> Hi Benton
> Please see attached coms strategy and a copy of the report. If you have any questions, please feel free to call Justin Cagney directly, Justin is acting ED CaCQC.
> The report is the last document attached (PDF) please note we are currently working with DSITI on some minor cosmetic edits.
> Thanks & Cheers
> Trin
>
>
> [cid:image003.png@01D3307A.74862C90]
>
> Trinity Lowe
> Executive Officer
> Office of the Deputy Director General
> Environmental Services and Regulation Division Department of
> Environment and Heritage Protection
> ----------
> P Irrelevant
> Level 7 400 George St Brisbane
>
>
>
>
> From: CAGNEY Justin
> Sent: Friday, 15 September 2017 5:36 PM
> To: LOWE Trinity
> <Trinity.Lowe@ehp.qld.gov.au<mailto:Trinity.Lowe@ehp.qld.gov.au>>
> Cc: ESR <ESR@ehp.qld.gov.au<mailto:ESR@ehp.qld.gov.au>>; ELLWOOD Dean
> <Dean.Ellwood@ehp.qld.gov.au<mailto:Dean.Ellwood@ehp.qld.gov.au>>;
> CONNOR Andrew
> <Andrew.Connor@ehp.qld.gov.au<mailto:Andrew.Connor@ehp.qld.gov.au>>;
> Corro EHP ESR CaCQC
> <EHPESRCaCQC.Corro@ehp.qld.gov.au<mailto:EHPESRCaCQC.Corro@ehp.qld.gov
> .au>>
> Subject: FW: Abbot Point Communication Strategy
>
> Hi Trin,
>
> Please find attached complete communications package. There have been some amendments in consultation with Dean.
>
> These same documents have been provided to Corporate Communications in preparation for publishing once approved by DDG.
>
> Let me know if you need anything further. I am more than happy to walk Andrew through the entire matter if he will be approving the content and publishing in Dean's absence.
>
>
> Regards,
>
>
> [cid:image006.png@01D3307A.74862C90]
>
> Justin Cagney
> Executive Director
> Coal and Central Queensland Compliance Department of Environment and

> Heritage Protection
> ---
> P Irrelevant
>
> 209 Bolsover Street Rockhampton 4700
> PO Box 413 Rockhampton 4700
>
> [EHP Cultural capability_web graphic APPD]
>
>
>
>
> ---

> ---
> <image001.png>
> <image005.jpg>
> <050917 - MR - Abbot Point Wetlands Report CAGNEY.DOCX>
> <Communication_Strategy_Adani_Abbott_Point_Bulk.docx>
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> <Simplified_Comms_plan_-Caley_Valley_Wetland_Assessment.docx>
> <Suggest_FAQs__EHP_website_(Caley_Valley) CAGNEY.DOCX>
> <CaleyValleywetlands_Assessment Impacts_Cyclone Debbie_28 July
> 2017.pdf> <image003.png> <image006.png>

Melanie Pilgrim

From: Lissa Schindler <Personal Information>
Sent: Thursday, 15 June 2017 10:48 AM
To: Rebecca Coulter
Cc: Danielle Cohen
Subject: Meeting request with the Minister- AMCS

Hi Rebecca and Danielle,

Apologies for late notice but wondering if Minister Miles was available anytime on Monday for a meeting to discuss the Abbot Point wetland breach, temporary emission licences and NAIF.

The meeting would be with myself and Imogen Zethoven - Reef campaign director.

Best wishes

Lissa

--
Please note I work part time Monday/Tuesday/Thursday

Dr Lissa Schindler
Senior Reef Campaigner
Australian Marine Conservation Society
p: 07 3846 6777
f: 07 3846 6788
a: PO Box 5815 West End QLD 4101
w: www.marineconservation.org.au e: Personal Information

Help protect our ocean wildlife. Become a Sea Guardian today.
Join us on Facebook and follow us on Twitter.

Melanie Pilgrim

From: Danielle Cohen
Sent: Tuesday, 1 August 2017 3:15 PM
To: Katharine Wright; Alison Brown
Subject: Fwd: UPDATED ESR Alert - Penalty Infringement Notice (PIN) issued to Abbot Point Bulk Coal Pty Ltd – Stormwater Release.

We'll need a departmental media statement on this one

Sent from my iPhone

Begin forwarded message:

From: ESR <ESR@ehp.qld.gov.au>
Date: 1 August 2017 at 2:54:54 pm AEST
To: Alison Brown <Alison.Brown@ministerial.qld.gov.au>, ANDERSON Katherine <Katherine.Anderson@ehp.qld.gov.au>, Benton Wecker <benton.wecker@ministerial.qld.gov.au>, Danielle Cohen <Danielle.Cohen@ministerial.qld.gov.au>, ELLWOOD Dean <Dean.Ellwood@ehp.qld.gov.au>, DLO EHP <DLO.EHP@ehp.qld.gov.au>, "Media EHP/NPSR" <Media@ehp.qld.gov.au>, Erin Fentiman <erin.fentiman@ministerial.qld.gov.au>, ESR <ESR@ehp.qld.gov.au>, REEVES Jim <Jim.Reeves@ehp.qld.gov.au>, Katharine Wright <Katharine.Wright@ministerial.qld.gov.au>, MCMAIN Lisa <Lisa.McMain@ehp.qld.gov.au>, Naomi Van Brug <Naomi.vanBrug@ministerial.qld.gov.au>, SENGERS Nathalie <Nathalie.Sengers@ehp.qld.gov.au>, STEELE Mary <Mary.Steele@ehp.qld.gov.au>, Steven Miles <Steven.Miles@ministerial.qld.gov.au>, STRYBOS Stacey <Stacey.Strybos@ehp.qld.gov.au>
Cc: BROWN Glen <Glen.Brown@ehp.qld.gov.au>, CARLOS Reuben <Reuben.Carlos@ehp.qld.gov.au>, CONNOR Andrew <Andrew.Connor@ehp.qld.gov.au>, GOLDSWORTHY Stephen <Stephen.Goldsworthy@ehp.qld.gov.au>, "FOMIATTI MINNESMA Ingrid" <Ingrid.FomiattiMinnesma@ehp.qld.gov.au>, LENZ Anne <anne.lenz@ehp.qld.gov.au>, LINO Starsky <Starsky.Lino@ehp.qld.gov.au>, "SULLIVAN Scott (EHP)" <Scott.Sullivan@ehp.qld.gov.au>, VENZ Mark <Mark.Venz@ehp.qld.gov.au>
Subject: UPDATED ESR Alert - Penalty Infringement Notice (PIN) issued to Abbot Point Bulk Coal Pty Ltd – Stormwater Release.

ALERT CATEGORY:

- Enforcement Activity.

ALERT NAME:

- Penalty Infringement Notice (PIN) issued to Abbot Point Bulk Coal Pty Ltd – Stormwater Release. (UPDATED)

CUSTOMER DETAILS:

- Abbot Point Bulk Coal Pty Ltd.
- Abbot Point Coal Terminal, Bowen, Lot 48 on SP243724, Lot 49 on SP243724, Lot 50 on SP243721, Lot 51 on SP243721, Lot 52 on SP243721, Lot 3 on SP227557, Lot 4 on SP227557, Lot 58 on SP240224 and Lot 49 on SP185904.
- Contact: Dwayne Freeman – Chief Executive Officer, Abbot Point Operations Pty Ltd.
- Environmental Authority (EA) EPPR00577113.
- Temporary Emissions Licence (TEL) ENEL07198317.
- PIN number 200000040442385

SUMMARY OF ISSUE/S:

- On 20 July 2017, the Manager Compliance (Coal) issued a penalty infringement notice (PIN) for the amount of $12,190.00 to Abbot Point Bulk Coal Pty Ltd (APBC), for an alleged breach of section 357I of the *Environmental Protection Act 1994* regarding non-compliance with a TEL.
- The non-compliance was identified on 6 April 2017, when APBC advised the department that a stormwater release which occurred from release point W2 during rainfall associated with Tropical Cyclone Debbie was not in compliance with conditions of the TEL or EA. APBC reported a release with a Total Suspended Solids (TSS) concentration of 806mg/L. The TEL release limit was 100mg/L.
- The department contacted APBC on 20 July 2017, to advise of the issue of a PIN for non-compliance with the TEL.
- On 31 July 2017, APBC made written representation to the department, requesting that the PIN be withdrawn on the basis that there is insufficient evidence to support the department's allegation that the stormwater release from release point W2 was conveyed to "waters" (Dingo Beach).
- APBC has until 17 August 2017, in which to elect to have the matter heard in Court.
- The department is also considering issue of an administrative tool in relation to the investigation underway into potential impacts to the Caley Valley Wetlands located adjacent to the Abbot Point Coal Terminal.
- The administrative tool, such as a statutory notice or statutory order, may be issued by the department to secure compliance with obligations under the *Environmental Protection Act 1994*. The tool would likely require APBC to consider impacts associated with stormwater releases from the site to the Caley Valley Wetlands and the site's long term water management plan, including any opportunities for infrastructure improvements.

POTENTIAL IMPACTS / RISKS:

- APBC has indicated previously in discussions with the department that the company is likely to contest any PIN in Court.
- There is potential for APBC to make representations at senior departmental or ministerial level regarding the issue of the PIN.
- APBC has until 17 August 2017, in which to elect to have the matter heard in Court.

DEPARTMENT ACTIONS:

[HISTORICAL ACTIONS]

- APBC applied for a TEL on 27 March 2017, in response to the forecast of heavy rainfall associated with Tropical Cyclone Debbie and the potential for non-compliance with stormwater release limits.
- On 27 March 2017 (the same day) a TEL was issued to APBC, temporarily authorising elevated Total Suspended Solids (TSS) limits on stormwater released from release point W1 into the Caley Valley Wetlands.
- The TEL increased the TSS limit from the EA authorised limit of 30 mg/L to 100 mg/L.
- On 28 March 2017, the TEL was amended by agreement authorising the same elevated TSS limits on releases from release point W2.
- The TEL remained in force until 30 March 2017.
- On 6 April 2017, APBC advised the department that a stormwater release which occurred from release point W2 during rainfall associated with Tropical Cyclone Debbie was not in compliance with conditions of the TEL or EA.
- Release point W2 is a licensed stormwater discharge sump located on the northern side of the terminal and does not report to the Caley Valley Wetlands. APBC reported a release with a TSS concentration of 806mg/L. The TEL release limit was 100mg/L.
- In preparation for the weather event, APBC installed a back-up pump in addition to the in situ pump installed at release point W2. APBC has advised that rain associated with Tropical Cyclone Debbie exceeded the capacity of both the in situ pump and the back-up pump.
- A series of rock traps are installed off-site from release point W2. Observations made by departmental officers indicated coal-laden water had passed through the first two sediment traps, however no coal fines were observed in the third sediment trap.

- A pre-enforcement letter was sent to APBC on Monday 22 May 2017, inviting the EA holder to make representations as to why enforcement action should not be taken for non-compliances with the conditions of the TEL.
- APBC provided a response to the pre-enforcement letter on 7 June 2017.
- The department reviewed APBC's response to the pre-enforcement letter and a recommendation to issue one (1) PIN for non-compliance with a TEL condition was escalated to the Manager Compliance (Coal) on Thursday 22 June 2017.

[PLANNED ACTIONS]

- The department is currently engaging with the Department of Science, Information Technology and Innovation (DSITI) and has requested assistance with developing appropriate requirements for inclusion within any administrative tool to be issued in relation to impacts on the Caley Valley Wetlands.
- The department is currently engaging with APBC regarding the likely requirements of the administrative tool and the timeframes involved.
- The department will respond to APBC's correspondence dated 31 July 2017 advising of the intention not to withdraw the PIN issued on 20 July 2017.

KEY COMMUNICATION MESSAGES:

- The issue of a PIN is an appropriate and proportionate enforcement action given the nature of the alleged offence and is consistent with the department's Enforcement Guidelines.

CONTACT DETAILS:

- Name: Reuben Carlos, Executive Director, Coal and Central Queensland Compliance.
- Phone number: Irrelevant
- Division: Environmental Services and Regulation.

This email is an updated alert in respect of this matter.
If further advice or action is required, it will be communicated via normal channels such as a briefing note.
END

Queensland Government

Trinity Lowe
Executive Officer
Office of the Deputy Director General
Environmental Services and Regulation Division
Department of Environment and Heritage Protection

P Irrelevant
Level 7 400 George St Brisbane

Melanie Pilgrim

From: ELLWOOD Dean <Dean.Ellwood@ehp.qld.gov.au>
Sent: Saturday, 12 August 2017 7:52 AM
To: Danielle Cohen
Subject: Fwd: PINS as a consequence of Cyclone Debbie
Attachments: image002.png; image004.png; image006.png

Begin forwarded message:

From: LOWE Trinity <Trinity.Lowe@ehp.qld.gov.au<mailto:Trinity.Lowe@ehp.qld.gov.au>>
Date: 11 August 2017 at 4:42:30 pm AEST
To: TRACEY Ben <Ben.Tracey@ehp.qld.gov.au<mailto:Ben.Tracey@ehp.qld.gov.au>>
Cc: ELLWOOD Dean <Dean.Ellwood@ehp.qld.gov.au<mailto:Dean.Ellwood@ehp.qld.gov.au>>
Subject: FW: PINS as a consequence of Cyclone Debbie

Afternoon Ben
Please see the figures below as requested.
Cheers
Trin

[cid:image002.png@01D312C0.D2244710]

Trinity Lowe
Executive Officer
Office of the Deputy Director General
Environmental Services and Regulation Division Department of Environment and Heritage Protection
---
P Irrelevant
Level 7 400 George St Brisbane

From: MANAHAN Shane
Sent: Friday, 11 August 2017 4:34 PM
To: LOWE Trinity <Trinity.Lowe@ehp.qld.gov.au<mailto:Trinity.Lowe@ehp.qld.gov.au>>
Cc: SHERMAN Kathrin <Kathrin.Sherman@ehp.qld.gov.au<mailto:Kathrin.Sherman@ehp.qld.gov.au>>
Subject: RE: PINS as a consequence of Cyclone Debbie

There have been 3 PINs and 2 Direction Notices that have been issued in relation to Cyclone Debbie.

