.

14 Elliott Whiteing, *Ensham Life of Mine Extension Project Social Impact Assessment Technical Report* in Idemitsu, *Ensham Life of Mine Extension Project Environmental Impact Statement* Appendix I-1, 21 <https://www.idemitsu.com.au/mining/projects/ensham-life-of-mine-extension-project/>.

15 Ensham Resources, *Residual Void Project Stage 5: Final Residual Void Report* (Final for lodgement with Queensland Department of Environment and Science 27 March 2019) <https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/.pages/6386/attachments/original/1572915002/ERPL-RVP-Stage_5_EA_Application_Report_%28see_page_37_for_preferred_option%29.pdf?1572915002>.

16 AECOM, *Ensham Life of Mine Extension Project EPBC Self Assessment Report* (Report prepared for Ensham Resources Pty Ltd, 29 April 2020) 4 <http://epbcnotices.environment.gov.au/_entity/annotation/51c4d7b0-7da1-ea11-8a09-00505684324c/a71d58ad-4cba-48b6-8dab-f3091fc31cd5?t=1628842552911>.

17 Idemitsu, 'Rehabilitation and Closure – Chapter 9' in *Ensham Life of Mine Extension Project EIS* (amended EIS document 13 August 2021) 9-7.

As noted above, Ensham's mining leases are scheduled to expire in January 2028. These can be extended under the MR Act upon application by Ensham (and approval by government).[18] Under the MR Act, the extension application cannot be submitted more than one year before the current term expires.[19] This means Ensham will not submit an extension application for its leases until 2027. Indications are that its leases will be extended, given, for example, Ensham's proposed Life of Mine Extension Project, which would extend the operations of underground bord and pillar operations into further zones. The Extension Project would also extend the mine life by nine years to 2037.[20]

Following the Life of Mine Extension Project, underground rehabilitation would follow cessation of operations, with completion expected by 2039.[21] Decommissioning and rehabilitation of extension project surface infrastructure would complete by 2043. This would include rehabilitation of Pits C and D, which will be used to access underground operations.[22] The site would then be monitored for ten years upon completion of rehabilitation works (to 2053), followed by a two-year certification period.[23]

Progressive rehabilitation has occurred at Ensham, with more than 1,550 hectares of open cut mine rehabilitation occurring since 2003, equating to 'approximately one-third of total mining disturbance'.[24] The Ensham Mine's coal mining operations are described further in Box 1 below. Progressive rehabilitation is discussed further below in section 3.2.

Box 1: Ensham Operations

> 'The existing mining operations at Ensham Mine consist of open-cut and underground operations. The open-cut operation is scheduled to continue to approximately 2024, followed by further rehabilitation of the open-cut mine. Existing underground operations are due to cease in 2028.
>
> The underground operations currently use the bord and pillar mining method. This involves the use of a continuous miner to remove the ROM [run of mine] coal while leaving a series of coal pillars to support the roof.
>
> The existing underground workings are accessed through portals located in Pit C. The portals are used for conveying ROM coal from the workings to the Coal Handling Plant (CHP) and for personnel and materials access.
>
> Extracted coal is transported by a system of underground conveyors to the surface. Coal is then transported by semitrailers to the CHP where it is crushed and sized. Product coal is transported via rail to Gladstone for the Gladstone Power Station and to the port for export.
>
> The underground mine services are largely integrated wherever possible with those of the open-cut mine in aspects such as coal handling, transport, waste and water management.'

Source: *Ensham Life of Mine Extension Project EPBC Self Assessment Report* [25]

18 MR Act s 286.

19 Ibid, s 286(5).

20 Idemitsu Resources Australia, *Ensham Life of Mine Extension Project – EPBC Self Assessment Report* (Report 29 Apr 2020) 4 <http://epbcnotices.environment.gov.au/_entity/annotation/51c4d7b0-7da1-ea11-8a09-00505684324c/a71d58ad-4cba-48b6-8dab-f3091fc31cd5?t=1627887994845>.

21 'Ensham Life of Mine Extension Project' *Idemitsu* (Web Page) <https://www.idemitsu.com.au/mining/projects/ensham-life-of-mine-extension-project/>.

22 EPBC Act Referral, section 1.2.

23 Ibid.

24 Excerpt from Ensham's Proposed PRCP (2021), supplied by Ensham in email dated 14 December 2021 (on file with authors).

25 AECOM, *Ensham Life of Mine Extension Project EPBC Self Assessment Report* (Report prepared for Ensham Resources Pty Ltd, 29 April 2020) 4 <http://epbcnotices.environment.gov.au/_entity/annotation/51c4d7b0-7da1-ea11-8a09-00505684324c/a71d58ad-4cba-48b6-8dab-f3091fc31cd5?t=1628842552911>.

1.2 Communities

Ensham is a 'Large Resources Project' under the *Strong and Sustainable Resource Communities Act 2017* (Qld)[26] (**SSRC Act**), with 15 communities classified as a 'Nearby Regional Community' by the Queensland Department of State Development, Infrastructure, Local Government and Planning pursuant to section 13 of the SSRC Act. The SSRC Act is intended to 'benefit residents of communities in the vicinity of large resource projects during their operation'[27] by requiring owners of Large Resources Projects to employ workers from Nearby Regional Communities, assessing social impacts across the project lifecycle,[28] and imposing anti-discrimination provisions in hiring workers from Nearby Regional Communities.[29] This effectively prohibits Large Resources Projects from having a 100% fly-in, fly-out (FIFO) workforce.[30]

Ensham's Nearby Regional communities are regarded as drive in / drive out: Blackwater, Bluff, Capella, Clermont, Duaringa, Dysart, Emerald, Middlemount, Rubyvale, Sapphire, Springsure, Tieri, Willows Gemfields and Woorabinda.[31] Approximately 78% of the Ensham workforce are based in Emerald.[32] Ensham also has a workers' camp of 600 people.[33] The SSRC Act's Social Impact Assessment requirements apply across the life of the mine. If the Ensham Life of Mine Project Extension is approved, the Mine's workforce will be reduced from the year 2036 ahead of planned mine closure.[34]

1.3 Mine Tenure/Tenements

The Ensham Mine is situated within an area defined by seven mining leases (ML7459 (Ensham 1), ML7460 (Ensham 2), ML70326 (White Hill), ML 70049 (Yongala), ML70365 (Maria), ML70366 (Dorrigo) and ML70367 (Vogla)) and two mineral development licences (MDL 217 and MDL 218).[35] These tenements were granted by the Minister for Resources under the *Mineral Resources Act 1989* (Qld) (**MR Act**).[36] The tenements and the hectares covered are presented in Table 1.2. Mining lease 70049 sits on land owned by the Shaw family. The remaining mining leases are on land owned by the Operator (Ensham Resources Pty Ltd).[37]

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26 State Development, Infrastructure, Local Government and Planning, Queensland Government, 'List of Large Resource Projects' <https://www.statedevelopment.qld.gov.au/coordinator-general/strong-and-sustainable-resource-communities/list-of-large-resource-projects>.

27 See SSRC Act subtitle, 'An Act to Provide for Matters That Will Benefit Residents of Communities in the Vicinity of Large Resource Projects During Their Operation' <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-2017-028>.

28 See also Department of State Development, Manufacturing, Infrastructure and Planning, State of Queensland, *Social Impact Assessment Guideline* (March 2018) <https://www.statedevelopment.qld.gov.au/__data/assets/pdf_file/0017/17405/social-impact-assessment-guideline.pdf>.

29 SSRC Act s 3(2).

30 State Development, Infrastructure, Local Government and Planning, Queensland Government, 'List of Large Resource Projects' <https://www.statedevelopment.qld.gov.au/coordinator-general/strong-and-sustainable-resource-communities/list-of-large-resource-projects>.

31 Ibid.

32 Idemitsu Australia Resources, *Ensham Life of Mine Extension – Project Overview* (Report prepared by AECOM for Idemitsu Australia Resources, July 2020) 37 <https://www.qld.gov.au/__data/assets/pdf_file/0022/134842/ensham-life-of-mine-extension-project-ias.pdf>.

33 Ibid.

34 Idemitsu, 'Social' in *Ensham Life of Mine Extension Project Environmental Impact Statement* chapter 21 (2020) section 21.5.2.4 <https://www.idemitsu.com.au/mining/wp-content/uploads/2020/07/Chapter-21-Social.pdf>.

35 'Ensham Resources' *Idemitsu* (Web Page_ <https://www.idemitsu.com.au/mining/operations/ensham-resources/>; Idemitsu 'Ensham Life of Mine Extension – Project Overview: Supporting Documentation for Application to Voluntarily Prepare an Environmental Impact Statement' (Report prepared by AECOM for Idemitsu Australia Resources, July 2020) <https://www.qld.gov.au/__data/assets/pdf_file/0022/134842/ensham-life-of-mine-extension-project-ias.pdf>.

36 MR Act ss 186 and 234.

37 Ensham Resources, *Residual Void Project Stage 5: Final Residual Void Report* (Final for lodgement with Queensland Department of Environment and Science 27 March 2019) 11

The environmentally relevant activities of Ensham's mining operations are undertaken pursuant to Environmental Authority EPML00732813 (**Ensham EA**).[38] The Ensham EA has had several amendments and corresponding effective dates over the life of the Mine.[39] At the date of this writing, Ensham was operating under the Ensham EA dated 3 September 2020.

Table 1.2: Ensham Mine Tenements.[40]

NO.	TENEMENT NUMBER	NAME	TENEMENT TYPE	APPROVAL DATE	EXPIRY DATE	HECTARES
1	ML 7459*	Ensham 1	Mining Lease (underground operations)[41]	20 Apr 1994	30 Jan 2028	6,154
2	ML 7460*	Ensham 2	Mining Lease	20 Apr 1994	30 Jan 2028	774
3	ML 70049*	Yongala	Mining Lease	27 Jan 1993	30 Jan 2028	1,648
4	ML 70326	White Hill	Mining Lease	14 Sept 2005	30 Jan 2028	25.66
5	ML 70365	Maria	Mining Lease (underground operations)[42]	3 Nov 2010	30 Jan 2028	2,766
6	ML 70366	Dorrigo	Mining Lease	4 Nov 2010	30 Jan 2028	254.3
7	ML 70367	Volga	Mining Lease	3 Nov 2010	30 Jan 2028	1,004
8	MDL 217	N/A	Mineral Development Licence	29 Sept 1996	29 Apr 2026	47,393
9	MDL218	N/A	Mineral Development Licence	28 Apr 1996	29 Apr 2026	3,201

* Note: The grant of these three leases preceded establishment of the Land Court under the *Land Court Act 2000* (Qld).

1.4 Tenement Holder Information

According to the Ensham EA dated 3 September 2020, the Ensham EA holders are: Idemitsu Australia Resources Pty Ltd (ACN 010 236 272) (**Idemitsu**), Bowen Investment (Australia) Pty Ltd (ACN 002 806 831) (**Bowen**) and Bligh Coal Limited (ACN 010 186 393) (**Bligh**).[43] The three EA holders also comprise the Ensham joint venture, in which Idemitsu has 37.5% participating interest, Bowen has 15% participating interest and

<https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/6386/attachments/original/1572915002/ERPL-RVP-Stage_5_EA_Application_Report_%28see_page_37_for_preferred_option%29.pdf?1572915002>.

38 Ensham EA (3 September 2020) <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-ea/EPML00732813.pdf>.

39 A comprehensive listing is beyond the scope of this Case Study.

40 Table constructed by the author, using information from '*GeoResGlobe' Business Queensland, Queensland Government* (Web Page and Database 13 August 2021) <https://www.business.qld.gov.au/industries/mining-energy-water/resources/minerals-coal/online-services/georesglobe>; 'Ensham Resources' *Idemitsu* (Web Page <https://www.idemitsu.com.au/mining/operations/ensham-resources/>; Idemitsu 'Ensham Life of Mine Extension – Project Overview: Supporting Documentation for Application to Voluntarily Prepare an Environmental Impact Statement' (Report prepared by AECOM for Idemitsu Australia Resources, July 2020) <https://www.qld.gov.au/__data/assets/pdf_file/0022/134842/ensham-life-of-mine-extension-project-ias.pdf>; 'Land Court' *Supreme Court Library Queensland* (Web Page) <https://www.sclqld.org.au/caselaw/QLC>.

41 Ensham Resources, *Residual Void Project Stage 5: Final Residual Void Report* (Final for lodgement with Queensland Department of Environment and Science 27 March 2019) 11 <https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/6386/attachments/original/1572915002/ERPL-RVP-Stage_5_EA_Application_Report_%28see_page_37_for_preferred_option%29.pdf?1572915002>.

42 Ensham Resources, *Residual Void Project Stage 5: Final Residual Void Report* (Final for lodgement with Queensland Department of Environment and Science 27 March 2019) 11 <https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/6386/attachments/original/1572915002/ERPL-RVP-Stage_5_EA_Application_Report_%28see_page_37_for_preferred_option%29.pdf?1572915002>.

43 Ensham EA (3 September 2020) <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-ea/EPML00732813.pdf>.

Bligh has 47.5% interest[44] (collectively these are referred to in this case study as the **Ensham Joint Venture** or **Ensham EA holders**). As Bligh is a subsidiary of Idemitsu, Idemitsu effectively has an 85% participating interest in the Ensham Mine.[45]

The Ensham Mine is operated by Ensham Resources Pty Ltd (ACN 011 048 678)[46] (the **Operator**), a wholly owned subsidiary of Idemitsu Australia Resources Pty Ltd.[47] Idemitsu Australia Resources Pty Ltd is a subsidiary of Idemitsu Kosan Co. Ltd., a Japanese energy and natural resources conglomerate that is listed on the Tokyo Stock Exchange.[48] Bligh Coal Limited is a subsidiary of Idemitsu Australia Resources Ltd and Bowen Investment Australia Ltd is a subsidiary of LG Corporation, a Korean company.[49]

1.5 Flooding

The flooding of the Ensham Mine was a case study in the Queensland Floods Commission of Inquiry (2012), following the late 2010 to early 2011 Queensland floods.[50] The Mine is adjacent to the Nogoa River, with some pits located partially in the floodplain. In 2008, floodwaters exceeded the levee banks, inundating four open cut coal mining pits with an estimated 150,000 megalitres of water and submerging a dragline.[51] Following this, the Queensland Government authorised Ensham to discharge 138,000 megalitres of the water into the Nogoa River between February and September 2008.[52] Increased salinity was found in water quality monitoring in September 2008, which affected water supplies and reduced drinking water quality (for humans and livestock) in some downstream communities.[53] The impact on water supplies caused community concern and negative media coverage led Ensham to cease dewatering the pits voluntarily, despite being authorised to continue the discharge.[54]

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44 Idemitsu Australia Resources, 'Introduction' in *Ensham Life of Mine Extension Project Environmental Impact Statement* chapter 1 (2020) <https://www.idemitsu.com.au/mining/wp-content/uploads/2020/07/Chapter-1-Introduction.pdf>.

45 'Ensham Resources' *Idemitsu*, <https://www.idemitsu.com.au/mining/operations/ensham-resources/> (Web Page); Idemitsu Australia Resources, *Ensham Life of Mine Extension – Project Overview*: Supporting Documentation for Application to Voluntarily Prepare an Environmental Impact Statement' (Report prepared by AECOM for Idemitsu Australia Resources, July 2020) 12 <https://www.qld.gov.au/__data/assets/pdf_file/0022/134842/ensham-life-of-mine-extension-project-ias.pdf>.

46 ASIC Register search 9 August 2021, <https://connectonline.asic.gov.au/RegistrySearch/faces/landing/SearchRegisters.jspx?_adf.ctrl-state=289gi3fjm_4>.

47 AECOM, 'Ensham Life of Mine Extension – Project Overview' <https://www.qld.gov.au/__data/assets/pdf_file/0022/134842/ensham-life-of-mine-extension-project-ias.pdf>.

48 'Committed to a Sustainable Resource Future' *Idemitsu* (Web Page) <https://www.idemitsu.com.au/>; Idemitsu, 'Investor Relations' <https://www.idemitsu.com/en/ir/index.html>; Idemitsu, 'Stock Quotes' <https://www.idemitsu.com/en/ir/index.html>.

49 'Ensham Resources' *Idemitsu* (Web Page) <https://www.idemitsu.com.au/mining/operations/ensham-resources/>; Idemitsu Australia Resources, *Ensham Life of Mine Extension – Project Overview* (Report prepared by AECOM for Idemitsu Australia Resources, July 2020) 1 <https://www.qld.gov.au/__data/assets/pdf_file/0022/134842/ensham-life-of-mine-extension-project-ias.pdf>.

50 Queensland Floods Commission of Inquiry (2012), *Final Report* <http://www.floodcommission.qld.gov.au/__data/assets/pdf_file/0007/11698/QFCI-Final-Report-March-2012.pdf> (***Floods Commission***).

51 *Floods Commission* (n50) 357 <http://www.floodcommission.qld.gov.au/__data/assets/pdf_file/0007/11698/QFCI-Final-Report-March-2012.pdf>; see also Megan Lewis, 'Ensham Mine Avoids Repeat of Disastrous 2008 Floods' (*ABC News*, 1 December 2010) <https://www.abc.net.au/news/2010-12-01/ensham-mine-avoids-repeat-of-disastrous-2008-floods/2358678>.

52 *Floods Commission* (n50) 357.

53 *Floods Commission* (n50) 357, 358; see also Queensland Resources Commission, 'QRC Submission to the Queensland Floods Commission of Inquiry (11 March 2011) http://www.floodcommission.qld.gov.au/__data/assets/file/0018/6174/Queensland-Resources-Council.pdf.

54 Ibid; see also *Floods Commission* (n50) 'Exhibit 748, Statement of Andrew Brier (Ensham Coal Mine)', (Sept 2011) 14, para 81, <http://www.floodcommission.qld.gov.au/__data/assets/pdf_file/0016/10177/QFCI_Exhibit_748_Statement_of_Andrew_Brier_27_September_2011.pdf>. An example of negative publicity can be seen in Steve Gray, 'Coal Mine Blamed for Causing Diarrhoea' *Sydney Morning Herald* (online, 9 January 2009) <https://www.smh.com.au/national/coal-mine-blamed-for-causing-diarrhoea-20090109-7dhe.html>.

After the 2008 floods, large levees designed for a one in 1,000-year flood were built along the Nogoa River.[55] (Presently, Pits B, C and D are protected by '0.1% AEP regulated structured levees'.)[56] The levees prevented the Nogoa River and its tributaries from flooding Ensham's open pits in the 2010-11 wet season. However, surface water at the mine site was increased by heavy rainfall, which flooded active pits that were already holding water from the 2007-08 season, requiring a further authorised release of water into the Nogoa River.[57]

The experience of the 2008 floods led the Queensland government to develop the *Model Water Conditions for Coal Mines in the Fitzroy Basin* Guideline (**Fitzroy Model Conditions**) pursuant to the EP Act,[58] which were subsequently incorporated into EAs. The Fitzroy Model Conditions' restriction on water release was found to be a contributing factor to mine flooding in 2011, as mines could not release water ahead of the rainy season. The Queensland government revised the Fitzroy Model Conditions after industry's and government's experience of the water release authorisation process in the 2011 floods, permitting a new regime of water release.[59] There is a potential question whether authorised water releases may raise offsite rehabilitation issues (such as downstream contamination), which we assume have been addressed in the authorisation of the amended Fitzroy Model Conditions regime and do not attempt to address them here.