PINS
PIN6286 Sunland Enterprises Pty Ltd Issued 12/06/2017
PIN6295 Yarrabee Coal Company Pty Ltd Issued 19/07/2017
PIN6298 Abbot Point Bulkcoal Pty Ltd issued 20/07/2017

Direction Notice
STAT1184 Glencore Coal Queensland Pty Limited (Collinsville Coal Mine) issued 07/08/2017
20170113 Rockhampton Regional Council Issued 05/04/2017

Regards,

[cid:image004.png@01D312C0.D2244710]

Shane Manahan
Senior Intelligence Analyst
Strategic Compliance I Petroleum, Gas and Compliance Department of Environment and Heritage Protection
---
P Irrelevant
Level 9, 400 George Street, Brisbane QLD 4000 GPO Box 2454, Brisbane, QLD, 4001

[cid:image006.png@01D312C0.D2244710]<https://linkprotect.cudasvc.com/url?a=http://www.ehp.qld.gov.au/connect/&c=E,1,9fDUMXE_ZlpFvdMb4uyJBtNmX0XN17XCdj510NQotjMbKk_SXAIMdVnO8au3xlU3CKz5yYp1tRgVL8FRzmfbW6m46aGL6z7ODN09l52k_jhPwJrbDZiCcEY,&typo=1>
...make the move

Melanie Pilgrim

From: Danielle Cohen
Sent: Monday, 4 December 2017 2:44 PM
To: Steven Miles
Subject: Fwd: ESR Alert - Abbot Point Coal Terminal EE appeal

Danielle Cohen
Chief of Staff
Office of the Hon Dr Steven Miles
Minister for Environment and Heritage Protection
Minister for National Parks and the Great Barrier Reef

P Irrelevant

1 William Street Brisbane QLD 4000
GPO Box 2454 Brisbane QLD 4001

Begin forwarded message:

From: ESR <ESR@ehp.qld.gov.au>
Date: 4 December 2017 at 2:26:57 pm AEST
To: REEVES Jim <Jim.Reeves@ehp.qld.gov.au>, Danielle Cohen <Danielle.Cohen@ministerial.qld.gov.au>, Media EHP/NPSR <Media@ehp.qld.gov.au>, MCMAIN Lisa <Lisa.McMain@ehp.qld.gov.au>
Cc: ELLWOOD Dean <Dean.Ellwood@ehp.qld.gov.au>, ESR <ESR@ehp.qld.gov.au>
Subject: ESR Alert - Abbot Point Coal Terminal EE appeal

ALERT NAME:

- *Abbot Point Bulkcoal Pty Ltd v Chief Executive, administering the Environmental Protection Act 1994 (EHP)*

CUSTOMER DETAILS:

- Abbot Point Bulkcoal Pty Ltd (APBC) (ACN 010 183 534)

SUMMARY OF ISSUE/S:

- APBC operates the Abbot Point Coal Terminal (the site) situated north of Bowen under an environmental authority for activities including bulk material handling.
- On 18 September 2017, EHP issued a notice to APBC to conduct or commission an environmental evaluation (EE) pursuant to section 326B(1)(b) of the *Environmental Protection Act 1994*. APBC applied for an internal review of the decision which resulted in a varied notice issued on 31 October 2017.
- The EE concerns the assessment and management of releases of coal fines to the Caley Valley Wetland which is situated adjacent to the site.
- In summary, the EE requires APBC to conduct a review of its water management strategy and provide a report by 22 December 2017 and develop and implement a receiving environment monitoring plan by November 2018 in respect of the wetland.
- APBC has appealed to the Planning and Environment Court against the issue of the EE and has applied for a stay of the requirements of the EE. The stay is listed to be heard on **Wednesday 6 December 2017**.

POTENTIAL IMPACTS / RISKS:

- It is possible that there will be media interest in the matter. Litigation will liaise with the media unit and other stakeholders as required.

CONTACT DETAILS:

- Name: Stephen Goldsworthy, Senior Director, Litigation
- Phone number: 3330 5500
- Division: Environmental Services and Regulation

END

Queensland Government

Zhivana Marks
Senior Program Officer
Office of the Deputy Director General | Environmental Services & Regulation
Department of Environment and Heritage Protection

Irrelevant
400 George Street BRISBANE QLD 4000
GPO Box 2454, BRISBANE QLD 4001

Please consider the environment before printing.

Melanie Pilgrim

From: Danielle Cohen
Sent: Monday, 4 December 2017 2:43 PM
To: Ian Hutcheon
Subject: Fwd: ESR Alert - Abbot Point Coal Terminal EE appeal

Danielle Cohen
Chief of Staff
Office of the Hon Dr Steven Miles
Minister for Environment and Heritage Protection
Minister for National Parks and the Great Barrier Reef

P Irrelevant
1 William Street Brisbane QLD 4000
GPO Box 2454 Brisbane QLD 4001

Begin forwarded message:

From: ESR <ESR@ehp.qld.gov.au>
Date: 4 December 2017 at 2:26:57 pm AEST
To: REEVES Jim <Jim.Reeves@ehp.qld.gov.au>, Danielle Cohen <Danielle.Cohen@ministerial.qld.gov.au>, Media EHP/NPSR <Media@ehp.qld.gov.au>, MCMAIN Lisa <Lisa.McMain@ehp.qld.gov.au>
Cc: ELLWOOD Dean <Dean.Ellwood@ehp.qld.gov.au>, ESR <ESR@ehp.qld.gov.au>
Subject: ESR Alert - Abbot Point Coal Terminal EE appeal

ALERT NAME:

- *Abbot Point Bulkcoal Pty Ltd v Chief Executive, administering the Environmental Protection Act 1994 (EHP)*

CUSTOMER DETAILS:

- Abbot Point Bulkcoal Pty Ltd (APBC) (ACN 010 183 534)

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CONTACT DETAILS:

- Name: Stephen Goldsworthy, Senior Director, Litigation
- Phone number: 3330 5500
- Division: Environmental Services and Regulation

END

Queensland Government

Zhivana Marks
Senior Program Officer
Office of the Deputy Director General | Environmental Services & Regulation
Department of Environment and Heritage Protection
---
p Irrelevant
400 George Street BRISBANE QLD 4000
GPO Box 2454, BRISBANE QLD 4001

Please consider the environment before printing.

Melanie Pilgrim

From: Danielle Cohen
Sent: Tuesday, 28 November 2017 4:58 PM
To: Ian Hutcheon
Subject: Fwd: Abbot Point Bulk Coal matter

Danielle Cohen
Chief of Staff
Office of the Hon Dr Steven Miles
Minister for Environment and Heritage Protection
Minister for National Parks and the Great Barrier Reef

P Irrelevant
1 William Street Brisbane QLD 4000
GPO Box 2454 Brisbane QLD 4001

Begin forwarded message:

From: ELLWOOD Dean <Dean.Ellwood@ehp.qld.gov.au>
Date: 28 November 2017 at 4:42:31 pm AEST
To: "Danielle Cohen (Danielle.Cohen@ministerial.qld.gov.au) (Danielle.Cohen@ministerial.qld.gov.au)" <Danielle.Cohen@ministerial.qld.gov.au>
Cc: DLO EHP <DLO.EHP@ehp.qld.gov.au>, REEVES Jim <Jim.Reeves@ehp.qld.gov.au>
Subject: FW: Abbot Point Bulk Coal matter

Danielle,

Abbot Point Bulk Coal Pty Ltd (Adani) Investigation – Breach of TEL conditions.

Relevant Parties

- Abbot Point Bulk Coal Pty Ltd (APBC).

Current Status

- APBC was issued a Penalty Infringement Notice for an alleged breach of Temporary Emissions Licence (TEL) on 20 July 2017 for discharging water containing Suspended Solids (SS) to 'waters' which exceeded the permissible limits during Tropical Cyclone Debbie event in March 2017 at discharge location known as 'W2' at their coal loading facility near Bowen. APBC is contesting the PIN on the basis that they believe that the water containing SS did not reach nearby coastal 'waters'.
- An inspection of W2 at APBC (Bowen) and the adjacent North Queensland Bulk Ports (NQBP) land was completed on 15 November 2017 with the assistance of a registered surveyor and EHP Coastal Engineer where survey levels and other data was recorded. It is proposed that data collected from this investigative activity will be used to create flood modelling which may assist in proving the offence.
- The department is seeking further documents from APBC to assist with preparing flood drainage modelling.

Abbot Point Bulk Coal Pty Ltd (Adani) Investigation – Provision of false or misleading information.

Relevant Parties

- Dwayne FREEMAN (Chief Executive Officer – Abbot Point Operations)

Current Status

- The investigation into the failure of APBC to report the higher SS analysis of 834Mg/L (W2B) is continuing.
- APBC has been advised in writing that the scope of the investigation has been extended to examine whether the company has provided false or misleading documents to the department.
- Collation of statements from departmental officers is continuing.

Regards
Dean

Dean Ellwood
Deputy Director-General
Environmental Services & Regulation
Department of Environment and Heritage Protection
Queensland Government
P Irrelevant
Level 7, 400 George St, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

From: Danielle Cohen <Danielle.Cohen@ministerial.qld.gov.au>
Date: 28 November 2017 at 2:58:12 pm AEST
To: Dlo Ehp <DLO.EHP@ehp.qld.gov.au>
Cc: Dean Ellwood <Dean.Ellwood@ehp.qld.gov.au>
Subject: Abbot Point Bulk Coal matter

Hi team

Can you please request an urgent update for me on the Abbot Point Bulk Coal/Caley Valley wetlands matter? At this stage I'm only interested in the matter of the exceedance resulting in a PIN, not the environmental evaluation of the wetlands

Thanks
Dan

Melanie Pilgrim

From: Rebecca Coulter
Sent: Thursday, 15 June 2017 2:05 PM
To: Danielle Cohen
Subject: FW: Meeting request with the Minister- AMCS

Can I just go back to Lissa and let her know that SM is travelling all of next week?

From: Lissa Schindler [mailto:Personal Information
Sent: Thursday, 15 June 2017 10:48 AM
To: Rebecca Coulter
Cc: Danielle Cohen
Subject: Meeting request with the Minister- AMCS

Hi Rebecca and Danielle,

Apologies for late notice but wondering if Minister Miles was available anytime on Monday for a meeting to discuss the Abbot Point wetland breach, temporary emission licences and NAIF.

The meeting would be with myself and Imogen Zethoven - Reef campaign director.

Best wishes

Lissa

--
Please note I work part time Monday/Tuesday/Thursday

Dr Lissa Schindler
Senior Reef Campaigner
Australian Marine Conservation Society
p: 07 3846 6777
f: 07 3846 6788
a: PO Box 5815 West End QLD 4101
w: www.marineconservation.org.au e: Personal Information

Help protect our ocean wildlife. Become a Sea Guardian today.
Join us on Facebook and follow us on Twitter.

Melanie Pilgrim

From: Imogen Zethoven Personal Information
Sent: Friday, 25 August 2017 11:25 AM
To: Danielle Cohen
Subject: FW: MEDIA RELEASE: Adani challenges fine for pollution breach next to the Great Barrier Reef

HI Danielle

Here is AMCS's media release.

Cheers
Imogen

From: Australian Marine Conservation Society (AMCS) [mailto:news@amcs.org.au]
Sent: Friday, 25 August 2017 9:56 AM
To: Imogen Zethoven
Subject: MEDIA RELEASE: Adani challenges fine for pollution breach next to the Great Barrier Reef

No Images? Click here

MEDIA RELEASE:
Adani challenges fine for pollution breach next to the Great Barrier Reef

25th August 2017

The Australian Marine Conservation Society (AMCS) today expressed disbelief that the Adani company will challenge a $12,900 fine for breaching its pollution licence next to the Great Barrier Reef.

AMCS Great Barrier Reef Campaign Director Imogen Zethoven said it was inconceivable that Adani was challenging the paltry fine, given its own report found it had breached the licence.

"Adani has admitted that it exceeded a temporary licence from the Queensland government to pollute the surrounding environment at Abbot Point coal port during Cyclone Debbie", Ms Zethoven said.

"Adani released 806 mg/l when its temporary licence allowed it to pollute 100 mg/l.

"The violation of the licence shows that Adani cannot be trusted to operate a coal port next to the Great Barrier Reef.

"Scientists have warned repeatedly that severe cyclones – Category 3 and above – are likely to become even more severe as a result of climate change.

"If Adani's Carmichael mine and port development is allowed to proceed, we risk damaging coal pollution discharges into the Great Barrier Reef. This is the last thing the Reef needs.

"The Adani company has a very poor environmental track record in India. It is already showing that it has a poor track record here, even before the Carmichael mine commences operations.

"It's high time for our governments to recognise that Adani's mine, rail and port project should be rejected outright, and all approvals revoked.

"The federal and Queensland governments should be putting the Reef and its 64,000 tourism jobs first.

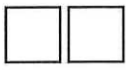
"The Great Barrier Reef is in grave danger. Adani's project will only accelerate damage to the Reef, when we should be doing all we can to relieve pressure on our natural wonder by switching rapidly to 100% renewable energy," Ms Zethoven said.

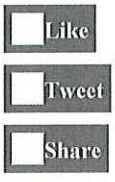
CONTACT

Media and Communications - AMCS,
+61 (0) 412 505 405,
mediacomms@amcs.org.au

About us:

The Australian Marine Conservation Society (AMCS) is the voice for Australia's ocean wildlife. We are an independent charity, staffed by a committed group of professional and passionate scientists, educators and advocates who have defended Australia's oceans for 50 years. Our paid and volunteer staff work every day on behalf of the community to protect our ocean wildlife.





The Australian Marine Conservation Society (AMCS) is the voice for Australia's ocean wildlife. We are an

independent charity, staffed by a committed group of professional and passionate scientists, educators and advocates who have defended Australia's oceans for 50 years.

Forward

Preferences | Unsubscribe

Melanie Pilgrim

From: Alison Brown
Sent: Tuesday, 26 September 2017 12:33 PM
To: Danielle Cohen; Erin Fentiman
Cc: Katharine Wright
Subject: FW: Kat/Alison - resoolved media enquiry - Abbot Point turtle nests - ABC Mackay

FYI Dan, Erin, EHP has closed this one out

Kind regards,

Alison Brown
Media Advisor
Office of the Hon. Dr Steven Miles MP
Minister for Environment and Heritage Protection
Minister for National Parks and the Great Barrier Reef

Queensland Government

P Irrelevant
1 William Street Brisbane QLD 4000
PO Box 15185 City East Qld 4002

From: SPACKMAN Maria [mailto:Maria.Spackman@ehp.qld.gov.au]
Sent: Tuesday, 26 September 2017 12:15 PM
To: Katharine Wright ; Alison Brown
Cc: Media EHP/NPSR
Subject: Kat/Alison - resoolved media enquiry - Abbot Point turtle nests - ABC Mackay

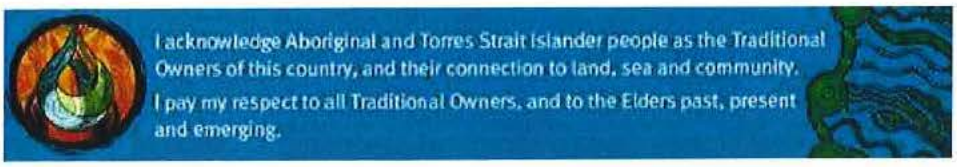
Hi Kat and Alison

Advice from EHP was no reports of turtle nests trampled at Abbot Point as described. I've advised the journalist by phone and she was happy with that.

Regards
m

Maria Spackman
A/Principal Media Officer
Media Services | Corporate Communications
Department of Environment and Heritage Protection
Department of National Parks, Sport and Racing
Irrelevant
media@ehp.qld.gov.au
media@npsr.qld.gov.au
Level 27, 400 George St, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

If you are emailing about a media matter, please remember to cc media@ehp.qld.gov.au
Please consider the environment before printing this email.



From: SPACKMAN Maria
Sent: Tuesday, 26 September 2017 10:37 AM
To: Katharine Wright; Alison Brown
Cc: Media EHP/NPSR; STEELE Mary
Subject: Kat/Alison - heads up - NEW media enquriy re Abbot Point turtle nests - ABC Mackay

Hi Kat and Alison

New media enquiry – we are working on a response. At this stage, still waiting on advice if EHP is aware of these allegations.

Regards
m

From: Personal Information
Sent: Tuesday, 26 September 2017 9:23 AM
To: Media EHP/NPSR
Subject: Turtle nests

Hello,

I'm a journalist with ABC in Mackay. We had a member of the public call and say he had information that some of the anti-Adani group who were protesting at Abbot Point near Bowen last week had been caught trampling on turtle nests.
He wouldn't give us any information on where he got that from. I don't know whether Abbot Point is even a turtle nesting location.
I was wondering if you had heard anything about this and if so could provide details please?
Obviously if this information isn't true then there's no worries but if it is true can you please let me know:

- How many turtle nests were affected?
- How many protesters were involved?
- How did it happen?
- How big of an impact is this on the turtle population in this area?