2 Rehabilitation Regulation and Voids

As mentioned above in the Executive Summary, this case study considers three issues of Queensland's mining rehabilitation regulatory framework as it applies to mature open-cut mines:

1. rehabilitation of voids under the transitional provisions of recent legislation reforms;
2. insufficient progressive rehabilitation of mature mines; and
3. lack of transparency in the regulatory framework's operation.

These are discussed below, first by outlining the Ensham Mine rehabilitation planning process and, secondly, by offering observations on that process in respect of these three issues.

2.1 Residual Void Risks

A four-page paper entitled *Rehabilitation of Final Voids* was included among information published by the Department of Environment and Science under a 2019 right to information request that concerned Ensham rehabilitation. Excerpts from this report are quoted in

55 *Floods Commission* (n50) 168.

56 Ensham Resources, *Residual Void Project Stage 5: Final Residual Void Report* (Final for lodgement with Queensland Department of Environment and Science 27 March 2019) 11 <https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/6386/attachments/original/1572915002/ERPL-RVP-Stage_5_EA_Application_Report_%28see_page_37_for_preferred_option%29.pdf?1572915002>.

57 *Floods Commission* (n50) 355.

58 See Guideline ESR/2015/1561.

59 *Floods Commission* (n50) 359.

Box 2 and Box 3 below. While the report is not specific to Ensham, it describes risks associated with rehabilitation of final voids, such as those at the Ensham Mine and is useful to contextualise this case study.[60]

[60] Department of Environment and Science, Disclosure Log, 'Documents in relation to the Rehabilitation Management Plan administered by the department pursuant to EPML00732813, for the period 1 January 2017 to 20 December 2018, requested by Wanditta Pastoral Company (9 January 2019, RTI 18-258) (4 documents, a, b, c, d) **(DES-RTI 18-258)**.

Box 2: Final Voids[61]

Rehabilitation of Final Voids

- 'Final voids present a significant potential danger to people, stock and wildlife, as well as being potential sources of environmental pollution... (Department of Mines and Energy, Queensland 1995). Apart from important environmental considerations and in the interest of public safety, final voids require safety barriers to prevent inadvertent public access.
- Achieving acceptable rehabilitation outcomes for final voids in Queensland poses several unique challenges, including the following:
    - Voids are deep and void lakes are typically stratified in terms of chemistry and dissolved oxygen concentration, affecting biological characteristics over time.
    - Voids often have connectivity to saline groundwater.
    - Evaporation exceeds rainfall, creating the potential for super-salinity to develop in shallow void lakes.
    - Voids are highly visible to stakeholders and perceived as a risk to humans and the environment.
- Bowman (2002) assessed final void water quality at seven Queensland and two NSW coal mines, concluding salinity was the major issue with water chemistry dominated by sodium and sodium chloride. This ACARP study found that, in most situations, void water is derived from surface runoff and there is a link between void water salinity and suspended solid load in runoff water, indicating that erosion of overburden dumps is a significant contributor to void water salinity
- Leading global practice in final void rehabilitation is complete backfilling and high wall elimination. Backfilling final voids can mitigate many of their social and environmental risks, and presents the opportunity to return land to a form that supports pre-mine use. In the United States, backfilling in coal mine final voids has been required by law since the 1970s.
- When final voids are not backfilled and extend below the groundwater table, pit/void lakes can form (Zhou et al. 2009). These lakes can (in some cases) draw down local groundwater aquifers and can take a significant time to fill with water (or reach equilibrium), often centuries. Water quality in these final void lakes is typically poor and will worsen over time.
- The Guideline – Rehabilitation requirements for mining projects (EM1122) lists a hierarchy of possible strategies to achieve rehabilitation goals for domains involving final voids. Backfilling to original ground level is generally acceptable, construction of safety barriers may be acceptable in some cases, however the presence of hazardous materials and/or poor quality water is rarely acceptable.'

Box 3: Floodplain Voids[62]

Rehabilitation of Voids in Floodplains:

- Flood plains are typically broad areas of alluvium around or near a river or creek that are subject to flooding (Macquarie, 2016).
- Floodplains are hydrologically important, environmentally sensitive, and ecologically productive areas that perform many natural functions, including:
    - Cleaning floodwater by removing sediments, nutrients and other pollutants, protecting drinking water, recreational amenity and aquatic ecosystems. Floodplain vegetation also regulates water temperature through the provision of shaded areas.
    - Providing habitat for plants, birds and freshwater aquatic species.
    - Provide flood storage by taking on and storing excess water during flood events and allowing it to be released slowly back into the watercourse, overland and into groundwater.
    - Groundwater recharge, which regulates the availability of water during dry periods.
- Coal mining operations located on floodplains pose a significant risk to water quality, groundwater flow regimes and geomorphological processes. The key risk remains the potential for inundation of the final void post mining, through extreme flood events, geomorphological processes such as meander migration, or geotechnical pit wall failure or piping failure. The potential impacts of pit inundation could have significant consequences and include:
    - Loss of water from a stream system and downstream impacts on water dependent ecosystems;
    - Downstream water quality impacts associated with efforts to pump out the flooded void; and
    - Incision or scour between the pit and the existing water course. There are potential flow paths that could develop as a result of flood related pit inundation that represent a risk of incision and scour in the mining and post mining landscape. Such flow paths have potential to capture the alignment of the associated watercourse with resulting impacts on the community, agriculture and the environment.
    - There is also increased potential for erosion associated with constricting the floodplain (by levees and overburden emplacements) and increasing floodplain stream powers and sheer stress. Typically, mine sites located in Queensland contain highly dispersive soils, which increases the risk of erosion and scouring.

61 DES-RTI 18-258a (n60) 14 – 15.

62 'Rehabilitation of Final Voids' in DES RTI 18-258a (n138) 15 – 16.

- There are also potential cumulative impacts when considering existing operations located on floodplains, where a new project (or expansion of an existing project) may be located nearby.

- Alternatives involving the diversion of water into voids are not acceptable, for the following reasons:
  - This activity represents a major take of water from any catchment area will affect the future security of supply to all water resource projects lower down in the basin.
  - The impact of fresh water diversions into coal mine voids would have a measurable effect on the total quality of waters remaining in the system at points downstream.
  - The scale of the impact on the quality of water supplies at points downstream of those diversions would be proportional to the number of mines which are engaged in the practice of diverting clean water into their voids.
  - Abstractions that are to be continued and repeated in perpetuity are for no beneficial use.
  - Statutory Plans cover the use of water resources in various Basins. Any proposal to harvest the very large volumes of water such as would be involved in any proposal to fill old mine voids with river water would likely affect the operation, if not the actual content of those various Water Plans.
  - The proposal to divert water as inflow and/or outflow from a mining void may lead to 'diversion structures' within a floodplain that require permanent monitoring and maintenance to ensure stability in their own right and not unduly impact the integrity and performance of impacted watercourses. Such management may ultimately fall back to the underlying tenure holder or the state who would then be burdened with the liability (managing the structures and outflow water quality) thus allowing the companies to disassociate themselves from any future obligations.

2.2 Development of Residual Void Rehabilitation Criteria—Residual Void Project

The Ensham EA's 'rehabilitation success criteria' for the Mine's residual voids were developed through a residual void study, which provided 'a scientific and environmental assessment of the options to rehabilitate residual voids in the flood plain of the Nogoa River and other voids at Ensham Mine'.[63] This requirement was in the 28 February 2017 EA[64] and the 09 August 2018 EA[65] condition G20, required completion of a Residual Void Project (**RVP**) by 31 March 2019. The RVP commenced in May 2017.[66]

As part of its investigation into void rehabilitation, Ensham established a community stakeholder group (the Ensham Residual Void Project Community Reference Group) to elicit comments on the rehabilitation options.[67] The Reference Group had a Charter, which set out the Group's rules. Meeting minutes were recorded for the seven meetings (the first was on 4 October 2017 and the last on 14 February 2019). These meeting minutes are available online and provide insight into stakeholder concerns about management of residual voids, some of which we consider here.[68]

As was noted above in section 1.4, Ensham is predominantly owned by Idemitsu, a Japanese company. This cultural background was noted in a Community Reference Group meeting in October 2017, in which an Ensham representative mentioned that:

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63 Ensham Residual Void Study, Community Reference Group, *Ensham Residual Void Study Community Reference Group Charter* (Charter) section 1 <https://www.idemitsu.com.au/mining/wp-content/uploads/2017/10/Ensham-RV-CRG-Charter.pdf>.

64 This is available online in the Department of Environment of Science's Disclosure Log Requests. See *Documents in Relation to the Ensham Residual Void Project Administered by the Department Pursuant to EPML00732813 for the Period 1 January 2017 to 20 December 2018,* Wanditta Pastoral Company (Applicant), Application Number 18-259 (9 January 2019) 39 – 99 <https://www.des.qld.gov.au/our-department/accessing-information/disclosure-log/des> (**DES RTI 18-259**).

65 This is available online in the EPBC Referral for the Ensham Life of Mine Extension Project. See EPBC Referral 2020/8669, *Invitation for Public Comment on Referral* (Notice, 28 May 2020) <http://epbcnotices.environment.gov.au/referralslist/>.

66 Ensham Residual Void Study, Community Reference Group, *Ensham Residual Void Study Community Reference Group Charter* (Charter) section 1 <https://www.idemitsu.com.au/mining/wp-content/uploads/2017/10/Ensham-RV-CRG-Charter.pdf>.

67 Ensham Residual Void Study, Community Reference Group, *Ensham Residual Void Study Community Reference Group Charter* (Charter) section 1 <https://www.idemitsu.com.au/mining/wp-content/uploads/2017/10/Ensham-RV-CRG-Charter.pdf>.

68 See meeting minutes of seven meetings for further exchanges between Ensham and stakeholders at Ensham Residual Void Study Project at <https://www.idemitsu.com.au/mining/projects/ensham-rv-community-reference-group/ensham-rv-scommunity-reference-group-meeting-minutes/>.

> *Idemitsu is a Japanese company and are very sensitive to their reputation, especially when it comes to the environment as they don't want to leave a bad legacy. The study period will allow Ensham time to find out if there is science that can help Ensham consider appropriate alternates. This group is important and we are open to all thoughts, ideas and challenges.*[69]

Idemitsu's vision for the proposed Ensham rehabilitation can be found on its website in Ensham Rehabilitation conceptual videos.[70]

According to the 4 October 2017 minutes of the Community Reference Group meeting, three rehabilitation options were being considered. **Option 1** was variously described as the levee backfill or landform option. Under Option 1, existing levees on the Nogoa River would be retained, and a permanent landform created by backfilling behind and on top of the levee. This option would require annual inspections to ensure structural integrity.[71]

Option 2 was described as combining flood management with beneficial use (in the form of water use). Under this option, flooding would be mitigated by directing water in flood events into pit voids. The pits could provide water to be used by the community such as through recreation or irrigation.[72] Flood mitigation and beneficial use encompassed all pits (A-Y), with Pits A, B, C and D to be used for water storage.[73] Water quality management was considered the significant issue for option 2.[74]

Option 3 was to backfill all the voids in the floodplain up to the probable maximum flood level.[75] This was described as being the baseline for the RVP on the basis that it was the regulator's preferred option.[76] It was not Ensham's preferred option due to 'associated cost with moving significant volumes of dirt'[77] and that 'it would also require significant disturbance of areas already rehabilitated'.[78] An Ensham representative at the October 2017 meeting responded to the question of whether 'reluctance to fill the void [was] due to cost' by explaining:

> *[T]he plan that was put forward was rejected by EHP [the Queensland Department of Environment and Heritage Protection which was the predecessor of the current regulator the Department of Environment and Science] due to EHP's position that there was the need to fill the void. This escalated quite high in the business and government due to the associated costs of backfilling the voids.* Essentially, to fill the void will increase the liability significantly putting

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69 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (4 October 2017) 3 (emphasis added) <https://www.idemitsu.com.au/mining/wp-content/uploads/2017/10/RV-CRG-Minutes-4th-October.pdf>.

70 'Ensham Rehabilitation Study' *Idemitsu* (Web Page 4 December 2019) <https://www.idemitsu.com.au/mining/ensham-rehabilitation-study/>.

71 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (4 October 2017) 4 <https://www.idemitsu.com.au/mining/wp-content/uploads/2017/10/RV-CRG-Minutes-4th-October.pdf>.

72 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (7 December 2017) 3 <https://www.idemitsu.com.au/mining/wp-content/uploads/2018/02/RV-CRG-Minutes-07.12.2017-13923.pdf>.

73 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (4 October 2017) 4 <https://www.idemitsu.com.au/mining/wp-content/uploads/2017/10/RV-CRG-Minutes-4th-October.pdf>. Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (26 March 2018), <https://www.idemitsu.com.au/mining/wp-content/uploads/2018/05/Ensham-Residual-Void-CRG-Meeting-Minutes-26.3.2018-1.pdf>; Ensham Residual Void Study, Community Reference Group, *Meeting Minutes 10 October 2018*, <https://www.idemitsu.com.au/mining/wp-content/uploads/2019/02/RV-CRG-Minutes-10th-October-2018.pdf>.

74 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (4 October 2017) 4 <https://www.idemitsu.com.au/mining/wp-content/uploads/2017/10/RV-CRG-Minutes-4th-October.pdf>.

75 Ibid.

76 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (4 October 2017) 4 <https://www.idemitsu.com.au/mining/wp-content/uploads/2017/10/RV-CRG-Minutes-4th-October.pdf>.

77 Ibid.

78 Ibid.

> Ensham at a high risk of going out of business. *It has been negotiated for the government to give a study period to gain scientific evidence and community feedback to come up with a solution.*[79]

A review of the meeting minutes suggests that these three options evolved and were refined as findings were made during the RVP. For example, in a later meeting, Ensham explained that option 2 was not the regulators' preferred option, 'as they do [not] feel they can approve a reservoir for the use of the land [as] [t]he current post mining lease land use is grazing for low wall spoil'. Ensham further explained that:

> *We have 2 options with regards option 2 and how this is managed within the RVP'– (i) argue with government and lodge an application with reservoir, which doesn't give anyone any certainty; or (ii) we push forward with Option 2 as the landform design and stay with grazing as post mining land use. This allows us to preserve the landform as a potential use of reservoir for the possible application for the use of a reservoir put forward at a later date.*[80]

Regarding establishing the beneficial use, it was further explained:

> *It is about 135 million [dollars] to get the irrigation set up. Idemitsu is not paying that and have been clear on this. There are other opportunities out there for funding assistance if the reservoir was supported. Idemitsu aren't walking away from this, it was always going to be this price for Option 2 and we are willing to work with people to help get this going. Government wants to lock in a land use and submit another application for water storage at a later date. What we have done is keep the land use for all options as grazing as post mining land use for now. The water holding capacity for Option 2 will remain the same, we just can't get water in or out.*[81]

The social impact assessment (developed as part of the voluntary EIS under the EP Act) for the proposed life of mine extension project reveals RVP community stakeholders were concerned about the social impact of water quality and flooding risk.[82] It explained that 'significant social impacts were not identified' with the exception of option 2 (flood mitigation and beneficial use) which was likely to positively impact water security in the region; and the increased flooding and sediment load risk of option 3 (backfilling) was likely to negatively impact mental health of landholders downstream, but that the visual effect of backfilling was likely to have a positive impact on local landholders' 'visual amenity'.[83]

The three options of the RVP were assessed using a triple bottom line method, which took account of environmental, social and economic factors. The final report for the Residual Void Project (which is not readily available but was found on Lock the Gate's website), recommended option 2 on the basis that it was the only one of the three options that 'passe[d] all 14 stage gate questions for Environment, Social and Economic'.[84] The recommended option 2 did not have a post-mining beneficial land use for water; instead, the beneficial use would be native grazing and a bushland corridor. However, the final report also highlighted:

> *Both the [Community Reference Group] and Central Highlands Regional Council have provided feedback that in light of the future reservoir opportunity created by the retention of the design*

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79 Ibid, 3 (emphasis added).

80 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (14 February 2019) 3 <https://www.idemitsu.com.au/mining/wp-content/uploads/2019/03/20190214-Draft-CRG-Minutes.pdf>.

81 Ibid.

82 Elliott Whiteing, 'Ensham Life of Mine Extension Project Social Impact Assessment Technical Report' in Idemitsu, *Ensham Life of Mine Extension Project Environmental Impact Statement* Appendix I-1, 24 <https://www.idemitsu.com.au/mining/projects/ensham-life-of-mine-extension-project/>.

83 Ibid.

84 Ensham Resources, *Residual Void Project Stage 5: Final Residual Void Report* (Final for lodgement with Queensland Department of Environment and Science 27 March 2019) <https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/6386/attachments/original/1572915002/ERPL-RVP-Stage_5_EA_Application_Report_%28see_page_37_for_preferred_option%29.pdf?1572915002>.

> *criteria that they support Option 2 as the final preferred option. There have been clear discussions that any future reservoir would be subject to a separate approval process to this option.*[85]

The beneficial use change from water to grazing and instalment of a bushland corridor was questioned in the final Community Reference Group meeting. A question was posed that asked, 'There is quite a material change as to what Option 2 is on the table right now, What do we call it now?' Ensham replied:

> *[I]t is still beneficial use. The government is quite process based and it was always going to be a long shot for them to approve the irrigation straight away. It is important to preserve the landform for the potential use of the land as water storage.*
>
> *Are we walking away from the reservoir option, no. This is about how can we work effectively with the region to get this in motion. There is a lot of licensing and approvals for dams to be approved by government. They want certainty in the EA. The decision was made that we would keep Option 2 alive and recognise the government's barriers and either fight with them or work with them. We can morph the options as we move through the study, though if we changed names now we have problems in the Stage 4 report. The report has a full list of the options and lists any changes.*[86]

The beneficial use change also prompted questions about the triple bottom line assessment at the final Community Reference Group meeting. The meeting minutes record that someone asked: 'When entering and answering the questions in the TBL [triple bottom line assessment], was this done based on Option 2 landform only and not the reservoir'? Ensham responded 'Yes'. A follow-up question asked: 'Are you still claiming the social benefits of Option 2 with knowledge that this isn't going to be a reservoir'? Ensham responded: 'The economic benefit based on the reservoir has been peeled out / removed' and 'Option 1 would be similar to Option 2 when the area will be nearly the same for Option 1'. Ensham agreed to 'go back and check this report to ensure Option 2 is similar to Option 1 for the social impacts based on no longer having a reservoir in Option 2'.[87] Ensham's proposed transitional PRCP describes the recommended option (and ultimate outcome) as 'a modified Option 1 with potential future beneficial use and water storage'.[88]

The RVP's social impact assessment suggests that the recommended option is inconsistent with community preferences (the relevance of this is discussed below in section 3.4):

> *[A]cross all stakeholder groups consulted (key stakeholders, local and regional community residents and Ensham employees), Preferred Option 2 emerged as the key option preference (92), followed by Preferred Option 3 (29) and Preferred Option 1 (12)…key stakeholders consulted were more divided in their option preferences between Preferred Option 2 – Beneficial Use (16) and Preferred Option 3 – Backfill to PMF (19); whereas, both local and regional community residents (42) and Ensham employees (34) were more likely to demonstrate a clear preference for Preferred Option 2.*[89]

Idemitsu (as majority owner of the Ensham Mine) has been accused of 'attempting to backflip on its original commitment to re-fill and -rehabilitate [sic] 11 mining pit voids, including three on the Nogoa River

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85 Ibid, 34.