My deadline is close of business today.
Thanks, Personal

ABC Personal Information

-

Please consider the environment before printing this e-mail.

Melanie Pilgrim

From: Alison Brown
Sent: Tuesday, 26 September 2017 10:40 AM
To: Danielle Cohen; Erin Fentiman
Subject: FW: Kat/Alison - heads up - NEW media enquriy re Abbot Point turtle nests - ABC Mackay

FYi Erin and Dan – response is being worked on.

Kind regards,

Alison Brown
Media Advisor
Office of the Hon. Dr Steven Miles MP
Minister for Environment and Heritage Protection
Minister for National Parks and the Great Barrier Reef

P Irrelevant M Irrelevant
1 William Street Brisbane QLD 4000
PO Box 15185 City East Qld 4002

From: SPACKMAN Maria [mailto:Maria.Spackman@ehp.qld.gov.au]
Sent: Tuesday, 26 September 2017 10:38 AM
To: Katharine Wright ; Alison Brown
Cc: Media EHP/NPSR ; STEELE Mary
Subject: Kat/Alison - heads up - NEW media enquriy re Abbot Point turtle nests - ABC Mackay

Hi Kat and Alison

New media enquiry – we are working on a response. At this stage, still waiting on advice if EHP is aware of these allegations.

Regards
m

From: Personal Informaation
Sent: Tuesday, 26 September 2017 9:23 AM
To: Media EHP/NPSR
Subject: Turtle nests

Hello,

I'm a journalist with ABC in Mackay. We had a member of the public call and say he had information that some of the anti-Adani group who were protesting at Abbot Point near Bowen last week had been caught trampling on turtle nests.
He wouldn't give us any information on where he got that from. I don't know whether Abbot Point is even a turtle nesting location.
I was wondering if you had heard anything about this and if so could provide details please?
Obviously if this information isn't true then there's no worries but if it is true can you please let me know:

- How many turtle nests were affected?
- How many protesters were involved?
- How did it happen?
- How big of an impact is this on the turtle population in this area?

My deadline is close of business today.
Thanks, Personal information

ABC

Personal information

-

Please consider the environment before printing this e-mail.

Melanie Pilgrim

From: Benton Wecker
Sent: Monday, 18 September 2017 12:34 PM
To: Katharine Wright; Danielle Cohen
Subject: FW: Abbot Point Communication Strategy
Attachments: 050917 - MR - Abbot Point Wetlands Report CAGNEY.DOCX; Communication_Strategy_Adani_Abbott_Point_Bulk.docx; content-brief-template-Caley_ValleyWetland_Investigation.docx; Simplified_Comms_plan_-Caley_Valley_Wetland_Assessment.docx; Suggest_FAQs__EHP_website_(Caley_Valley) CAGNEY.DOCX; CaleyValleywetlands_Assessment Impacts_Cyclone Debbie_28 July 2017.pdf

Info from Dept.

Key findings of this preliminary assessment were:

- Although there were indications of recent flooding, there was little visual evidence of coal fines across the whole of the wetland. This is consistent with trace levels (
- Coal fines were only visually observed at a site immediately downstream of the licensed discharge point to the south of the spillway of settlement pond 2. This is consistent with the results from the sediment analysis at this site, which found that coal composed approximately 10% of the sample. There appeared to be partial coverage of the wetland substrate and the lower stems of marine couch (*Sporobolus virginicus*) with coal fines. Even so, there did not appear to be any impediment to growth of wetland plants in this area as new growth, in response to the recent flooding, was evident.
- Minor concentrations (approximately 2%) of coal fines were measured downstream of the spillway at a site in the wetlands opposite the licensed discharge point site.

Coal fines do not appear to have caused widespread impacts in the wetland. It is likely that any impacts from the stormwater discharge were mitigated by the large amount of water flowing naturally through the wetland. **Nonetheless, further assessment is warranted to more accurately delineate the area potentially impacted downstream of the licensed discharge point, and to monitor the response of the wetland to the authorised discharge.**

From: LOWE Trinity [mailto:Trinity.Lowe@ehp.qld.gov.au] **On Behalf Of** ESR
Sent: Monday, 18 September 2017 12:31 PM
To: Benton Wecker
Cc: CAGNEY Justin
Subject: FW: Abbot Point Communication Strategy

Hi Benton
Please see attached coms strategy and a copy of the report. If you have any questions, please feel free to call Justin Cagney directly, Justin is acting ED CaCQC.
The report is the last document attached (PDF) please note we are currently working with DSITI on some minor cosmetic edits.
Thanks & Cheers
Trin

Trinity Lowe
Executive Officer
Office of the Deputy Director General
Environmental Services and Regulation Division
Department of Environment and Heritage Protection
---
p Irrelevant
Level 7, 400 George St Brisbane
Queensland Government

From: CAGNEY Justin
Sent: Friday, 15 September 2017 5:36 PM
To: LOWE Trinity <Trinity.Lowe@ehp.qld.gov.au>
Cc: ESR <ESR@ehp.qld.gov.au>; ELLWOOD Dean <Dean.Ellwood@ehp.qld.gov.au>; CONNOR Andrew <Andrew.Connor@ehp.qld.gov.au>; Corro EHP ESR CaCQC <EHPESRCaCQC.Corro@ehp.qld.gov.au>
Subject: FW: Abbot Point Communication Strategy

Hi Trin,

Please find attached complete communications package. There have been some amendments in consultation with Dean.

These same documents have been provided to Corporate Communications in preparation for publishing once approved by DDG.

Let me know if you need anything further. I am more than happy to walk Andrew through the entire matter if he will be approving the content and publishing in Dean's absence.

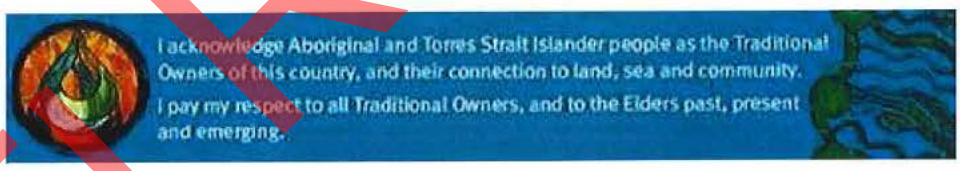
Regards,

Queensland Government

Justin Cagney
Executive Director
Coal and Central Queensland Compliance
Department of Environment and Heritage Protection

P Irrelevant

209 Bolsover Street Rockhampton 4700
PO Box 413 Rockhampton 4700



Department of **Environment and Heritage Protection (EHP)**

Draft media release

Deadline:	**Briefing officer:**
Media Services contact:	**Phone:**
Phone:	**DDG:**
Approved:	**Phone:**
Geographical area/s of interest:	

Caley Valley Wetland assessment report received

The Department of Environment Heritage Protection (EHP) has received a report on the recent Caley Valley Wetlands assessment which was undertaken due to satellite imagery collected after Tropical Cyclone (TC) Debbie appearing (inaccurately) to show very dark coloured (potentially contaminated) water within the wetland.

Prepared by the Department of Science, Information Technology and Innovation (DSITI), the report details the assessment which was undertaken following stormwater releases from Abbot Point Coal Terminal during TC Debbie in March this year. As part of the assessment, DSITI collected water and sediment samples at the licenced discharge point and various locations throughout the wetland.

Minister for Environment and Heritage Protection Dr Steven Miles said the report found that only minor concentrations (approximately 2%) of fine coal particles were identified across the majority of locations sampled within the wetland.

"The report found that there was very little visual evidence of fine coal particles across the wetland as a whole and it appears that where fine coal particles have been observed, there have been no widespread impacts on the wetland. The report does however recommend that additional monitoring be undertaken and EHP has responded quickly to this recommendation".

"On XX September 2017, in response to the key findings and recommendations of the Caley Valley Wetland assessment, EHP issued Abbot Point Bulk Coal Pty Ltd with a notice to prepare an environmental evaluation."

"The environmental evaluation will require a report to be prepared which includes additional monitoring and identification of any adverse impacts on the Caley Valley Wetland from activities conducted at Abbot Point Coal Terminal".

Following the submission and review of the required report, EHP will consider whether further action is required in line with the department's Enforcement Guidelines.

The Caley Valley Wetland assessment report is available at LINK

The Penalty Infringement Notice (PIN) issued in August to Abbot Point Bulk Coal Pty Ltd for a non-compliant stormwater release does not relate to this investigation. The non-compliant stormwater discharge occurred from a release point which does not enter the Caley Valley Wetland.

ENDS

COMMUNICATION STRATEGY

1 PROJECT NAME

Abbot Point Coal Terminal - Caley Valley Wetlands Assessment.

2 COMMUNICATION OBJECTIVE

This communications plan outlines suggested actions to communicate the current situation with stakeholder/target audiences.

The communications plan will increase the overall understanding of the significant work EHP has undertaken to investigate the state of the wetland and by emphasising the following key points:

- The Department of Environment and Heritage Protection (EHP) is a strong environmental regulator.
- EHP will continue to proactively monitor Abbot Point Bulk Coal Pty Ltd and continue to engage regarding the recommendations within the wetland report.
- EHP's primary focus is to regulate activities through the administration of relevant Queensland legislation.

3 BACKGROUND

EHP has investigated the potential release of coal or coal fines into Caley Valley Wetlands as a result of an authorised water release from the Abbot Point Coal Terminal under a temporary emissions licence (TEL) granted to assist with site water management during Tropical Cyclone (TC) Debbie.

March 2017:

- EHP granted Abbot Point Bulk Coal Pty Ltd a TEL for the period 27 to 30 March 2017, to assist with site water management during and after TC Debbie.
- The TEL authorised total suspended solids (TSS) releases of up to 100 milligrams per litre (mg/L). The two release points were W1 into the Caley Valley Wetlands and W2 on the northern side of the terminal discharging to the marine environment (does not report to the Caley Valley Wetlands).

April 2017:

- On 6 April 2017, the State Disaster Coordination Centre provided EHP aerial imagery which showed significant colour variation in the adjacent Caley Valley Wetlands, when compared against previous aerial imagery of the site.
- EHP officers were deployed to the site the same day (6 April 2017) to investigate the potential release of coal or coal fines into the Caley Valley wetlands. Due to flooding officers could not access the site to collect samples.

- As part of EHP's investigation into the Caley Valley Wetlands, the Department of Science, Information Technology and Innovation (DSITI) was engaged to assist with a preliminary assessment of the wetlands.
- DSITI collected in situ water monitoring data, sediment samples and water samples across seven sites within the Caley Valley Wetlands on 27 April 2017 and 28 April 2017, to determine the state of the wetland and to ground truth the colour variation depicted in aerial imagery.
- The report titled "Caley Valley Wetlands – Preliminary assessment of impacts to Caley Valley Wetlands from Abbot Point Coal Terminal Post Tropical Cyclone Debbie" forms the basis of this media communication strategy.
- Abbot Point Bulk Coal Pty Ltd continued to work with EHP on the Caley Valley Wetlands investigation and has reported matters relating to its operation during and following TC Debbie as required by its environmental authority.

TARGET AUDIENCES

Conservation groups:

- Mackay Conservation Council.
- North Queensland Conservation Council.
- Australian Conservation Foundation.
- Environmental Defenders Office.
- Australian Marine Conservation Society.
- Central Queensland University.

STAKEHOLDERS:

- The Department of Science, Information technology and Innovation (DSITI).
- Media outlets.
- Queensland Resources Council.
- Greenpeace Australia.
- Abbot Point Bulk Coal Pty Ltd.
- North Queensland Bulk Ports.

KEY MESSAGES

- In the event of major rainfall and flooding, operations can apply to EHP for a TEL, which is a permit that temporarily relaxes or modifies the conditions of an environmental authority in response to a major event such as a flood or cyclone.
- TELs are an important part of the Queensland Government's response to a natural disaster.

- Abbot Point Bulk Coal Pty Ltd continues to work with EHP on this investigation and has reported matters relating to its operation during and following TC Debbie as required by its environmental authority.
- EHP is a strong environmental regulator:
  - safeguarding the state's environmental values and reducing any impacts from environmental harm.
  - responding to breaches of the legislation with consistent and proportionate enforcement action.
- EHP and DSITI have undertaken a preliminary assessment in the Caley Valley Wetlands to determine the state of the relevant areas in the wetland and the contribution of releases from the terminal.
- A report outlining the findings has been publicly released.
- The report shows:
  - Further assessment is warranted to more accurately delineate the area potentially impacted downstream of the licensed discharge point and to monitor the response of the wetland to the authorised discharge.
  - There was little visual evidence of coal fines across the majority of sites assessed in the wetlands. This is consistent with trace levels of coal measured at most sites.
  - Coal fines were only visually observed at a site immediately downstream of the licensed release point (W1) to the south of the spillway of settlement pond 2. This is consistent with the results from the sediment analysis at this site, which found that coal composed approximately 10% of the sample. There appeared to be partial coverage of the wetland substrate and the lower stems of marine couch with coal fines. Even so, there did not appear to be any impediment to growth of wetland plants in this area as new growth, in response to the recent flooding, was evident.
  - Minor concentrations of coal fines were measured downstream of the spillway at a site in the wetlands opposite the licensed discharge point.
  - Coal fines do not appear to have caused widespread impacts on the wetland.

- On XX September 2017 EHP issued Abbot Point Bulk Coal Pty Ltd with notice to conduct an environmental evaluation under the *Environmental Protection Act 1994*. The EE will seek to monitor, identify and describe any adverse impacts to the environmental values of the Caley Valley Wetland due to activities conducted at Abbot Point Coal Terminal.
- Following the submission and review of the report required under the environmental evaluation, EHP will consider whether further enforcement actions are required in line with the department's Enforcement Guidelines.
- EHP will continue to proactively monitor Abbot Point Bulk Coal Pty Ltd.'s operation and take any enforcement action in line with EHP's Enforcement Guidelines.

COMMUNICATION ENVIRONMENT/ISSUES

Adani's Carmichael Coal Mine is a contentious issue. There is significant public interest in the company and its operations. This latest event has further intensified the media coverage, gaining significant interest from conservation groups and media outlets. The issue has also gained traction on social media, particularly Twitter, with the hashtag #StopAdani and account @stopadani highly active.

Conservation Groups are:

- likely to make additional enquiries regarding EHP's investigation into the matter.
- likely to seek the outcome of the wetlands assessment.
- Likely to be critical of EHPs actions in response to the matter and any enforcement action that results.

7. COMMUNICATION STRATEGIES

The primary communication strategy is to develop information to immediately communicate with stakeholder/target audiences on the current situation.

The below integrated tactics will help achieve the primary communication strategy.

- EHP website updates.
- Social media updates.
- Collateral information.

8. ACTIVITY PLAN

DATE	ACTIVITY	MESSAGE	TARGET AUDIENCE	COMMUNICATION TOOL	RESPONSIBLE

ASAP	Website	• EHP is a strong environmental regulator.
		• DSITI has provided a report outlining the findings of the wetland assessment.
		• The report findings are:
		  ○ Further assessment is warranted to more accurately delineate the area potentially impacted downstream of the licensed release point W1, and to monitor the response of the wetland to the authorised discharges.
		  ○ Although there were indications of recent flooding, there was little visual evidence of coal fines across the whole of the wetland. This is consistent with trace levels of coal measured at most sites.
			All	Develop pages on the EHP website to feature:
				1. Timeline/overview of what has happened/what is happening.
				2. Reporting page – results of sampling reports.
				3. Context page – to detail the findings of the report.
					• Corporate Communications
					• Business Unit to provide advice on content.
					• *Design team to offer support for creating graphics.*

		○ Coal fines were only visually observed at a site immediately downstream of the licensed release point W1 to the south of the spillway of settlement pond 2. This is consistent with the results from the sediment analysis at this site, which found that coal comprised approximately 10% of the sample. There appeared to be partial coverage of the wetland substrate and the lower stems of marine couch with coal fines. Even so, there did not appear to be any impediment to growth of wetland plants in this area as new growth, in response to the recent flooding, was evident. ○ Minor concentrations (2%) of coal fines were measured downstream of the spillway at a site in the wetlands opposite the licensed discharge point. ○ Coal fines do not appear to have caused widespread impacts in the wetland. • EHP is considering the recommendations of the preliminary wetland assessment and will determine if further evaluation of the potential impacts to the Caley Valley Wetland is required.			

		• Abbot Point Bulk Coal Pty Ltd continues to work with EHP following this investigation and has reported matters relating to its operation during and following TC Debbie as required by its environmental authority.			
	Social media	• EHP is a strong environmental regulator: o safeguarding the state's environmental values and reducing any impacts from environmental harm. o responding to breaches of legislation with consistent and proportionate enforcement action. o taking prompt, strong enforcement action.	All	Facebook posts reinforcing the department's role as a strong environmental regulator. *Boosted (paid) posts can be used to further spread message and ensure target audiences are reached.*	• Corporate Communications. • Business Unit to provide advice on content.
	Collateral – timeline	• EHP is a strong environmental regulator.	All	A4 document outlining the timeline of events relating to Adani Abbot Point Bulk Coal Pty Ltd and Caley Valley Wetlands investigation. Timeline document will provide all stakeholders with a quick reference point to events that have happened.	• Corporate Communications to draft text based on Business Unit's advice. • Design team.

Content brief

Overview

Content brief no.	Insert content brief ID# for recordkeeping
Page title	Abbot Point Bulk Coal—Caley Valley Wetlands Investigation
Host website	NEW PAGE – EHP website
Content expert	Insert name and contact details
Editor	Insert name and contact details
Final approver	Insert name and contact details
Final approval date	Insert due date for final approval
Publishing date	Insert proposed date for publication

Content

[Page 1 content start]

Adani Abbot Point Bulk Coal—Caley Valley Wetlands investigation

The Department of Environment and Heritage Protection (EHP) has investigated the potential release of coal or coal fines into Caley Valley Wetlands as a result of an authorised stormwater release from the Abbot Point Coal Terminal under a temporary emissions licence (TEL) granted to assist with site water management during Tropical Cyclone (TC) Debbie.

Timeline:

March 2017	EHP granted Abbot Point Bulk Coal Pty Ltd a TEL for the period 27 to 30 March 2017, to assist with site water management during and after TC Debbie. The TEL authorised total suspended solids (TSS) releases of up to 100 milligrams per litre (mg/L) into the Caley Valley Wetlands.

April 2017	On 6 April 2017, the State Disaster Coordination Centre provided EHP aerial imagery which showed significant colour variation in the Caley Valley Wetland when compared with previous aerial imagery in the same area. EHP officers were deployed to the site the same day (6 April 2017) to investigate the potential release of coal or coal fines into Caley Valley Wetlands. Due to flooding officers could not access the site to collect water samples. EHP officers returned to site 11 April 2017 to investigate the potential release of coal or coal fines into the wetlands. As part of EHP's investigation into the Caley Valley Wetlands, the Department of Science, Information Technology and Innovation (DSITI) was engaged to assist with a preliminary assessment of the wetlands. DSITI collected in situ water monitoring data, sediment samples and water samples across seven sites within the Caley Valley Wetlands on 27 April 2017 and 28 April 2017 to determine the state of the wetland and to ground truth the colour variation depicted in aerial imagery. The report titled "*Caley Valley Wetlands – Preliminary assessment of impacts to Caley Valley Wetlands from Abbot Point Coal Terminal Post Tropical Cyclone Debbie*" forms the basis of this media communication strategy. On XX September 2017 EHP issued Abbot Point Bulk Coal Pty Ltd with notice to conduct an environmental evaluation under the *Environmental Protection Act 1994*. The environmental evaluation will seek to monitor, identify and describe any adverse impacts to the environmental values of the Caley Valley Wetland due to activities conducted at Abbot Point Coal Terminal. Following the submission and review of the report required under the environmental evaluation, EHP will consider whether further enforcement actions are required in line with the department's Enforcement Guidelines. Abbot Point Bulk Coal Pty Ltd continued to work with EHP on the investigation and has reported matters relating to its operation during and following TC Debbie as required by its environmental authority.

[Page 1 content end]

Metadata

Page title	Adani Abbot Point Bulk Coal—Caley Valley Wetlands Investigation | Environment, land and water | Queensland Government.
Page description	Timeline of events - Adani Abbot Point Bulk Coal Pty Ltd—Caley Valley Wetlands investigation.

Keywords	Environmental regulator, Adani Abbot Point Bulk Coal, Caley Valley Wetlands.

Audience and content goal

Target audience	Who does your message need to reach? Include any specific information you have about your audience (e.g. personas, customer research data).
Content goal	What should the customer know or be able to do by reading this content? Summarise the customer need for the content. If relevant, also explain what is excluded from this content.

Supporting materials

Images

Accessibility	Alt text: Caption text:
Other	Image file path: Copyright and credits:

Video

Accessibility	Transcript file path: Captions file path: Audio description file path:
Other	Video file path:

Asides (right column)

Heading	Heading for aside:
Content	Content for aside:

Features

Heading	Heading for feature:
Content	Content for feature:
Image	Image file path:

Social media

Facebook	Content for post: Posting date:
Twitter	Content for post: Posting date:
Image	Image file path:

Index page (for qld.gov.au pages only)

Index page	URL of index page and position of new thumbnail:
Thumbnail image	Thumbnail image file path:
Thumbnail content	Thumbnail 'snippet' content:

Updates to related pages

Secondary website(s)	List of URLs that should link to this page Teams responsible for these pages will need to be notified when this page is published (and also if content is deleted, updated or redirected in the future)
Pages to be decommissioned	List page URLs that need to be redirected and decommissioned after this content is published
Date to be decommissioned	Insert date to complete decommissioning

Review priority and date

Priority	**Review date**
☐ High—review content every 1–3 months, or less ☐ Medium—review content every 3–6 months ☐ Low—review content every 6–12 months ☐ Specific date	Insert date of next review (i.e. based on priority)

Publishing history

Version	**Date published**	**Date reviewed**	**Description of change**
1			

Communication summary – release of '*Caley Valley Wetlands, Preliminary assessment of impacts to Caley Valley Wetlands from Abbot Point Coal Terminal post Tropical Cyclone*' (the wetland assessment report)

In the event that the wetland assessment report is approved for public release, targeted communication actions will be developed to communicate the report has been released and what the key findings are.

Stakeholder	Engagement tools	Date for tool	Comments	Responsible
All	EHP web updates	September onwards (pending date of report release)	• Updated feature banner/text. • Creation of new page, dedicated to the release of the report/summarise report findings, will also feature: - Link to results with explanations of the results; - Maps (clickable); - Images; - FAQ document (Corporate Communications to investigate whether this will be HTML, or PDF); and - Graphics to highlight/simplify the report findings.	Corporate Communications team.
All	Various collateral	September onwards (pending date of report release)	Develop standalone/supplementary collateral: • Maps (clickable); • FAQ document (Corporate Communications to investigate whether this will be HTML, or PDF); and • Graphics to highlight/simplify the report findings.	Corporate Communications team.
Media	Media statement	September onwards (pending date of report release)	Draft media statement to outline: • The report has been published; • Key findings of the report; and • EHPs response to report recommendations.	ESR/ Media unit.

External stakeholders/ general public	Pre-approved questions and answers (FAQs)	September onwards (pending date of report release)	Due to the anticipated interest in the report, it is recommended that pre-approved questions and answers (FAQs) are developed to assist with external enquiries (DLO and Media). The FAQs will be published on the website. Any further enquires (once released) should be directed through Media Unit and DLO (for Ministerial enquiries) as per normal business processes.	ESR/ Media unit.

Key messages as part of announcement:

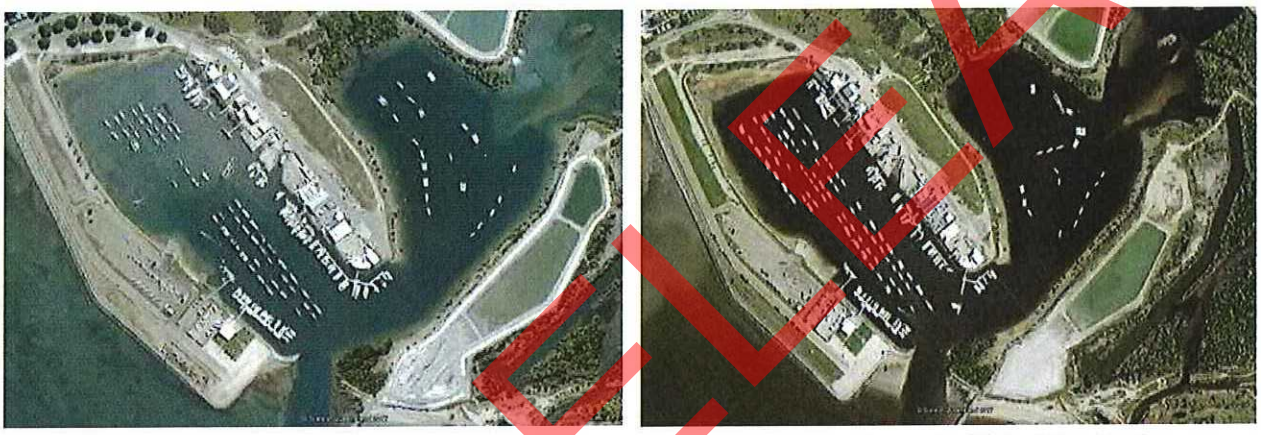
1. EHP and DSITI have undertaken an assessment in the Caley Valley Wetland to determine the condition of the wetland and the contribution of releases from the terminal. A report outlining the findings has been publicly released.
2. The report findings are:
   - Further assessment is warranted to more accurately delineate the area potentially impacted downstream of the licensed discharge point and to monitor the response of the wetland to the authorised discharge.
   - There was little visual evidence of coal fines across the majority of sites assessed in the wetlands. This is consistent with trace levels of coal measured at most sites.
   - Coal fines were only visually observed at a site immediately downstream of the licensed release point (W1) to the south of the spillway of settlement pond 2. This is consistent with the results from the sediment analysis at this site, which found that coal composed approximately 10% of the sample. There appeared to be partial coverage of the wetland substrate and the lower stems of marine couch with coal fines. Even so, there did not appear to be any impediment to growth of wetland plants in this area as new growth, in response to the recent flooding, was evident.
   - Minor concentrations of coal fines were measured downstream of the spillway at a site in the wetlands opposite the licensed discharge point.
   - Coal fines do not appear to have caused widespread impacts in the wetland.

3. On XX September 2017 in response to the key findings of the Caley Valley Wetland assessment, the department issued Abbot Point Bulk Coal Pty Ltd a notice to conduct an environmental evaluation under the *Environmental Protection Act 1994*. The environmental evaluation will require a report to be prepared which includes monitoring, identification and description any adverse impacts to the environmental values of the Caley Valley Wetland due to activities conducted at Abbot Point Coal Terminal.
4. Following the submission and review of the report required under the environmental evaluation, the department will consider whether further enforcement actions are required in line with the department's Enforcement Guidelines.
5. The department will continue to proactively monitor Abbot Point Bulk Coal Pty Ltd and take enforcement action, as required, in line with EHP's Enforcement Guidelines.

FAQs – EHP website (for all other enquiries normal business processes should be followed).

- **Why did satellite imagery appear to show the wetlands full of coal fines?**

  It is difficult to draw conclusions as to the cause of the colour variation depicted in the imagery of the Caley Valley Wetlands following Tropical Cyclone Debbie, due to the high variability of the wetland system and the imagery itself. The appearance of water in remotely sensed imagery can be affected by several factors, including the depth and clarity of the water, the angle of the sun and the sensor when the image was captured. Similar dark appearances of water bodies was detected in satellite imagery in other nearby locations collected on the same day (refer to pictures below). No conclusions regarding the condition of the wetland could be determined from this imagery and inspection of the site was required.



Satellite imagery taken over Bowen Harbour following Tropical Cyclone Debbie (right) when compared with previous satellite imagery taken at the same location (left).

- **Has the department carried out an inspection of the site?**

  Officers from the Department of Environment and Heritage Protection (EHP) together with technical experts from the Department of Science, Information Technology and Innovation (DSITI), attended the site and collected in-situ water quality, sediment samples and water samples across seven sites in the Caley Valley Wetland on 27 April 2017 and 28 April 2017. This sampling event formed the basis of the DSITI report titled "*Caley Valley Wetlands – Preliminary assessment of impacts to Caley Valley Wetlands from Abbot Point Coal Terminal Post Tropical Cyclone Debbie*" <link>.

- **Was coal and coal fines found within the Caley Valley Wetlands?**

  Visual observations by EHP officers confirmed that the satellite imagery of the area following Tropical Cyclone Debbie was not representative of the true condition of the wetland. The dark coloured water depicted in the satellite imagery was not observed during the site inspection.

  The DSITI report titled "*Caley Valley Wetlands – Preliminary assessment of impacts to Caley Valley Wetlands from Abbot Point Coal Terminal Post Tropical Cyclone Debbie*" provides a

number of findings and recommendations in relation to the water and sediment samples collected during the site inspection.

The report's key findings were:

- Visual evidence of coal fines was not observed across the majority of sites assessed in the wetland, however trace levels of coal fines were detected at most sites following laboratory analysis of sediment samples collected.
- Coal fines were visually observed at one site immediately downstream of the licensed discharge point (W1). This is consistent with the results from the sediment analysis at this site, which found that coal composed approximately 10% of the sediment sample. There appeared to be partial coverage of the wetland substrate with coal fines at this location. Despite this observation, there did not appear to be any impediment to growth of wetland vegetation in this area and new growth, in response to the recent flooding, was evident.
- Coal fines do not appear to have caused any widespread impacts on the wetland.
- Further assessment is warranted to more accurately delineate the area potentially impacted downstream of the licenced discharge point, and to monitor the response of the wetland to the authorised discharge.

- **What is the department's next step?**

On XX September 2017, EHP issued Abbot Point Bulkcoal Pty Ltd with notice to conduct an environmental evaluation under the *Environmental Protection Act 1994*. The environmental evaluation will seek to monitor, identify and describe any adverse impacts on the environmental values of the Caley Valley Wetland due to activities conducted at the Abbot Point Coal Terminal.

Following the submission and review of the report required under the environmental evaluation, EHP will consider whether further enforcement actions are required in line with the department's Enforcement Guidelines.