86 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (14 February 2019) 3 <https://www.idemitsu.com.au/mining/wp-content/uploads/2019/03/20190214-Draft-CRG-Minutes.pdf>.

87 Ibid, 4.

88 Ensham Proposed Transitional PRCP 52 (attachment 1) <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-prc/PRCP-EPML00732813-V1_1_applicationdocuments_Attachment_01.pdf>.

89 Umwelt, 'Idemitsu Social Impact Assessment: Ensham Residual Void Project' (February 2019) 80 <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-prc/PRCP-EPML00732813-V1_1_applicationdocuments_Attachment_31.pdf>.

floodplain'.[90] However, Idemitsu has emphasised that these residual voids are not unrehabilitated. The Ensham Life of Mine Extension Project EIS submission responses register records the following response from Idemitsu to a submission that 'Ensham Mine has amended a previous environmental impact statement commitment to rehabilitate mine voids and is subsequently leaving an everlasting scar on the Nogoa River floodplain':[91]

> *The rehabilitation outcomes for the Ensham mine were assessed and determined through the extensive and comprehensive scientific studies undertaken through the Residual Void Project (RVP) submitted in 2017 and the amendment to the Ensham Environmental Authority (EA) in 2020. The Ensham open cut mine will not have unrehabilitated residual voids as a domain in the postmining landscape, rather, existing open cut voids are to be partially backfilled and rehabilitated in accordance with the EA. The rehabilitation outcomes for the open cut mine in the floodplain are specified in the EA.*[92]

The outcome of the RVP is relevant as it determined the rehabilitation requirements for the Ensham residual voids under the 'land outcome provisions' of the EP Act,[93] rather than the section 126D rehabilitation obligation. This is discussed in the following sections of this case study. The RVP result also highlights a difference in community expectations versus rehabilitation requirements for voids situated wholly or partly in a flood plain. Some in the community had thought rehabilitation in this situation meant re-filling of the voids. However, as discussed below, 're-filling' is not the section 126D(3) rehabilitation standard for voids in a flood plain; rather 'stable condition' is.

2.3 Rehabilitation Reforms—PMLUs, NUMAs and Voids in Flood Plains

Among Queensland's legislative reforms is the requirement that EA holders develop and implement a Progressive Rehabilitation and Closure Plan (**PRCP**) and Schedule. The PRCP Schedule must propose the post-mining land use(s) and non-use management area(s) (as applicable) and the milestones schedule for these which will lead to the EA eventually being surrendered (and terminate the tenement holder's obligations and liabilities).[94]

A post-mining land use (**PMLU**) means 'the purpose for which the land will be used after all relevant activities for the PRC plan carried out on the land have ended'.[95] The Explanatory Note to the *Environmental Protection (Rehabilitation Reform) Amendment Regulation 2019* (Qld) clarifies that:

> *For post-mining land uses, the outcome required is that the post-mining land use is firstly viable and secondly appropriate for the region based on whether there is a planning instrument which authorises the use, the use is permitted under relevant schemes by the planning authorities, the use is consistent with previous permitted use or it delivers better environmental outcomes (i.e. natural vegetation, conservation corridors). To clarify, a post- mining land use must be a use that is unrelated to mining. The intention of a post-mining land use is that mined land must be rehabilitated to a stable condition so it is able to support another use, for example water storage facility or native ecosystem habitat. Additionally, it is expected that where an area of land, the*

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90 'Mine Dodging Bill, Group Claims' *The Morning Bulletin* (Rockhampton Qld, 23 November 2019).

91 Idemitsu Australia Resources, *Ensham Life of Mine Extension Project Environmental Impact Statement*, 'Submission Register' 28-9 <https://www.idemitsu.com.au/mining/wp-content/uploads/2020/07/Chapter-28-Submission-Register.pdf>.

92 Idemitsu Australia Resources, *Ensham Life of Mine Extension Project Environmental Impact Statement*, 'Submission Register' 28-9 <https://www.idemitsu.com.au/mining/wp-content/uploads/2020/07/Chapter-28-Submission-Register.pdf>.

93 EP Act s 750 and 754(3).

94 EP Act ss 126B, 126C and 126D (1)(a)(i) and (b)(i) – (ii); Department of Environment and Science, Progressive Rehabilitation and Closure Plans Guideline (PRC Plans), ESR/2019/4964 v.2 (17 March 2021), s. 4, s 5.8.

95 EP Act s 112.

subject of a PRCP schedule, will not be disturbed, the post-mining land use for that area will be the current (existing) use or a better environmental outcome.[96]

Some examples of PMLUs are native ecosystem, grazing, agriculture, land fill and water storage.[97]

As defined, a 'non-use management area' (**NUMA**) is an 'area of land the subject of a PRC plan that cannot be rehabilitated to a stable condition after all relevant activities for the PRC plan carried out on the land have ended'.[98] These areas should be 'minimised to the extent possible, which includes, for example, minimising area, volume of materials and level and number or distinct areas. Each non-use management area is expected to be located to prevent or minimise environmental harm'.[99] Thus, a NUMA is excepted from rehabilitation requirements (because it cannot be rehabilitated to a stable condition) and will instead be 'managed' through milestone improvements.[100]

The NUMA classification is available where the risk of environmental harm from non-rehabilitation is confined to the relevant tenement area and not rehabilitating the land is in the public interest.[101] However, the NUMA classification is *unavailable* for voids that are in flood plains, and these voids (in whole or part) *must* be rehabilitated to a 'stable condition'.[102] Land rehabilitated to a 'stable condition' must achieve three requirements. It must be: 1) safe and structurally stable; 2) non-polluting; and 3) sustain a PMLU.[103]

As mentioned previously, Queensland's mine rehabilitation reforms have a grandfathering or transitional scheme. This allows pre-existing mines to meet different (lesser) rehabilitation requirements for voids in flood plains than those required for new site-specific mines through the application of a 'land outcome document' under the EP Act's transitional provisions.

2.4 Ensham as a Pre-Existing Mine Under the Rehabilitation Reforms

Ensham's RVP and associated EA amendments occurred around the time of Queensland's mining rehabilitation reforms. The *Mineral and Energy Resources (Financial Provisioning) Act 2018* (Qld) (**MERFP Act**) commenced 1 April 2019.[104] The transitional provisions of the MERFP Act (as applied to the EP Act) created two classes of mine rehabilitation requirements—new mines and mines that existed on 1 April 2019, the effective date of the rehabilitation reforms. All mines, new and pre-existing, have become subject to the new closure planning regime but the transitional provisions create a process to avoid retrospective application of some of the new requirements.

2.4.1 Land Outcome Document

The final Ensham RVP report states: 'This Residual Void Project report, including the Rehabilitation Management Plan is intended as a "land outcome document" under the *Mineral and Energy Resource*

96 *Environmental Protection (Rehabilitation Reform) Amendment Regulation 2019* (Qld)—*Explanatory Note* 3.

97 Department of Environment and Science, Progressive Rehabilitation and Closure Plans Guideline (PRC Plans), ESR/2019/4964 v.2 (17 March 2021) 20.

98 EP Act s 112.

99 *Environmental Protection (Rehabilitation Reform) Amendment Regulation 2019* (Qld)—*Explanatory Note* 4.

100 EP Act ss 126C (1)(g), (h) and (i), and 126D 1(a)(ii) and (c)(i) – (ii); *Environmental Protection Regulation 2019* reg 41B and Schedule 8A PRCP Objective Assessment.

101 EP Act s 126D (3).

102 EP Act s 126D (3).

103 EP Act s 111A.

104 See e.g., *Environmental Protection (Financial Provisioning) (Transitional) Regulation 2019* (Qld).

(Financial Provisioning) Act 2018'.[105] A land outcome document is also referred to as a 'pre-existing NUMA'.[106] The definition of 'land outcome document' is provided below in Box 4.

The transitional provisions of the EP Act (as amended by the MERFP Act) displace the requirement for an Environmental Authority holder to give the administering authority a proposed PRC plan that complies with section 126D where a land outcome document is applied.[107] In such a case, the land outcome document establishes the rehabilitation requirements for residual voids, including voids on floodplains, rather than EP Act's section 126D.[108] This means that a residual void can be an outcome for the land where the land outcome document is 'the same or substantially similar to a NUMA'.[109] Thus, it appears that Idemitsu intended the final report of the RVP as a land outcome document would determine the rehabilitation requirements for the residual voids rather than section 126D requirements of the EP Act.

Box 5: Definition of Land Outcome Document[110]

'"Land outcome document", for land, means the following documents relating to the land—

(a) an environmental authority for a resource activity on the land;

(b) a document made under a condition of an environmental authority mentioned in paragraph (a), if—

(i) the document relates to the management of a void within the meaning of section 126D on the land, or the rehabilitation of the land; and

(ii) the document was received by the administering authority before the assent date; and

(iii) the administering authority has not, within 20 business days after the assent date, given notice to the holder of the environmental authority that the document is insufficient in a material particular [sic] relevant to a matter mentioned in subparagraph (i); and

(iv) before the assent date, the document had not been superseded;

(c) a document made under a condition of an environmental authority mentioned in paragraph (a), if—

(i) the document relates to the management of a void within the meaning of section 126D on the land, or the rehabilitation of the land; and

(ii) the environmental authority requires the document to be given to the administering authority on a stated day that is on or after the assent date, or does not state a day when the document must be given; and

(iii) the document is received by the administering authority within 3 years after the assent date; and

(iv) the administering authority does not, within 20 business days after receiving the document, give the holder of the environmental authority notice that the document is insufficient in a material particular [sic] relevant to a matter mentioned in subparagraph (i);

(d) a report evaluating an EIS under the State Development and Public Works Organisation Act 1971, section 34D;

(e) an EIS assessment report;

(f) a written agreement between the holder of an environmental authority mentioned in paragraph (a) and the State that is in force on the assent date.'[111]

We suggest that the Ensham RVP final report was submitted as a pre-existing NUMA under subsection (b) of the 'land outcome document' definition, as it was a required condition under the February 2017 Ensham EA. However, we note Ensham's proposed transitional PRCP (submitted to the regulator in June 2021) identifies

105 Ensham Resources, *Residual Void Project Stage 5: Final Residual Void Report* (Final for lodgement with Queensland Department of Environment and Science 27 March 2019) 8 <https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/6386/attachments/original/1572915002/ERPL-RVP-Stage_5_EA_Application_Report_%28see_page_37_for_preferred_option%29.pdf?1572915002>.