- **Why did the department issue a temporary emissions licence (TEL) to Abbot Point Bulk Coal Pty Ltd?**

Abbot Point Bulk Coal Pty Ltd was granted a TEL due to the forecast of a major rainfall event associated with Tropical Cyclone Debbie in March 2017. The TEL permitted a temporary increase to the environmental authority (EA) release limit for total suspended solids (TSS) from 30mg/L to 100mg/L at two authorised release points. The two release points were W1 into the Caley Valley Wetland and W2 to the northern side of the terminal. W2 does not report to the Caley Valley Wetlands. Please refer to the map <link> identifying the location of these release points.

Holding FAQ – To be published only in the event it is required in response to queries.

- **Why were different laboratory analyses used to determine coal content in sediment samples collected?**

  There is no prescribed standard method of analysis for determining coal content in sediment samples. Different laboratories use differing methodologies. As the sediment samples collected during the wetland assessment were provided to two different laboratories for analysis, different analyses were used and differing results were obtained. In the interests of scientific rigour, EHP engaged the services of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to review both methodologies and provide advice regarding the most appropriate analysis. Advice from the CSIRO was that a different methodology (float/sink analysis) was the most appropriate for accurately determining coal content in sediment samples. Based on this advice from the CSIRO, sediment samples were sent for analysis utilising the float/sink analysis. The results from the float/sink analysis have been adopted by DSITI as the most accurate coal concentrations determined from the sediment samples collected (as endorsed by the CSIRO) and these results have formed the basis of the findings within the wetland assessment report.

Caley Valley Wetlands

Preliminary assessment of impacts to Caley Valley Wetlands from Abbot Point Coal Terminal post Tropical Cyclone Debbie.

July 2017

Prepared by

Environmental Monitoring and Assessment Sciences
Science Delivery Division
Department of Science, Information Technology and Innovation
AND
Conservation and Sustainable Services
Department of Environment and Heritage Protection

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July 2017

Executive summary

The Department of Science, Information Technology and Innovation (DSITI) was commissioned to conduct a Preliminary Site Assessment of Caley Valley Wetlands adjacent to the Abbot Point Bulk Coal Terminal (Abbot Point Terminal). The site had been subject to an authorised release of water from the secondary settlement pond (which is part of the stormwater system) from Abbot Point Terminal.

Satellite imagery collected after Tropical Cyclone Debbie appeared to show dark waters downstream of a release point extending into the wetland. Consistent with a temporary emissions licence (TEL), the coal terminal operator, Abbot Point Bulkcoal Pty Ltd, sampled the stormwater release as soon as practicable and safe. The results of testing indicated that the release into the wetland was below the thresholds set in the licence condition.

In April 2017, staff from DSITI and the Department of Environment and Heritage Protection (EHP) wetland group undertook a preliminary assessment of the site. The objective for the preliminary site assessment was to assess the presence or otherwise of coal fines associated with the release, and if present, to undertake an initial assessment as to whether this has caused impacts to the wetlands. This report provides a summary of results from the April sampling program.

The Caley Valley is a nationally important wetland and is listed in the Directory of Important Wetlands in Australia. The site contains coastal grass sedge wetland, mangroves, saltmarsh, creeks and channels and a lacustrine wetland (a lake). The Caley Valley Wetlands complex is a large relatively intact wetland system covering an area of about 5154 hectares. Although the wetland has been modified, it supports a wide range of wetland values including migratory and threatened birds.

Key findings of this preliminary assessment were:

- Although there were indications of recent flooding, there was little visual evidence of coal fines across the whole of the wetland. This is consistent with trace levels (<1%) of coal measured at most sites.
- Coal fines were only visually observed at a site immediately downstream of the licensed discharge point to the south of the spillway of settlement pond 2. This is consistent with the results from the sediment analysis at this site, which found that coal composed approximately 10% of the sample. There appeared to be partial coverage of the wetland substrate and the lower stems of marine couch (*Sporobolus virginicus*) with coal fines. Even so, there did not appear to be any impediment to growth of wetland plants in this area as new growth, in response to the recent flooding, was evident.
- Minor concentrations (approximately 2%) of coal fines were measured downstream of the spillway at a site in the wetlands opposite the licensed discharge point site.

Coal fines do not appear to have caused widespread impacts in the wetland. It is likely that any impacts from the stormwater discharge were mitigated by the large amount of water flowing naturally through the wetland. Nonetheless, further assessment is warranted to more accurately delineate the area potentially impacted downstream of the licensed discharge point, and to monitor the response of the wetland to the authorised discharge.

Contents

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1 Introduction

Satellite imagery collected after Tropical Cyclone Debbie appeared to show dark water in the Caley Valley Wetland downstream of the Abbot Point Bulk Coal Terminal (Abbot Point Terminal). The Caley Valley wetland is adjacent to the Abbot Point Terminal and was subject to an authorised temporary release of stormwater runoff from the coal terminal during Tropical Cyclone Debbie. DSITI was commissioned to conduct a preliminary assessment of potential impacts in the wetlands from an authorised release of contaminated water from the adjoining coal loading terminal.

As required under the temporary emissions licence, the Coal Terminal operator, Abbot Point Bulk Coal Pty Ltd, sampled at their licensed discharge point into the wetland as soon as practicable and safe. The authorisation set limits for contaminant levels of 100 mg/L for suspended solids, including coal fines, with a pH no greater than pH 9. The authorised release period was from 27 March to 30 March 2017. The water sample results were within the thresholds set under the licence conditions. The temporary emissions licence (TEL) is presented as Attachment A.

Caley Valley Wetlands are large, nationally important wetlands that provide habitat for several threatened waterbirds, such as the Australian painted snipe. Media reports in early April 2017 showed images indicating that the whole of the wetlands had been impacted by coal fines released during Cyclone Debbie. Subsequently, concerns were raised that environmental harm had occurred across the wetland.

The objective for the preliminary site assessment was to assess the presence or otherwise of coal fines associated with the release, and if present, to undertake an initial assessment as to whether this has caused impacts to the wetlands. Between 27 and 28 April 2017, DSITI and EHP staff undertook a sediment investigation to identify whether coal had smothered the wetland sediment.

2 Site Description

Caley Valley Wetlands are nationally important wetlands covering an area of about 5154 ha and the wetland is listed in the Directory of Important Wetlands in Australia. The site is a complex system of wetland types and has a diversity of habitats, including coastal grass sedge wetland, mangroves, saltmarsh, creeks and channels and a lake. The wetlands are located in the dry tropics and are subject to seasonal changes in the extent of fresh water inundation. The consequential wetting and drying cycle of these wetlands is critical to the environmental values they support.

Over the past 60 years the site has been subject to several modifications, including the construction of bund walls that have changed the hydrology of the site – limiting the influence of the tidal waters on the site. Although the wetland has been modified, it supports a wide range of wetland values, including habitat for migratory and threatened birds.

2.1 Key Nature Conservation Values

Caley Valley Wetlands are a Matter of State Environmental Significance, providing habitat for large numbers of waterbirds, including threatened and migratory birds, with up to 48,000 waterbirds observed on site during high use times (BAAM 2012). The coastal grass-sedge wetlands is particularly important habitat for the endangered Australian painted snipe (*Rostratula australis*) with sightings at several locations (Figure 1). Such habitats occurs to the south and the west of the

settlement pond spillway, and therefore, the presence of this species within the wetland was a concern following the release of waters containing coal fines.

The adjoining saltmarsh within the estuarine wetland also provides habitat for threatened migratory shorebirds that seasonally access the area. For example, Figure 1 shows observations of critically endangered eastern curlew (*Numenius madagascariensis*) within the Caley Valley Wetlands.

The site assessment took into consideration the known habitat for threatened waterbirds so as to assess potential impacts on the wildlife habitat.

3 Surrounding Land Use

The landscape surrounding the wetland contains a mix of cleared grazing land and native forests. The wetland is located in a valley surrounded by Mount Roundback, Mount Luce and Mount Little, which are largely covered by remnant vegetation. There is a quarry located near Abbot Point supplying aggregate for construction, road sealing and rail purposes.

Cleared areas within the Salisbury Plain and Don River catchment are used for cattle grazing. Although grazing can be a compatible land use, erosion associated with some grazing practices contributes to downstream sedimentation.

4 Limitations

4.1 Access

Access to this large wetland system was limited and as a result sampling was confined to the edge of the wetland. The selection of sample sites was guided by potential locations of contamination, known locations of threatened wildlife and gaps in baseline information.

4.2 Information Gaps

Key information gaps that limit the interpretation of survey results are:

- *Baseline sediment quality conditions*. The lack of baseline sediment quality data has limited the scope of the analysis of impacts.
- *Seasonal variations in vegetation, especially during flood events.* Wetting and drying cycles, and associated changes in vegetation structure are not well documented. This is an important information gap that has reduced the ability to assess impacts of coal residue accumulation in the wetland.
- *Waterbird Habitat Usage*. There is a lack of information on waterbird use of the wetland over time.

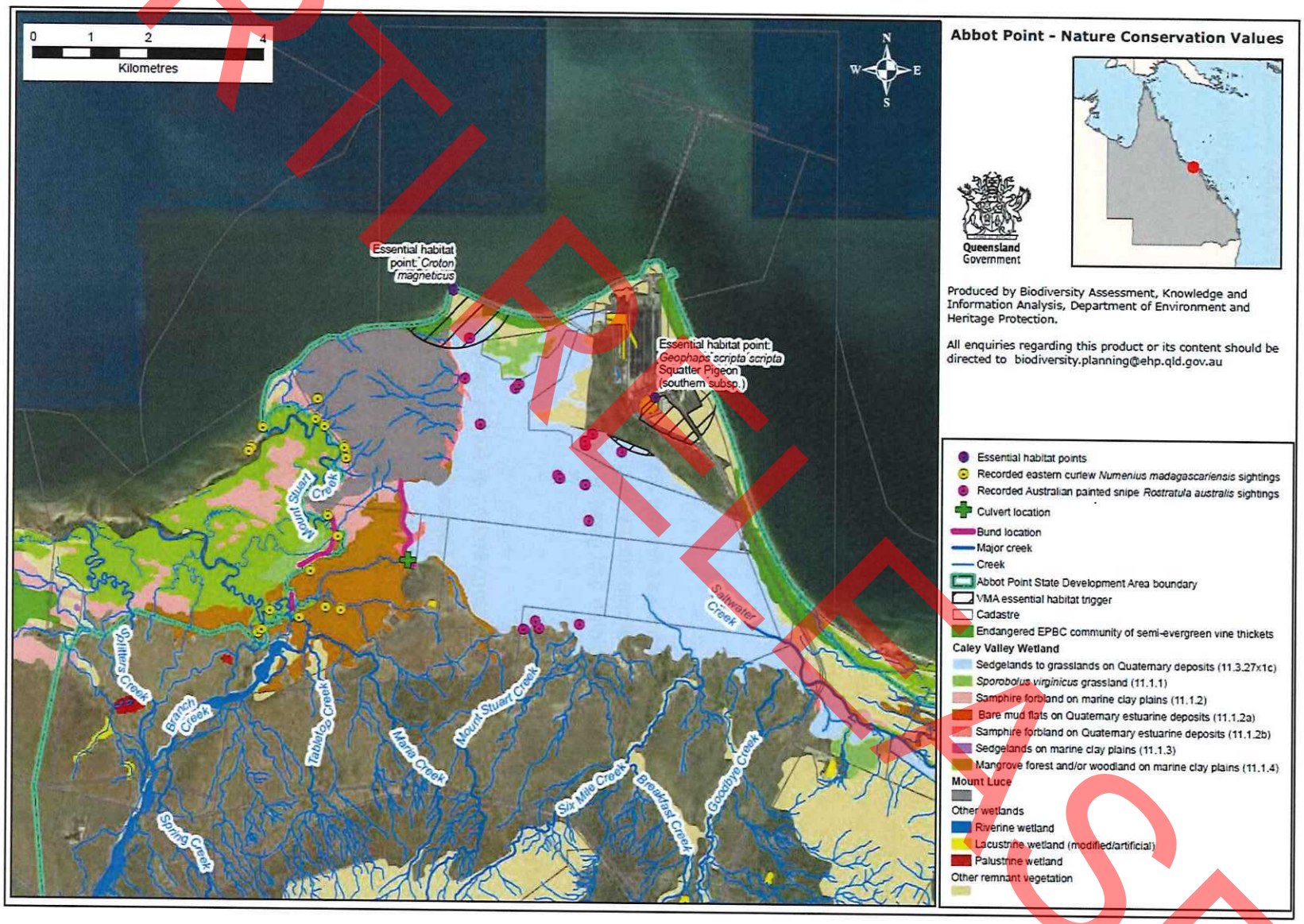

Figure 1: Abbot Point nature conservation values

5 Potential Sources of Contamination

Material, whether it is coal fines, sediment or other contaminants from the stockpile of coal, has the potential to mobilise directly into the wetland stormwater runoff. Coal residues from the Terminal's stockpile are channelled into stormwater treatment ponds – and may move into the wetland environment during high flow periods. Smothering of organisms including benthic communities is the main risk from coal particles released to water (GHD 2012; Berry et al. 2016; Berry et al. 2017). The leaching of contaminants from coal is a potential risk to aquatic ecosystems; however, recent studies have shown the risk associated with metals and/or polycyclic aromatic hydrocarbons (PAH) leaching from coal into seawater is low (Cabon et al. 2007; Jaffrennour et al. 2007; Lucas and Planner 2012; Berry et al. 2016; Berry et al. 2017). As such, the preliminary assessment focused on risk associated with the smothering of benthic communities.

Freshwater enters the wetlands via runoff from the Salisbury Plain and the slopes to the south and south east from Mount Roundback and Mount Little. Surface water from the Coal Terminal's stormwater treatment ponds most likely contributes a relatively small amount of water to the wetland. Previous studies (BMT WBM 2012) demonstrated that during high rainfall events, the wetland receives floodwater from the Don Catchment – a potential source of significant sediment loads.

6 Methods

6.1 Visual Assessment

Prior to the site inspection, satellite and aerial images and other spatial data were examined to guide the selection of sampling sites. This included mapping of threatened waterbirds known to occur in the wetland.

Sites were visited and photographs were taken at each site. Each site was visually assessed for coal fines and impacts on the local wetland environment. Images are presented in Attachment 2.

The field inspection incorporated the use of remotely piloted aircraft systems (or drones) equipped with cameras as platforms to assist in the collection of information on-site regarding the extent of the impact. The drones fill the gap between the satellites images and on ground monitoring and enabled the surveying to be more targeted. The drone provided real-time monitoring and was able to fly at lower altitudes providing detailed images of the wetland substrate. While on site, a drone was used to make observations of inaccessible locations including known waterbird habitat. The drone operator took extreme care not to disturb birds during the operation.

6.2 Sampling Sites

Between 27 and 28 April 2017, eight sites were sampled for water and sediments. Sampling locations were identified with the aid of satellite images. Areas that appeared to be dark were targeted for sampling (Figure 2). Threatened waterbird habitat was also a consideration in the identification of sample sites.

Seven sites were within the wetland (Figure 2 and Figure 3), and a water and sediment sample was collected from the secondary settlement pond at Abbot Point Terminal (Figure 3).

Figure 2: Copernicus Sentinel-2 satellite image (11 April 2017) of Caley Valley wetland and sediment sampling locations. The image is displayed as a true colour composite with bands 4, 3 and 2 assigned respectively to the red, green and blue colours. The satellite image was used to help identify sampling locations.

The sites sampled are shown in Figure 2 and Figure 3 and are listed below.