106 Department of Environment and Science, Progressive Rehabilitation and Closure Plans Guideline (PRC Plans), ESR/2019/4964 v.2 (17 March 2021) 26.

107 EP Act s 754(1)-(2).

108 Section 126(D) of the EP Act requires the rehabilitation of a residual void (wholly or partially) in a flood plain to a stable condition and such a void cannot be classified as a non-use management area.

109 Department of Environment and Science, Progressive Rehabilitation and Closure Plans Guideline (PRC Plans), ESR/2019/4964 v.2 (17 March 2021) s. 6.3.2.

110 EP Act s 750.

111 EP Act s 750.

the 3 September 2020 EA as the land outcome document under subsection (a) of the land outcome document definition.[112] This would be due to the EA having incorporated the outcome of the RVP final report.

The legislative history of the MERFP Act makes it clear that the land outcome document as a grandfathering tool was an intended option for existing mines:

> *The new rehabilitation provisions [of the MERFP Act] do not impose retrospective requirements to rehabilitate as requirements to rehabilitate are included in existing conditions on environmental authorities…For existing mines, holders of an authority will be required to submit their PRC plan upon receiving a notice. In preparing their PRC plan, the holder will be asked to translate their authority rehabilitation conditions into milestones and milestone criteria. For example, if the proponent's authority sets out a proposed post mining land use and completion criteria for that land use, there will be no change to that commitment. The proponent will be required to re-format those commitments into the PRCP schedule which may include developing milestones to achieve that post mining land use. This also applies to non-use management areas.*[113]

Rehabilitation concessions available to pre-existing mines that subscribe to the land outcome document scheme under section 754(2) of the EP Act are also emphasised in the PRC Plan Guideline:

> *Where a NUMA has already been identified in a land outcome document and is able to be transitioned into the PRCP schedule, the applicant is not required to comply with sections 126C(1)(g)* [stating the reasons the NUMA cannot be rehabilitated to a stable condition] *or (h)* [requirement to provide copies of reports or other evidence relied upon for proposing the NUMA] *or 126D(2)* [conditions for an area to qualify as a NUMA in a PRCP schedule] *or (3)* [residual void wholly or partially in a flood plain must be rehabilitated to a stable condition] *of the EP Act.*[114]

These exemptions are reflected in Ensham's proposed transitional PRCP. The proposed Ensham PRCP states, '[a]s NUMAs at Ensham have already been identified in a land outcome document, i.e., EA EPML00732813, this PRC Plan is not required to comply with sections 126C(1)(g) or (h) or 126(D)(2) or (3) of the EP Act.' Furthermore, '[a]s the pre-approved NUMA locations have been specified in the EA … Ensham is not required to undertake floodplain modelling as part of this plan'.[115]

2.4.2 Residual Voids

Ensham's EA was updated following the RVP. The rehabilitation success criteria (in Appendix 3 of the 3 September 2020 Ensham EA) set out four goals for each rehabilitation feature (1) safe; (2) non-polluting; (3) stable; and (4) land use, and specify the objectives, indicators and completion criteria for these. These goals reflect the EP Act's definition of 'stable condition' (see section 2.3 above). Under the present Ensham EA (dated 3 September 2020) and Ensham's proposed PRCP, several residual voids located in the Nogoa River floodplain will remain as NUMAs. This means they will be 'rehabilitated' to be safe and stable and non-polluting (two of the three conditions required for 'stable condition'); however, they will not have a post-mining land use.

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112 Ensham Resources and Idemitsu, 'Progressive Rehabilitation and Closure Plan Version 2: Mining Leases 7459, 7460, 70049, 70326, 70365, 70366, 70367' (Document ID EIMP.06.00.04, 14 June 2021) 13 ('**Ensham Proposed PRCP**').

113 *Mineral and Energy Resources (Financial Provisioning) Bill 2018, Explanatory Notes* 8.

114 Department of Environment and Science, Progressive Rehabilitation and Closure Plans Guideline (PRC Plans), ESR/2019/4964 v.2 (17 March 2021) 26.

115 Ensham Proposed PRCP (n 111) 67.

Ensham's approved NUMAs (residual voids) are highwalls and groundwater daylighting areas.[116] For example, rehabilitation success criteria under the Ensham EA for residual voids include highwalls for Pits A, B, C, D and E and a permanent, stable flood structure landform.[117] Residual voids must also 'act as groundwater sinks to the receiving groundwater environment into perpetuity: (a) A Central pit; (b) A North pit; (c) B pit; (d) C pit; and (e) D pit'.[118] The land use for these five pits is 'no land use beyond containment of [groundwater daylighting] water'. According to Ensham's proposed transitional PRCP,[119] while Pits A Central, A North, B, C and D will be partially backfilled, they will be NUMAs as they will have groundwater daylighting areas (which is not a post-mine land use as defined in the EP Act), noting that '[g]roundwater in the coal seams is also saline and not suitable for stock water supply or irrigation.'[120] In contrast, Pits A South, E, F and Y are not characterised as voids, as they 'will be partially backfilled to support a final land use of grazing'.[121] However, as the RVP meeting notes highlight, 'Pit E will only be partially backfilled, there will still be a residual void in it.'[122] This emphasises a technicality of the legislation—a void is not a void if it has a PMLU.

A diagram of the groundwater daylighting areas is provided in the Ensham proposed transitional PRCP.[123] The groundwater daylighting areas will cover 146 hectares.[124] The Ensham proposed transitional PRCP highlights that '[d]espite being pre-approved in land outcome documents, the area of NUMAs has been minimised and represents less than 5% of all disturbed lands'.[125]

3 Observations

The Ensham case study highlights four challenges about the efficacy of Queensland's mine rehabilitation regulations as they apply to voids: 1) transitional regulatory design; 2) progressive rehabilitation; 3) transparency; and 4) meaning and quality of community consultation. In the Executive Summary, the third and fourth challenges are presented together; here they are addressed separately in greater detail.

3.1 Transitional Regulatory Design

The first transitional regulatory design challenge concerns the availability of NUMAs for voids in floodplains of pre-existing mines. Under section 126D(3) of the EP Act, where a residual void is in a floodplain, the land must be rehabilitated to a 'stable condition'[126] and cannot be a NUMA. Ensham's rehabilitation will result in voids in a floodplain (some of which are NUMAs and some which are PLMUs). While residual voids in flood plains may be allowed under a land outcome document (as transitioned into a PRCP and PRCP schedule), and

116 Ensham EA, Appendix 3, Mine Domain 5, 'Groundwater Daylighting Water Areas'.

117 Ensham EA, Appendix 3, Mine Domain 6 'Highwalls'.

118 Ensham EA, condition C56. Condition C57 goes on to say that the any void not acting as a sink must be managed to avoid groundwater contamination as a requirement of being managed as a NUMA.

119 This proposed PRCP was recently made available online through the DES' portal at <https://apps.des.qld.gov.au/public-register/pages/prc.php?id=17>.

120 Ensham Proposed PRCP (n 111) 35.

121 Ensham Proposed PRCP (n 111) (attachment 1) 97 <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-prc/PRCP-EPML00732813-V1_1_applicationdocuments_Attachment_01.pdf>.

122 Ensham Residual Void Study, Community Reference Group, *Meeting Minutes* (4 June 2018) 3.

123 Ensham Proposed PRCP (n 111) (attachment 1) Figure 4-1 <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-prc/PRCP-EPML00732813-V1_1_applicationdocuments_Attachment_01.pdf>.

124 Ensham Proposed PRCP (n 111) (attachment 1) 63.

125 Ensham Proposed PRCP (n111) (attachment 1) 67.

126 'Stable condition' is defined in EP Act s. 111A: 'Land is in a stable condition if— (a) the land is safe and structurally stable; and (b) there is no environmental harm being caused by anything on or in the land; and (c) the land can sustain a post-mining land use'.

as the legislative history shows this exception intended to give industry certainty, the exception appears inconsistent with the spirit of the regulatory reforms. It also creates two classes of rehabilitation schemes.

For NUMAs in flood plains, void conditions will evolve, which may present risks as noted previously in

Box 2 and Box 3. In the case of Ensham, voids will become increasingly saline, although they will be contained (and hence non-polluting in accordance with the EP Act).[127] When the Ensham mining leases are surrendered, the voids will remain long after this milestone is achieved, leaving future generations to manage the consequences of these (whether negative or positive). For example, a NUMA management milestone in the proposed Ensham PRCP to ensure safety is that the area will be '[b]unded, fenced and signed to exclude humans and stock'.[128] This suggests it will be necessary for generations centuries in the future to maintain fencing and signage to exclude humans and stock. While Ensham and other existing EA holders have the right to pursue a 'pre-existing NUMA' for residual voids in flood plains under the land outcome document provisions and is perhaps a preferred economic outcome for them, whether they should do so raises issues of social licence, sustainability and justice of future generations that are beyond the scope of this paper.[129]

Second, it is reasonable to assume that Ensham would not be the only pre-existing open cut mine to avail itself of these provisions and seek to have void rehabilitation governed under a land outcome document under sections 750 and 754(3) of the EP Act.[130] It is unclear what, if any, cumulative risks/consequences these NUMAs in flood plains will have for Queensland.