- CV-S2-0417. Secondary settlement pond on the Abbot Point terminal site, immediately upstream of spillway and authorised release point W1. Sample collected from edge of the settlement pond.
- CV-DS1-0417. Site immediately downstream of authorised release point W1.
- CV-ODS-0417. Site on the opposite end of the spill way to CV-DS1-0417.
- CV-BG-0417. Site on western arm of the freshwater wetland, not immediately downstream of the spillway runoff.
- CV-EB-0417. Site on northern end of eastern bund.
- CV-BO-0417. Site at outflow pipe on southern end of the eastern bund.
- CV-PS2-0417. Southern site near known painted snipe sightings.
- CV-SC-0417. Site in Saltwater Creek.

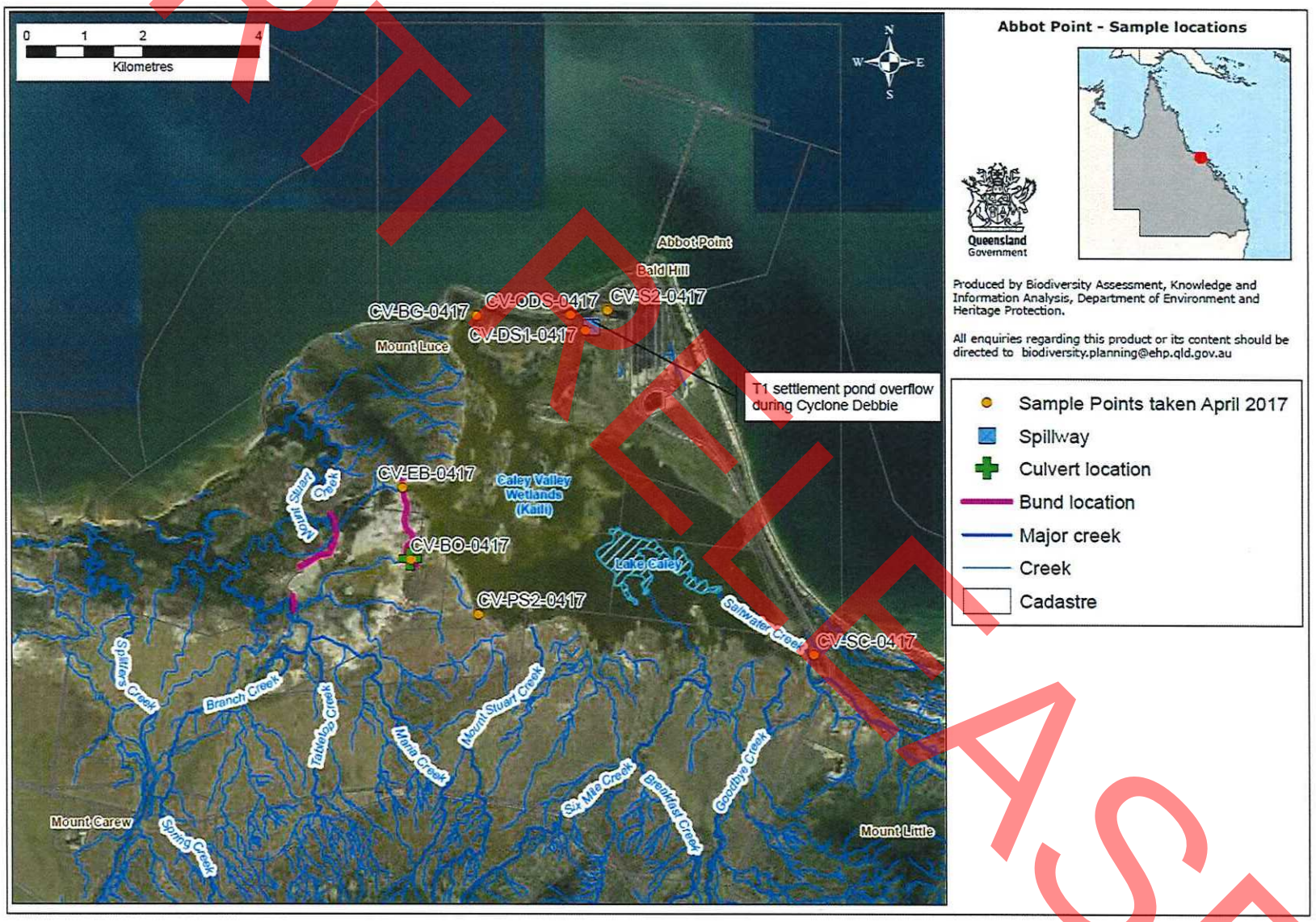

Figure 3: Sites sampled on 27 and 28 April 2017 in the Caley Valley Wetlands by DSITI and EHP staff.

6.3 Sediment Sampling

At each sampling location composite sediment samples were taken. This involved the collection of five replicate samples of approximately 10x10 cm in area and approximately 1 cm depth at each site and combining them together before taking a subsample for analysis. This is a standard field sample practice as sediments can be highly heterogeneous and compositing a number of samples into a single sample is a way of adjusting for variation found in sediment samples.

Samples were collected using a stainless steel trowel and were mixed in a stainless steel bowl. All equipment was thoroughly cleaned between sites. Disposable gloves were used when collecting samples, with a fresh pair used at each site. From each composite sample, duplicate samples were obtained by splitting the contents of the bowl into two jars. Samples were kept chilled on ice after collection.

Samples were sent to the University of Queensland Materials Performance (UQMP) laboratory for analysis of the percentage of coal in each sample. Analysis was undertaken using both Stereo microscopy and Scanning Electron Microscopy (SEM), combined with Energy Dispersive Spectroscopy (EDS) that was used to identify the elemental composition of particles. Laboratory reports are presented in Attachment 3, and a more detailed explanation of the methodology is also provided in Attachment 3.

It should be noted that this is a semi-quantitative method. As there is no recognised standard method to analyse coal in sediment, duplicate samples were sent to two different laboratories in order to assess the variation between different methods. This assessment is discussed in Attachments 4 and 5.

6.4 Water Sampling

As this survey was primarily a sediment quality survey, only total suspended solids (TSS) samples were analysed and *in situ* water quality data collected using a YSI 556 MPS multi-parameter meter. Elevated TSS results can be related to sediment inputs. Disposable gloves were used when collecting samples, with a fresh pair being used at each site to prevent contamination of samples. Samples were kept chilled on ice after collection. Samples were taken to Brisbane by DSITI staff and stored in a locked fridge.

Water samples taken for TSS analysis were sent to Australian Laboratory Services (ALS), a National Association of Testing Authorities (NATA) Australia accredited laboratory.

7 Results

7.1 Visual Assessment

Observations were recorded at each site using a camera and a video recorder (images of each site are presented in Attachment 2). Although there were indications of recent flooding, there was little evidence of coal fines across the whole of the wetland. This is consistent with the trace levels of coal measured at most sites sampled within the wetland.

Coal residues were only observed at a site downstream of the licensed discharge point (CV-DS1-0417). It is not unexpected that an accumulation of the coal fines would be present at this site. This may be associated with the authorised release of settlement pond water into the wetland, which was reported to have up to 80 mg/L of suspended solids, and below the TEL limit of 100 mg/L.

The impacts at this site included what appeared to be partial coverage of the wetland substrate with coal fines and coal residue, and partially discolouring of the lower stems of the marine couch (*Sporobolus virginicus*). This is consistent with the sediment analysis at this site.

Although there was evidence of discolouration and what appeared to be coal residues, there did not appear to be any impediment to growth of wetland plants such as mangrove clubrush (*Schoenoplectus litoralis*), which is responding (i.e. emerging as new growth) to the recent flooding (Figure 4).

Figure 4: Mangrove clubrush (*Schoenoplectus litoralis*) is the bright green emerging reed in this photo at site CV-DS1-0417.

7.2 Coal in Sediment Results

The estimates of coal in the sediment showed that the highest percentage of coal (approximately 10%) was found immediately downstream of the licensed discharge point (Table 1). Approximately 2% coal (Table 1) was found in the sediment of the secondary settlement pond (CV-S2-0417) and

downstream of the spillway (CV-ODS-0417) at the opposite side of the wetland to CV-DS1-0417 (Figure 3). Trace amounts (<1%) of coal were detected at all other sites (Table 1). These results were consistent with observations made in the wetland, and indicate that widespread smothering of the wetland by coal fines did not occur.

Table 1: Estimate of percentage of coal in sediment (projected area % basis). Green shaded cell indicates secondary on-site settlement pond, orange shaded cells indicate sites immediately downstream of spill way, blue shaded cells indicate general wetland sites

Site	Estimate of percentage of coal in sediment
CV-S2-0417	2%
CV-DS1-0417	10%
CV-ODS-0417	2%
CV-BG-0417	trace
CV-EB-0417	trace
CV-BO-0417	trace
CV-PS2-0417	trace
CV-SC-0417	trace

7.3 Water Quality Results

In situ water quality data and TSS results were compared to the Queensland Water Quality Guidelines (QWQG) (EHP 2009) for upper estuarine waters in the Central Coast Region (Table 2) where applicable.

pH exceeded the QWQG at four of the seven sites (Table 2). Elevated pH levels have been reported in the wetlands previously, with pH exceeding the upper guideline value of pH 8.4 throughout the wetlands depending on the time of the year and site (GHD 2013, BMT WBM 2015), with a maximum of pH 9.5 measured historically in the wetland to the east of the eastern bund (BMT WBM 2015).

The dissolved oxygen (DO) concentration (measured as % saturation) exceeded the guidelines at all sites (Table 2). Historically, dissolved oxygen concentrations have been highly variable in the wetland (GHD 2013 and BMT WBM 2015), with concentrations of up to 325% saturation being measured in the wetland to the east of the eastern bund (BMT WBM 2015). Large mats of benthic algae and algae covering vegetation was noted at many sites, which would contribute to the high concentrations of oxygen in the waters.

TSS exceeded the QWQG at only two sites, CV-DS1-0417 on 27 April 2017 and CV-PS2-0417 on 28 April 2017 (Table 2). A second sample collected at CV-DS1-0417 on the 28 April 2017 was below the QWQG, illustrating the variability in water quality over time (Table 2). Historically, TSS measurements that exceeded the QWQG have been found throughout the wetland, but in general were less than 60 mg/L (GHD 2013).

Although pH, DO and TSS measurements exceeded the QWQGs at a number of sites, overall, the water quality measurements obtained between 27 and 28 April 2017 were within historical limits, and did not indicate anything unusual occurring in terms of physico-chemical parameters at the time of sampling.

Table 2: Total suspended solid and *in situ* results from sampling compared to Queensland Water Quality Guidelines (EHP 2009)

Site	Date and time	Temperature (°C)	pH range	Dissolved oxygen (% saturation range)	Electrical conductivity (mS/cm)	Total Suspended Solids (mg/L)
QWQG Upper Estuarine Central Coast Region			7.0-8.4	70-100	N/A	25
CV-DS1-0417	27/04/2017 9:10	29.60	7.52	101.7	6.821	44
	28/04/2017 12:15					14
CV-BG-0417	27/04/2017 11:40	29.09	8.77	112.0	4.987	<5
CV-ODS-0417	27/04/2017 12:50	28.90	7.92	103.7	5.75	12
CV-SC-0417	27/04/2017 15:00	29.71	8.28	101.8	0.962	25
CV-BO-0417	28/04/2017 8:15	23.80	8.92	113.2	4.621	6
CV-EB-0417	28/04/2017 9:30	23.87	9.55	136.3	5.024	7
CV-PS2-0417	28/04/2017 10:15	24.22	8.44	135.2	4.311	36

8 Conclusion

Based on the available results, coal fines do not appear to have caused widespread impacts in the wetland. There was evidence of coal fines on the surface of the muddy substrate and base of the vegetation in a relatively small area in the vicinity of the licensed discharge point. It is likely that the impacts from the stormwater discharge were mitigated by the large amount of water flowing through the wetland. Nonetheless, further assessment is warranted to more accurately delineate the area potentially impacted downstream of the licensed discharge point, and to monitor the response of the wetland to the authorised discharge.

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Attachment 1 – Temporary Emissions Licence

Notice

Environmental Protection Act 1994

Notice of decision - Temporary emissions licence

This statutory notice is issued by the administering authority pursuant to section 357J of the Environmental Protection Act 1994, *to advise you of a decision or action*

Abbot Point Bulkcoal Pty Ltd
Level 25, 10 Eagle Street,
Brisbane QLD 4000

Attention: Lorna Lockhart
Email: Lorna.Lockhart@APT1.com.au

Your reference: EPPR00577113
Our reference: 223431 / ENEL07198317

Amendment by agreement of a temporary emissions licence for the Abbot Point Bulk Coal Terminal (T1)

The administering authority has amended the temporary emissions licence (TEL) with your agreement.

This TEL commences on 27 March 2017 and ends on 30 March 2017 inclusive.

This TEL overrides the following conditions of environmental authority EPPR00577113:

- **Condition F1:** *A discharge to water/s may only occur from discharge location W1 and W2 if it meets the quality criteria in* ***Table 2 – Contaminant release limits to water.***
- **Condition F2:** *Contaminants other than settled/treated stormwater runoff waters must not be released from the site to surface waters or the bed or bank of surface waters unless otherwise authorised by this approval.*

All conditions of environmental authority EPPR00577113 (EA) continue to apply for the duration of this TEL, with the exception of conditions F1 and F2 and associated Table 2, which are temporarily replaced by:

- **Condition TEL1:** A discharge to water/s may occur from discharge locations W1 and W2 if it meets the water quality criteria in **Table TEL1 - Contaminant release limits to water**.

Table TEL1 – Contaminant release limits to water

Monitoring location	Quality characteristic	Min	Max	Monitoring frequency
W1 (E611876.19, N7800108.34), W2 (E612781.48, N7801060.72)	Suspended solids	-	100mg/L	As soon as practicable and safe during the release
	pH	6	9	
	Electrical conductivity	-	7000µS/cm	

- **Condition TEL2:** Contaminants are permitted to be released from W1 and W2 to surface waters or the bed or bank of surface waters between 8:00pm 27 March 2017 to midnight 30 March 2017.

Abbot Point Bulk Coal Licence Discharge Locations

W1	Discharge Point from the Secondary Settlement Pond
W2	Sample Plant Water Drain
W3	Land adjacent to the Surge Bin sediment sump
W4	Land adjacent to the Main Sub Station sediment sump
W6	Outflow from the oil/water separator from motor vehicle workshop
W7	Outflow from the final holding tank of the sewage treatment plant

Figure 1: Contaminant Release Point – W1 and W2 for this TEL.

Definitions

The following definitions apply to conditions of this TEL:

- **EA** means environmental authority EPPR00577113.
- **TEL holder** means the holder of environmental authority EPPR00577113.

Grounds for the Decision

The administering authority has made this decision in accordance with section 357J of the *Environmental Protection Act 1994*.

Should you have any queries in relation to this notice, please contact Sophie Connors on telephone (07) 4987 9344.

K/Bennink
Signature

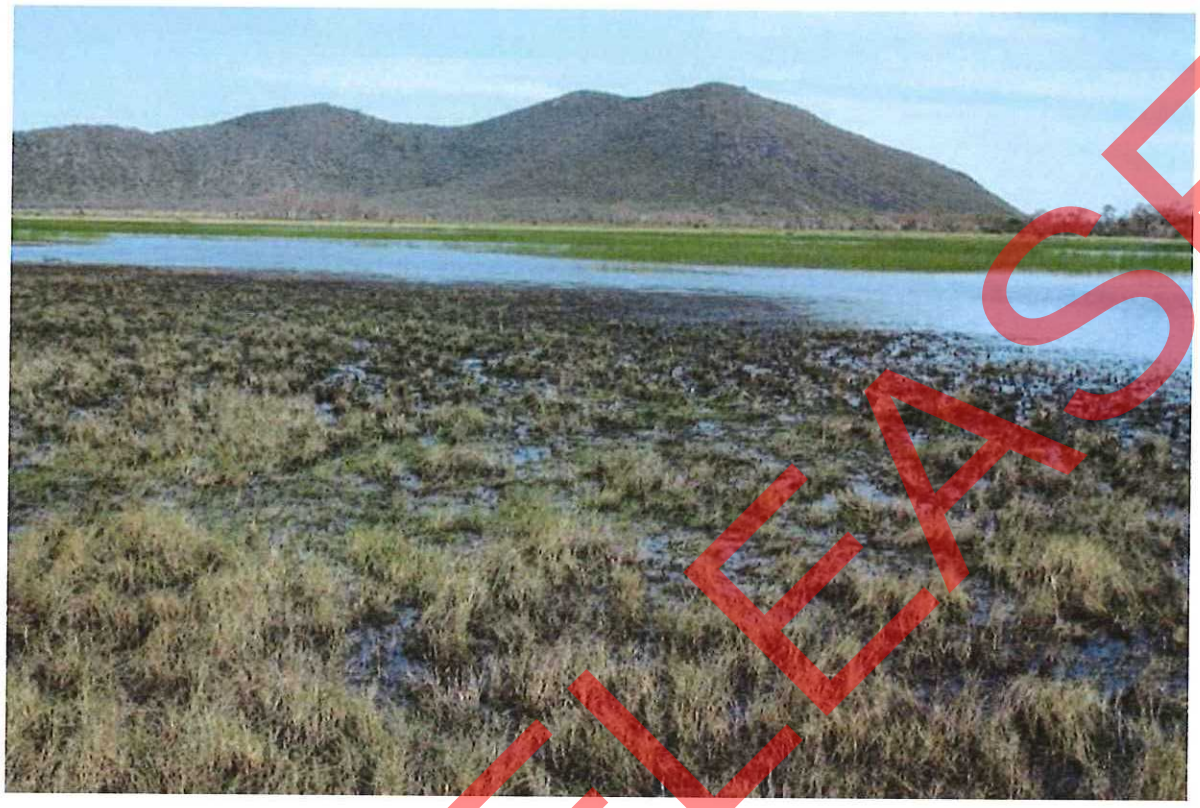
28/3/17.
Date

Kate Bennink
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Business Centre (Coal)
Department of Environment and Heritage Protection
PO Box 3028
EMERALD QLD 4720
Phone: (07) 4987 9320
Email: CRMining@ehp.qld.gov.au

Attachment 2 – Images of Caley Valley Wetlands, 27-28 April, 2017

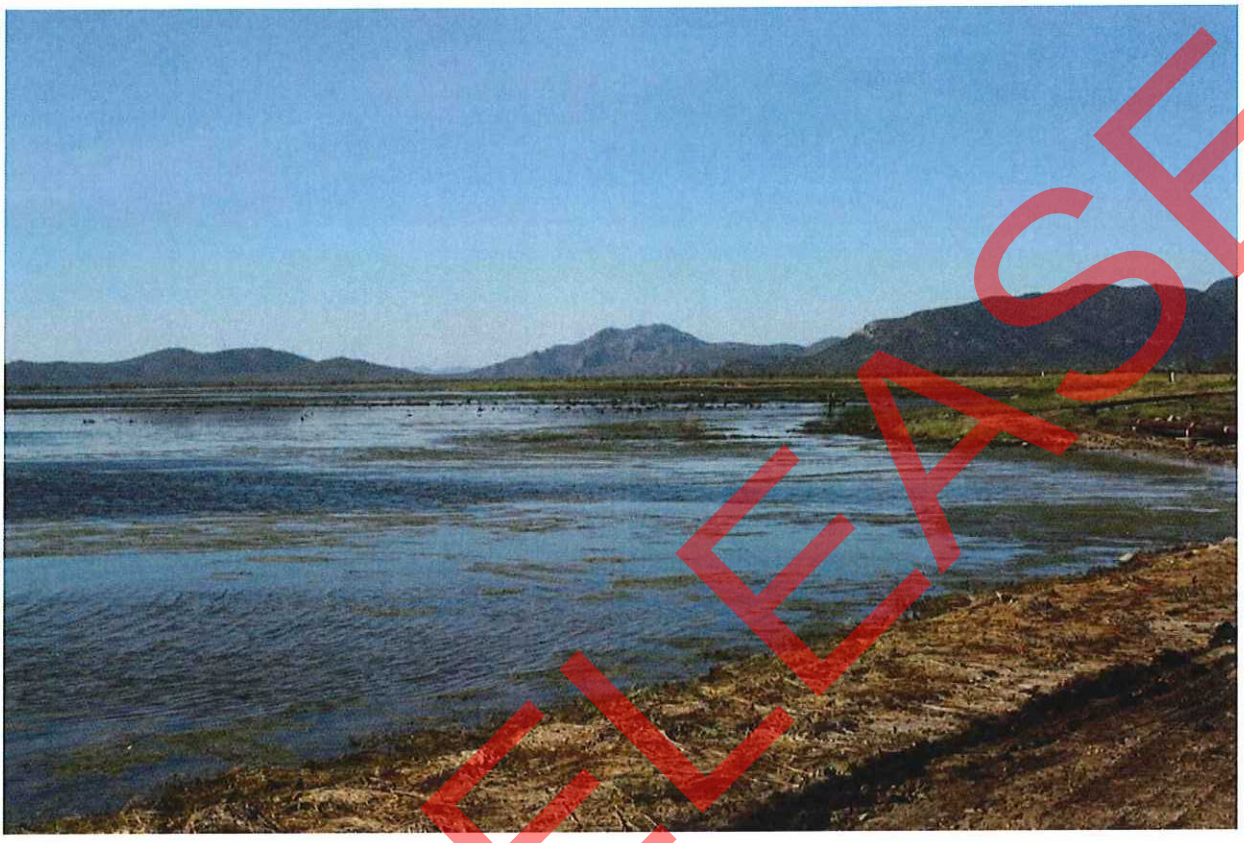
CV-DS1-0417



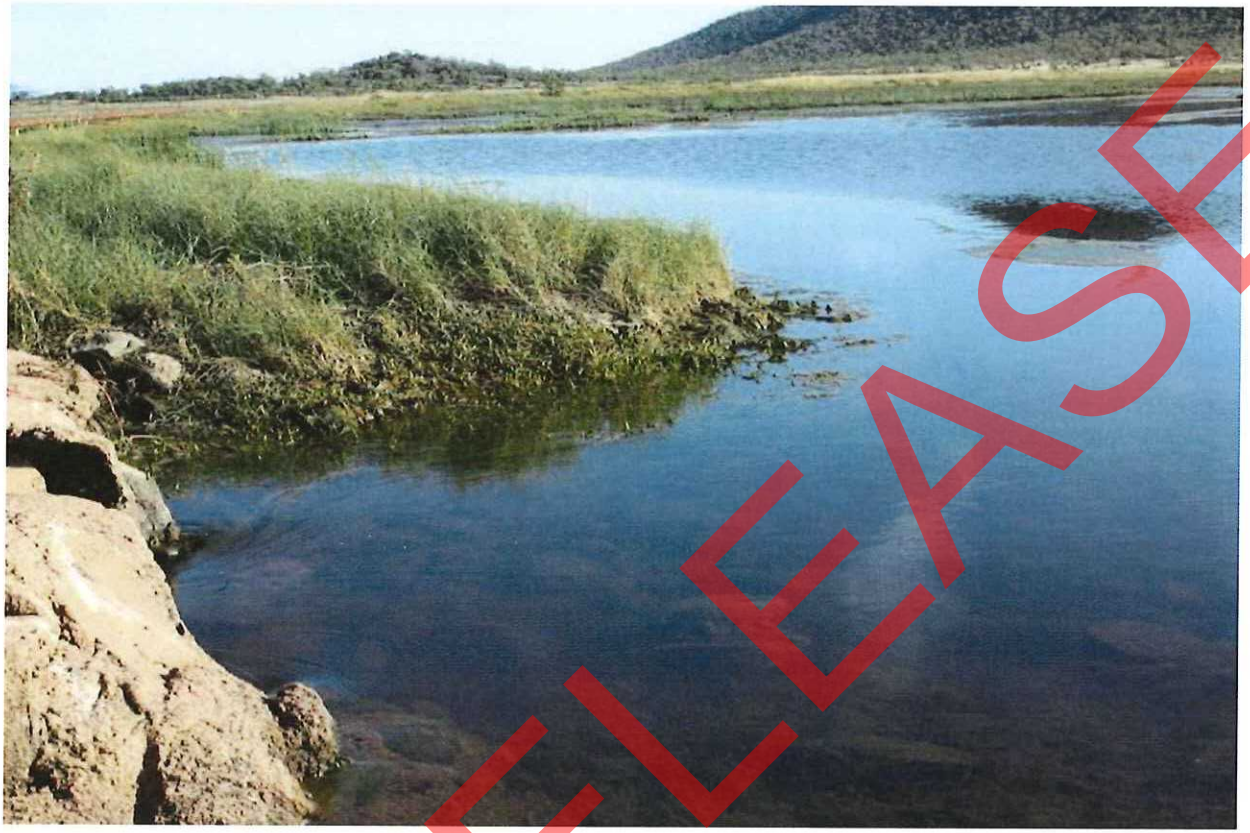
CV-ODS-0417

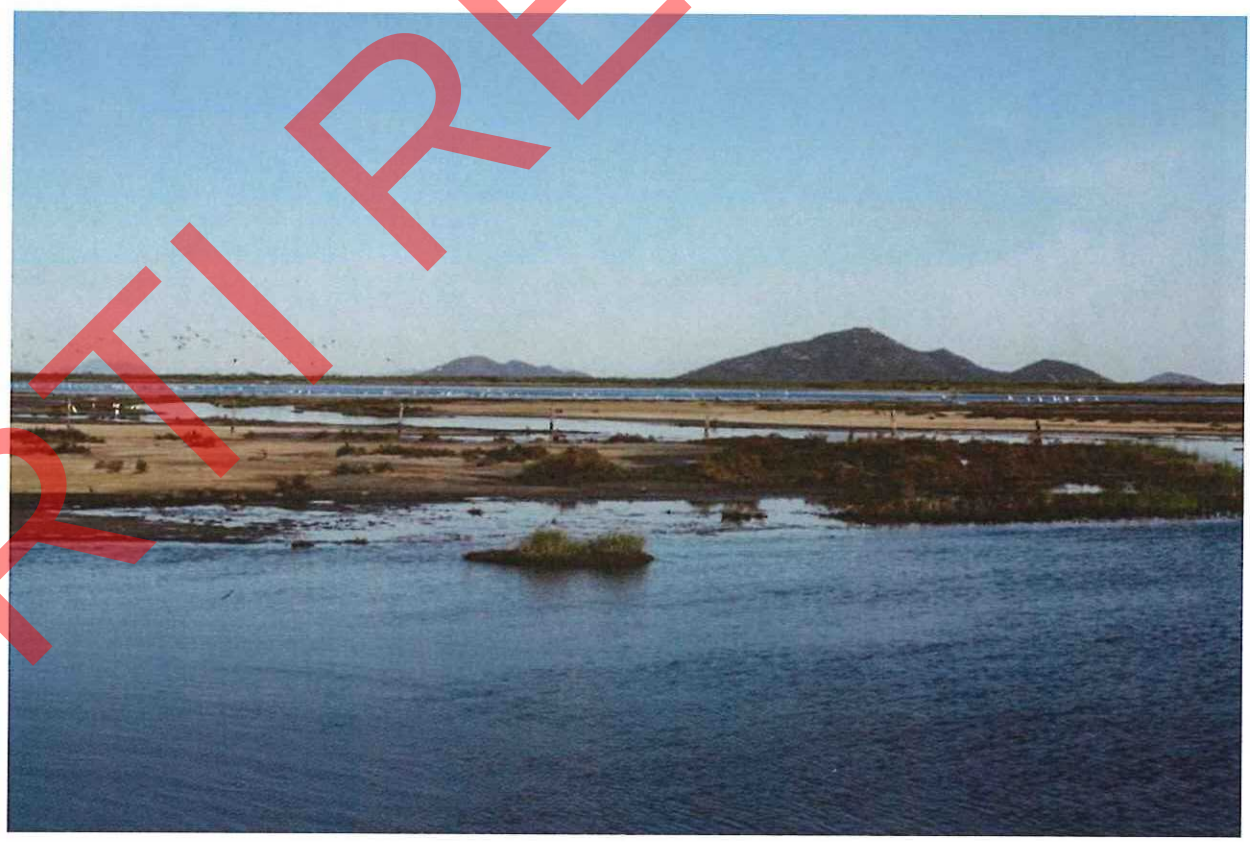
CV-BG-0417

CV-EB-0417



CV-BO-0417





CV-PS2-0417

CV-SC-0417

Attachment 3 - Laboratory Report – Examination of Sludge deposits by Stereomicroscopy and Scanning Electron Microscopy (UQMP)

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LABORATORY REPORT

Subject: **EXAMINATION OF SLUDGE DEPOSITS BY BY STEREOMICROSCOPY AND SCANNING ELECTRON MICROSCOPY**

UQMP Project No. C03136.04

Prepared for: DSITI

Prepared By: Fiona Jones

Date: 18th May 2017

Sample Description:

	Client Sample Identification#	UQMP #
1	CV-DSI-0417	UQMP # 14907
2	CV-BG-0417	UQMP # 14908
3	CV-ODS-0417	UQMP # 14909
4	CV-S2-0417	UQMP # 14910
5	CV-SC-0417	UQMP # 14911
6	CV-BO-0417	UQMP # 14912
7	CV-EB-0417	UQMP # 14913
8	CV-PS2-0417	UQMP # 14914

#Method Ref: Internal UQMP method.

1. SAMPLES AND METHODS

1.1 Samples Preparation

The samples were supplied as sediments in glass jars, consisting of solids and slurries in a range of volumes from approximately 120 mL to 200 mL in each jar. The contents of the jars were emptied into a large beaker, large stringy plant debris was removed before mixing, demineralised water was added to allow the solids to de-clump and mix to a smooth homogenous slurry.

Three sub samples were created from each slurry for further examination, this was essential due to fine clay particles present: A plastic pasture pipette was used to draw in the slurry on occasion extraneous vegetation would prevent the slurry from flowing into the pipette this was removed and returned to the sample.

Sub sample 1. A few drops of the slurry were placed directly onto a cellulose filter. The final sub-sample defined as Sludge Overall or Sludge OA.

Sub sample 2. Consists of a few drops of the slurry filtered through a 500-micron filter onto a cellulose membrane under vacuum, the suspended fines pipetted off and retained. This sub-sample is defined as Intermediate.

Sub sample 3. This sample contains a few drops of the fines removed from Sub sample 2 and placed onto a cellulose membrane.

All aliquots of the samples were collected whilst mixing to ensure homogeneity was maintained. The sub-sample created in this process was defined as fines.

The particles retained on the 500-micron filter were not examined, however are retained for future reference if required.

1.2 Stereo Microscope Examination

The samples were initially examined by stereomicroscopy, using a Nikon SMZ25 stereo microscope at magnifications up to 100×.