Finally, it is noted that management of the Ensham Mine's residual voids has been an issue of concern and interest for some stakeholders for some time. It appears at the time the Ensham Central Project was proposed in the 2000s, the rehabilitation intention for voids was that those in the Nogoa flood plain would be filled, while those outside the flood plain would be residual. For example, in the Environmental Impact Statement (EIS) Assessment Report for the Ensham Central Project, among the Project's identified major impacts on land resources were: 'an increase in the minimum width of the floodplain to 2.3 km in the post mining phase' and 'final voids outside of floodplain areas remaining at the end-of-mine life'.[131] In addition, in February 2017, the regulator (Department of Environment and Heritage Protection, the DES predecessor) advised Ensham that the regulator's position was that Ensham was to: 'reinstate the floodplain by backfilling any open cut mining voids within the floodplain to approximately pre-mining area surface level, as outlined, agreed and committed to within the Environmental Impact Statement 2006 and Environmental Management Plan 2010'.[132] These examples may have contributed to expectation by some sections of the community that voids would be re-filled, contrary to present rehabilitation requirements for the Ensham Mine. Again, while Ensham has the right to pursue the NUMA regime for rehabilitation, it may have done so contrary to some community preferences (and the reformed legislation has allowed this).

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127 See e.g., Hydro Engineering and Consulting 'Final Report: Ensham Coal Mine Residual Void Project: Stage 3 Void Water Quantity and Quality Balance Modelling' (2020) <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-prc/PRCP-EPML00732813-V1_1_applicationdocuments_Attachment_24.pdf>; Sustainable Minerals Institute, 'Ensham Residual Void Project: Summary of Water Studies' (18 May 2020) <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-prc/PRCP-EPML00732813-V1_1_applicationdocuments_Attachment_20.pdf>.

128 Ensham Proposed PRCP (n111) Table 9-13.

129 Rhys Worrall et al., 'Towards a Sustainability Criteria and Indicators Framework for Legacy Mine Land' (2009) 17(16) *Journal of Cleaner Production* 1426; Sabrina Genter & Toby Whincup, 'Moving from a Social Licence to Operate to a Social Licence to Close' (2017) *AusIMM Bulletin* 40.

130 'QLD Mine Rehab Law Loophole Lets Coal Company Leave Big Holes on Nogoa Floodplain' *Lock the Gate* (Web Page, 10 September 2020) <https://www.lockthegate.org.au/qld_mine_rehab_law_loophole_lets_coal_company_leave_big_holes_on_nogoa_floodplain>.

131 Environmental Protection Agency, Queensland Parks and Wildlife Service, Queensland Government, 'Assessment Report Under the *Environmental Protection Act 1994* about the Environmental Impact Statement for the Ensham Central Project proposed by Ensham Resources Pty Ltd (December 2006) 13.

132 'Decision on Amount and Form of Financial Assurance' 4(d), 2 in DES RTI 18-259 (n63) 101.

3.2 Progressive Rehabilitation and Pre-Existing Mines

The second challenge in Queensland's mine rehabilitation framework, which the Ensham case study highlights, concerns progressive rehabilitation and mines already in existence at the time of the 2018 reforms. Progressive rehabilitation was an issue subject to the recent Queensland mining rehabilitation reforms (see P1.3 RMR for further information). However, the reforms may not improve rehabilitation outcomes of voids in the case of slow or insufficient progressive rehabilitation of large, pre-existing mines (such as Ensham), such that there is a risk of further perpetuating residual voids in rehabilitation outcomes.

The Ensham EA requires progressive rehabilitation: 'Land significantly disturbed by mining activities must be progressively rehabilitated in accordance with the Rehabilitation Management Plan required by condition H3'.[133] According to Ensham's PRCP (submitted in 2021), Ensham had rehabilitated a total of 1,647.4 hectares of land (to accord with PMLUs of cattle grazing, native bushland corridor and Boggy Creek diversion), of which 662.83 was certified (Ensham has not yet sought certification for 984.6 hectares of rehabilitated land). Ensham has 3,297.3 hectares of rehabilitation remaining (approximately 63% of this has a PMLU of cattle grazing).[134] Given the amount of non-rehabilitated acreage, perhaps residual voids as a preferred rehabilitation outcome of the RVP were the most economically viable approach.

By the time a mine enters its closure phase, 'an ideal goal is to have the majority of the mine already progressively rehabilitated and [where relevant] geochemically rendered inactive'[135] (noting that not all mines, such as Ensham, are geochemically active). We recognise that the figures quoted above for 2021 are several years before the scheduled cessation of Ensham's open cut operations. Therefore, it is expected that Ensham will continue to progress rehabilitation over the next few years in accordance with its PRCP and Schedule. Whether this 'ideal goal' is universal is another question. In the case of Ensham, land that has been progressively rehabilitated may have to be re-disturbed during post-mine rehabilitation in order to partially backfill pits and re-establish grazing.

Finally, an obvious observation is that progressive rehabilitation assumes the mine is operating. Thus, Queensland's progressive rehabilitation reforms may not address the risk of residual voids where existing open cut mines have had slow progressive rehabilitation to date. This risk is further emphasised where mines can and do make use of the land outcome document rehabilitation 'exception' discussed above. While this risk may reduce for Ensham as it continues its progressive rehabilitation and approaches closure of the open cut operations, this broader industry risk is highlighted by an observation Ensham made in its PRCP: [f]ollowing approval of the current application for certification of progressive rehabilitation in 2021, *Ensham has more certified opencut rehabilitation than any other opencut coal mine in Queensland*' (emphasis added).[136]

3.3 Transparency

Information transparency is relevant to accountability and public confidence in processes and outcomes. Relevant information can 'form[] part of an important regulatory process to ensure that significant mining projects are undertaken in compliance with the relevant environment protection legislation and

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133 See condition H5 of the Ensham EA. The Ensham EA is available at: <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-ea/EPML00732813.pdf>.

134 Excerpt from Ensham's PRCP (2021), supplied by Ensham in email dated 14 December 2021.

135 CD McCullough, 'Key Mine Closure Lessons Still to Be Learned' (2016) *Mine Closure 2016: Proceedings of the 11th International Conference on Mine Closure,* Australian Centre for Geomechanics, Perth, p 325, p 331.

136 Ensham Proposed PRCP (n111) (attachment 1) 23.

regulations'.[137] The Ensham case study highlights several transparency issues in Queensland's mine rehabilitation regulatory framework.[138]

The first issue concerns the role of the *Right to Information Act 2009* (Qld) (**RTI Act**) in Queensland's mine rehabilitation regulatory framework. There were several points in which we reviewed information online that had been made publicly available because third parties had sought information through right to information requests (such as the Wanditta Pastoral Company and Lock the Gate requests mentioned previously).[139] There are good examples of instances where the RTI Act improves transparency.

However, the RTI's operation to enhance transparency is limited by Queensland's mine rehabilitation reforms, specifically regarding access to information concerning contributions to the financial assurance scheme,[140] which is intended to incentivise progressive rehabilitation.[141] The amount of funds posted by an environmental authority holder as surety for the financial assurance for estimated rehabilitation cost under this scheme *is exempted from public disclosure* under the RTI Act[142] if it falls within sections 80(2) or 82(2) of the MERFP Act. These sections of the MERFP Act impose a duty of confidentiality on the scheme manager (and related persons) (section 80(2)) and provide very limited exceptions for disclosure of confidential information (for assisting certain government chief executives with the performance of legislated functions) (section 82). 'Confidential information'[143] includes information about contributions or sureties paid under Part 3 of the MERFP Act (the financial assurance and estimated rehabilitation cost scheme).[144] As a result, such information will not be required to be disclosed under the RTI Act. Given the concerns raised above about progressive rehabilitation of mature mines and residual void risks, it seems this confidential information protection could reduce public accountability of the operation of the financial assurance scheme as it concerns residual voids and mature mines.

The second issue concerns ease of access to information. In the administration of regulatory processes, rehabilitation information is created, such as the PRCP and schedule, and is held by and between the regulator and mining company (in this case study, Idemitsu). Access to this rehabilitation information by third parties (such as community members) is hindered by standard practices, such as in the way information

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137 *Ensham Resources Pty. Limited & Ors and Department of Environment and Science; Shaw (Third Party)* [2020] QICmr 46 (11 August 2020) para 26.

138 Restrictions on information access is not limited to Ensham. See, e.g., the Environmental Defender Office's summary of the legal challenge to accessing information in the ownership transfer of Blair Athol Mine (Bowen Basin, Queensland) at <http://epbcnotices.environment.gov.au/_entity/annotation/51c4d7b0-7da1-ea11-8a09-00505684324c/a71d58ad-4cba-48b6-8dab-f3091fc31cd5?t=1628842552911>.

139 Department of Environment and Science, Disclosure Log, 'Documents in relation to the Rehabilitation Management Plan administered by the department pursuant to EPML00732813, for the period 1 January 2017 to 20 December 2018, requested by Wanditta Pastoral Company (9 January 2019, RTI 18-258) (4 documents); Department of Environment and Science, Disclosure Log, 'Documents in relation to the Ensham Residual Void Project administered by the department pursuant to EPML00732813, for the period 1 January 2017 to 20 December 2018' requested by Wanditta Pastoral Company (9 January 2019, RTI 18-259) (1 document); Department of Environment and Science, Disclosure Log, 'Documents relating to Idemitsu Australia Resources' application to amend environmental authority number EPML00732813, for the period of 15 November 2019 to 20 December 2019' requested by Lock the Gate (RTI 19-227, 6 January 2020)(1 document).

140 The operation of the financial contribution scheme is discussed in the P1.3 RMR.

141 See discussion in P1.3 RMR.

142 See *Right to Information Act 2009* (Qld) Schedule 3, section 12(1). See also Laura Gartry, 'Mining Rehabilitation Fund Details to Remain Secret after Qld Government to Ban RTI Requests', *ABC News* (14 September 2018) <https://www.abc.net.au/news/2018-09-14/mining-rehabilitation-laws-qld-blocks-rti-requests/10230432>.

143 The MERFP Act defines this term in Part 5, section 79(a)(iii).

144 See also EP Act sections 540 and 540A for registers of information that the regulator must keep and public access of records in section 542. Some tenement information is available online on the Queensland Government's website, while other information is available only through submission of a Public Register information request and it may take weeks for the regulator to respond (depending on the size and complexity of the request). Estimated response times are 10 – 75 business days. See <https://www.qld.gov.au/environment/pollution/licences-permits/public-register> and <https://www.qld.gov.au/environment/pollution/licences-permits/public-register#information-request>.

disclosure is managed by the regulator. For example, when we first began researching this case study, PRCP information was only made publicly available as a result of a person making a public register information request to the regulator, which could take weeks for a response. While the regulator has recently made PRCPs available online, the previous process still applies to prior versions of environmental authorities.

Information access may also be hindered by informal arrangements. An example is found in the concern raised in the meeting minutes of the Ensham Residual Void Study Community Reference Group about content of discussions between the regulator and Idemitsu.

Finally, under the EP Act, a proponent must detail the community consultation undertaken in the development of a PRCP and how that consultation regarding rehabilitation under the PRCP will be ongoing.[145] This includes compliance with the EP Act's public notification requirements.[146] However, the PRCP Guideline states that public notice is not required for pre-existing NUMAs: 'The public notification requirements, under Chapter 5, Part 4 of the EP Act, do not apply to pre-approved PMLUs or NUMAs, or, where there is a pre-approved NUMA but the PRCP schedule has proposed the land as a PMLU instead (section 755B of the EP Act)'.[147] This approach results in a reduced level of public transparency of the PRCP. Recall that Ensham submitted its PRCP to the regulator in 2021. It is understood by the authors of this case study that public notice of the PRCP was not provided, which would be consistent with the Guideline's EP Act interpretation.

3.4 Community Consultation and Expectations

Related to transparency, we make three observations that concern community consultation and management of community expectations. First, while the transitional provisions provide some exclusions to section 126C of the EP Act, they do *not* exclude the requirement that the PRCP applicant must state the extent to which the proposed NUMA as identified in the proposed PRCP schedule 'is consistent with the outcome of consultation with the community in developing the [PRCP]'.[148] This means the PRCP applicant may need to demonstrate some level of community agreement or acceptance of the NUMA for it to be proposed. It is not clear that this was achieved in the Ensham land outcome document (where the land outcome document was the RVP final report) or in Ensham's proposed transitional PRCP.

The final report of the RVP (the originally intended land outcome document) describes community engagement, such as through the RVP Community Reference Group.[149] The proposed transitional PRCP also describes community engagement.[150] However, it is not clear that the RVP void rehabilitation recommendations are 'consistent with (i) the outcome of consultation with the community in developing the plan' as required under the EP Act.[151] For example, as discussed above the RVP Community Reference Group meeting minutes noted community concerns including a preference by some participants that the voids provide beneficial use through a reservoir or that they would be rehabilitated by being re-filled. Also, as

145 EP Act ss 126C(1)(c)(iii), (iv).

146 EP Act chapter 5, part 4.

147 Department of Environment and Science, Progressive Rehabilitation and Closure Plans Guideline (PRC Plans), ESR/2019/4964 v.2 (17 March 2021) s 6.3.2.

148 EP Act ss 126C(d)(i), 754.

149 Ensham Resources, *Residual Void Project Stage 5: Final Residual Void Report* (Final for lodgement with Queensland Department of Environment and Science 27 March 2019) s 7 <https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/6386/attachments/original/1572915002/ERPL-RVP-Stage_5_EA_Application_Report_%28see_page_37_for_preferred_option%29.pdf?1572915002>.

150 Ensham Proposed PRCP, section 2 (attachment 1); Ensham Resources, 'EIMP 07.00.01 Stakeholder Engagement Plan: Environmental Impact Management Plan (EIMP)' (2021) (Ensham Proposed PRCP, attachment 6) <https://storagesolutiondocsprod.blob.core.windows.net/register-documents-prc/PRCP-EPML00732813-V1_1_applicationdocuments_Attachment_06.pdf>.

151 EP Act s 126C(d)(i).

mentioned previously in section 2.2, the social impact assessment for the RVP (included in Ensham's proposed PRCP) showed community preference for Options 2 and Options 3 over the recommended rehabilitation option.

Second, assuming Ensham's rehabilitation recommendations are consistent with EP Act section 126D, this raises issues around the meaning and standards of 'consultation' in the legislation, including quality of community consultation, whether and how such engagement is meaningful and how it is measured. It also raises issues concerning changes in community expectations over time and the interests of future generations (and their lack of consultation), particularly in cases where rehabilitation takes decades to achieve. In the case of Ensham, the RVP revealed government was not supportive of changing the PMLU to support the beneficial use of Option 2 in the RVP preferred by many community members. This raises the question of government's role in facilitating a PRCP applicant's ability to propose a PRCP schedule that is consistent community consultation outcomes.

Finally, the dynamic between community preferences and regulatory requirements for rehabilitation also raises another issue about establishing and managing community expectations. As mentioned above in section 3.1, some members of the community had the expectation that 'rehabilitation' meant 're-filling'. Rehabilitation is an ambiguous term, which is subject to different interpretations and meanings. There are several approaches by which land can be 'rehabilitated' and also words to describe it (such as reclamation or restoration).[152] Not every mine site is suited for each of these, such as where the site has highly modified the landform or ecosystem, which may be the case in open cut mines.[153] In some cases community preferences may be technically or economically unachievable, which brings to question how mining companies and government should address the mismatch between expectations and what is able to be achieved.

4 Conclusion

The Ensham Mine has been in operation since 1993. Its EA has been amended several times to reflect changes in operations (such as project expansions with new mining leases and addition of underground mining operations), regulation (such as regulatory changes following the Queensland floods in 2008 and 2011) and project maturity (such as requirements to undertake the Residual Void Project and subsequent EA amendment to identity the rehabilitation success criteria consistent with the Residual Void Project's recommendations).

The Ensham Mine is approaching closure (although underground operations may be extended). A review of the closure and rehabilitation criteria for the Ensham open cut mine in the context of Queensland's recent mining rehabilitation reforms highlights several challenges in the regulatory framework as it applies to pre-existing, open cut mines like Ensham. We have considered how the legislation's transitional provisions allow the continuation of existing rehabilitation plan outcomes with residual voids that would otherwise be disallowed under the reforms. We also discussed how insufficient or slow progressive rehabilitation of mature mines may perpetuate these outcomes. Finally, we identified issues concerning community

[152] Lauren Downes and Alex Gardner, 'Mine Closure Legal Frameworks, Regulation and Policy' in Renee E Young et al., *International Principles and Standards for the Ecological Restoration and Recovery of Mine Sites Running head: Ecological Restoration of Mine Sites* (2021) submitted manuscript to *Restoration Ecology*; see also David Lamb, Peter D Erskine and Andrew Fletcher, 'Widening Gap Between Expectations and Practice in Australian Minesite Rehabilitation' (2015) 16(3) Ecological Management & Restoration 186.

[153] David Lamb, Peter D Erskine and Andrew Fletcher, 'Widening Gap Between Expectations and Practice in Australian Minesite Rehabilitation' (2015) 16(3) Ecological Management & Restoration 186.

consultation and transparency in the operation of the regulatory framework that may further weaken the fulfilment of the purposes of the rehabilitation reforms.

This case study also identifies issues suggested for future research. One is understanding the cumulative impacts of the transitional provisions and pre-existing NUMAs as they apply to residual voids in flood plains. A second is further consideration of the impacts of the lack of transparency in the regulatory framework and how it may influence the social licence of individual mines and the industry more broadly in Queensland. This would include further research to articulate the policy reasons for the enactment of the statutory exemption from the RTI Act of the financial assurance scheme contributions and its operation, whether there are other relevant documents that can be made publicly available online, and whether reform is required around the lack of a requirement for public notice for pre-existing NUMAs. A third area for future research is the meaning and scope of consultation such as in the operation of community consultation in the pre-existing NUMA process and post-mining risk management. This could include research into the extent to which community consultation processes like that undertaken by Ensham as part of its RVP result in community wishes being reflected in final rehabilitation goals and outcomes.

There are many mine rehabilitation issues for a large and complex mine like Ensham that has a long history. While this case study reviewed Ensham, it is not be the only mine in Queensland facing the issue of rehabilitation of voids and many of the issues highlighted in this case study will likely arise elsewhere. In particular, the transitional provisions of the MERFP Act and their application to the EP Act reveals that the regulatory reforms may not address certain risks associated with existing mines, such as the treatment of residual voids in flood plains. This issue is exacerbated where, as with the proposed Ensham Mine rehabilitation, it is not clear that sections of the community concur with the regulatory outcomes and are confident of the post-mine future. While pre-existing mines can legally pursue a NUMA classification for residual voids in flood plains under the transitional provisions of the rehabilitation reforms, we question whether this approach should be pursued in the face of opposition or different preferred post-mining land use of the voids by sections of the affected local community. We recommend that further research is needed to address situations where there may be a lack of alignment between the local community's expectations or preferred outcomes and the proposed rehabilitation approach. The research could focus on process for community consultation informed by expert advice on a miner's final rehabilitation report submitted in support of an application to surrender the relevant mining leases, and the potential for this process be supervised by an independent statutory authority advising a responsible minister on the ultimate decision.[154]

[154] EP Act ss 264-264A.