2. SCANNING ELECTRON MICROSCOPY

A portion of each sample filter was excised and placed onto a conductive carbon tape for SEM examination. The samples were examined and analysed using a JEOL 6460LA scanning electron microscope (SEM). The SEM was operated at 20 kV in back-scattered electron composition contrast (BSE) imaging modes. In BSE images the contrast is influenced by the chemical composition (specifically the average atomic number, Z) of the material being imaged. Dark regions represent low average atomic number (light elements) and bright regions represent high average Z (heavy elements).

Regions of interest were chemically analysed by energy dispersive X-ray spectroscopy (EDS). EDS can be used to identify the chemical elements present and in some cases to provide approximate stoichiometric ratios. However, EDS is only semi-quantitative, especially when analysing small particles, for the following reasons:

- The significant size of the analysis volume (typically around 3 μm) and hence the difficulty of eliminating interference from surroundings;
- Contamination by carbon on the specimen surface and within the SEM vacuum chamber;
- The inherent sensitivity limits of the instrumentation.

3. RESULTS

Deposit presented as coarse grains to very fine grains and mixtures of both, typically rounded weathered particles. Most particles were very small clay particles < 2 µm. Coal was detected in all samples examined with most of the samples displaying trace levels. Trace level is defined as < 1 % or less than 1 particle in 100. One sample presented with 10% coal, CV-DSI-0417, UQMP # 14907 whilst two samples CV-ODS-0417, UQMP # 14909 and CV-S2-0417, UQMP # 14910 contained 2 % coal. The major particle type in all deposit was aluminosilicate based mineral dust. Marine biological debris was noted in traces amounts within the samples mostly as algae, occassionaly diatoms, as the primary focus was to determine the presence or absence of coal particles, little attention was payed to identification and analysis.

All sub samples were examined including the Sludge Overall, Intermediate and Fines. Some of the data for CV-DSI-0417, UQMP #14907 is included in the Appendix C and demonstrates the typical particle types observed in the deposits examined The data for the remaining samples is available on request, a summary table of the combined microscopy is presented in this document.

Appendix A attached presents the table of results of the combined microscopy observations.

Appendix B presents colour picture micrographs of the stereomicroscopy images.

Appendix C displays the Illustrative SEM photomicrographs and spectra taken of an overall area of the deposit. The SEM photomicrographs were taken with Back Scattered Electron (BSE) imaging, in which average atomic number is roughly proportional to brightness. For example, coal particles appear darker than siliceous mineral dust and biological particles somewhat darker again.

Spectral data generated was placed in tables, with weight % converted to Major, Minor and Trace.
Reported as follows:

- Major >5 Weight %
- Minor 5 to 1 Weight %
- Trace < 1 %

A colour range was used as a visual guide in the three sectors Major, Minor and Trace, with colours appearing more intense as the weight percentage increases.
SEM/EDS weight % are not reported directly due to the semi-quantitative nature of the technique.

Signed for and on behalf of UQ Materials Performance

Fiona Jones

Fiona Jones

4. APPENDIX A

4.1 TABLE OF COMBINED MICROSCOPY RESULTS

PARTICLE IDENTITY		PERCENTAGE (Projected area basis)		
	SAMPLE #	UQMP # 14907	UQMP # 14908	UQMP # 14919
	SAMPLE ID / PARTICLE TYPE	*CV-DSI-0417*	*CV-BG-0417*	*CV-ODS-0417*
BLACK	COAL	10	tr	2
	SOOT			
	BLACK RUBBER DUST			
INORGANICS & MINERALS	MINERAL DUST (Soil or Rock Dust.)	**90**	**100**	**98**
	MINERAL DUST (type = Fly Ash)			
	MINERAL DUST (type = Cement Dust)			
	MINERAL DUST (type =glassy)			
	GLASS FRAGMENTS			
	COPPER SLUDGE			
	P/S SLIME & FUNGI			
	INSECT DEBRIS			
	PLANT DEBRIS			
	PLANT DEBRIS (type = plant char)			
	PLANT DEBRIS (type =)			
GENERAL ORGANIC TYPES	WOOD DUST			
	FIBRES (type = Miscellaneous)			
	STARCH			
	PAINT			
	PLASTIC FRAGMENTS			
	RED RUBBER DUST			
COMMENTS		§ The focus of the analysis was to determine the presence or absence of coal; marine biological material was not examined or classified. Large particles of plant debris were removed, as they generally obstruct the view of numerous particles. Coal was observed in all samples and when reported as trace particles were observed at < 1%.		

4.2 TABLE OF COMBINED MICROSCOPY RESULTS

PARTICLE IDENTITY		PERCENTAGE (Projected area basis)		
	SAMPLE #	UQMP # 14910	UQMP # 14911	UQMP # 14912
	SAMPLE ID / PARTICLE TYPE	*CV-S2-0417*	*CV-SC-0417*	*CV-BO-0417*
BLACK	COAL	2	tr	tr
	SOOT			
	BLACK RUBBER DUST			
INORGANICS & MINERALS	MINERAL DUST (Soil or Rock Dust.)	**98**	**100**	**100**
	MINERAL DUST (type = Fly Ash)			
	MINERAL DUST (type = Cement Dust)			
	MINERAL DUST (type =glassy)			
	GLASS FRAGMENTS			
	COPPER SLUDGE			
	P/S SLIME & FUNGI			
	INSECT DEBRIS			
	PLANT DEBRIS (General)			
	PLANT DEBRIS (type = plant char)			
	PLANT DEBRIS (type =)			
GENERAL ORGANIC TYPES	WOOD DUST			
	FIBRES (type = Miscellaneous)			
	STARCH			
	PAINT			
	PLASTIC FRAGMENTS			
	RED RUBBER DUST			
COMMENTS		§ The focus of the analysis was to determine the presence or absence of coal; marine biological material was not examined or classified. Large particles of plant debris were removed, as they generally obstruct the view of numerous particles. Coal was observed in all samples and when reported as trace particles were observed at < 1%.		

4.3 TABLE OF COMBINED MICROSCOPY RESULTS

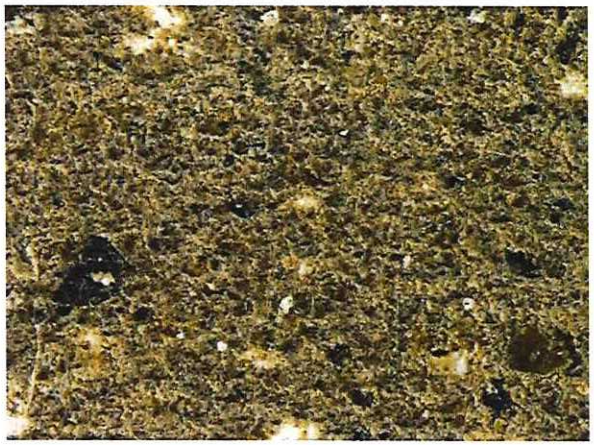
PARTICLE IDENTITY		PERCENTAGE (Projected area basis)		
	SAMPLE #	UQMP # 14913	UQMP # 14814	
	SAMPLE ID / PARTICLE TYPE	*CV-EB-0417*	*CV-PS2-0417*	
BLACK	COAL	tr	tr	tr
	SOOT			
	BLACK RUBBER DUST			
INORGANICS & MINERALS	MINERAL DUST (Soil or Rock Dust.)	**100**	**100**	**100**
	MINERAL DUST (type = Fly Ash)			
	MINERAL DUST (type = Cement Dust)			
	MINERAL DUST (type =glassy)			
	GLASS FRAGMENTS			
	COPPER SLUDGE			
	P/S SLIME & FUNGI			
	INSECT DEBRIS			
	PLANT DEBRIS (General)			
	PLANT DEBRIS (type = plant char)			
	PLANT DEBRIS (type =)			
GENERAL ORGANIC TYPES	WOOD DUST			
	FIBRES (type = Miscellaneous)			
	STARCH			
	PAINT			
	PLASTIC FRAGMENTS			
	RED RUBBER DUST			
COMMENTS		§ The focus of the analysis was to determine the presence or absence of coal; marine biological material was not examined or classified. Large particles of plant debris were removed, as they generally obstruct the view of numerous particles. Coal was observed in all samples and when reported as trace particles were observed at < 1%.		

4.4 PARTICLE IDENTITY LEGEND

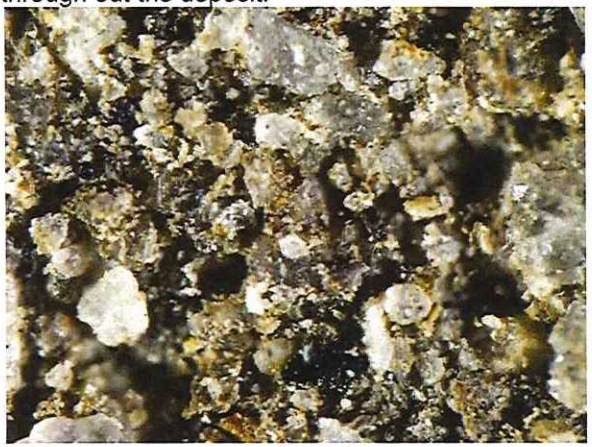
Insect parts/debris	Includes arachnids. Present as crushed body fragments, trichomes, wing scales, etc.
P/s slime	Polysaccharide slime. This extra-cellular bio-polymeric material may have different sources which might include microbiological growth, vertebrate excreta, decomposing biological matter, etc. Sometimes seen in these samples as a stringy gel binding other particles together. Sometimes fungal hyphae associated with the gel.
Copper sludge	Some well developed turquoise crystal growths can be found, but usually as subhedral to euhedral grains. Sometimes as blue highlights on a greenish cakey material. This is probably copper salts precipitated from the copper sulfate algaecide solution as the hydroxide, with or without sulfate and or phosphorous inclusion.
Mineral matter	Usually equant siliceous appearance and typically colourless to brown, transparent to translucent, euhedral, rounded grains. The clays very fine particles. Other constituents of siliceous appearance, sand etc.
Plant Debris/ char	Usually as trichomes, fragmented tissue, reproductive products and structures. Sometimes charred particles from incinerator, grass or bush fires.
Fly ash particles	Appears as spheroidal particles - colourless, milky or black
Coal dust	Black, equant, sharp angled grains. Some glossy; some edges dark brown translucent.
Soot	Black glossy spherical to botryoidal aggregates, typically hollow or lacey. Usual source is incompletely burnt organic liquids, eg. fuel oils.

5. APPENDIX B
5.1 STEREOMICROSCOPY PICTURE MICROGRAPHS

StMPM1. ,CV-DSI-0417, UQMP # 14907. Very small dark brown to gold coloured particles with a number of black angular particlates, typical of coal noted and dispersed through out the deposit.



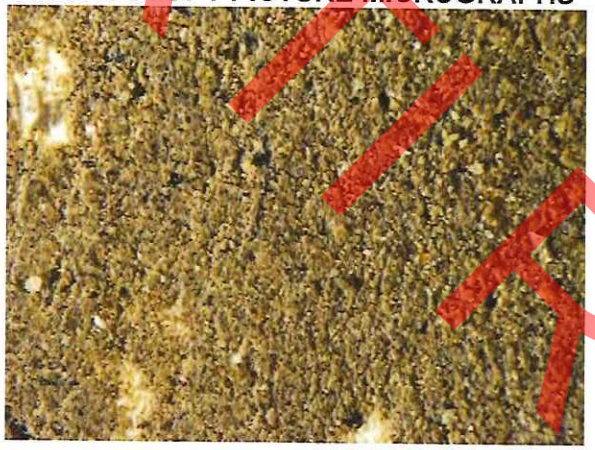
StMPM2. CV-BG-0417, UQMP # 14908. Predominantly a brown deposit with a small number of dark particle present.



StMPM3. CV-ODS-0417, UQMP # 14909. Coarse grained particles with a range of colours from white to brown with a few black angular particles in the field of view.

StMPM4. CV-S2-0417, UQMP # 14910. A few coarse particles with very fine particles dispersed throughout the deposit predominantly light brown with some gold coloured and translucent particles.

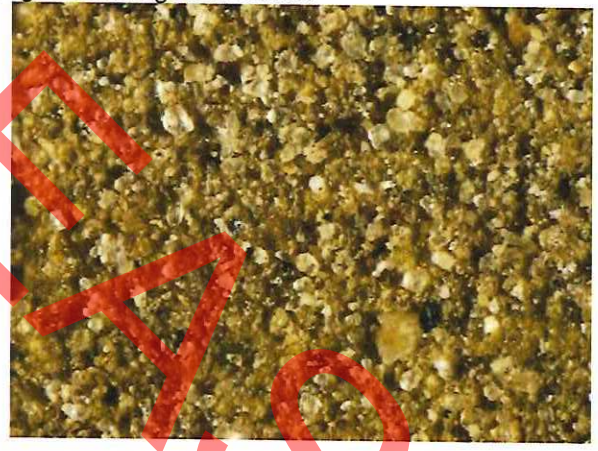
5.2 STEREOMICROSCOPY PICTURE MICROGRAPHS



StMPM5. CV-SC-0417, UQMP # 14911. Very fine grained particles predominantly light brown to gold in colour.

StMPM6. CV-BO-0417, UQMP # 14912. Medium grained particles predominantly ligt brown to gold in colour.

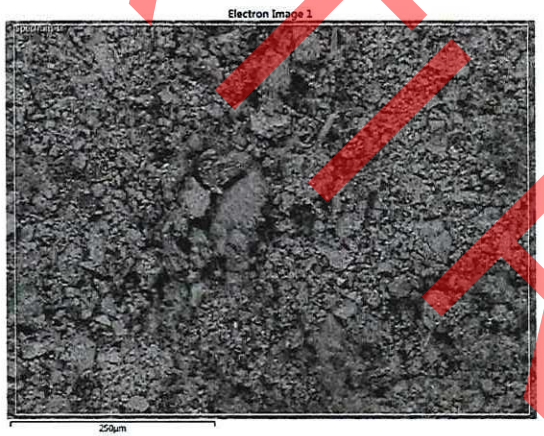
StMPM7. CV-EB-0417, UQMP # 14913. Coarse grained particles with particles mostly light brown to gold with a few translucent particles scattered throughout.



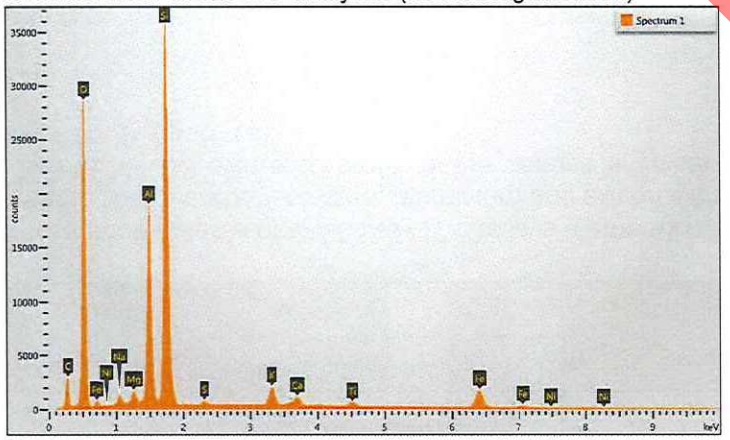
StMPM8. CV-PS2-0417, UQMP # 14914. Coarse grained particles mostly light brown to gold with a few translucent particles throughout the deposit.

APPENDIX C. SEM/BSE IMAGE AND SEM/EDS ANALYSIS AND ELEMENTAL SUMMARY OF SLUDGE OVERALL CV-DSI-0417

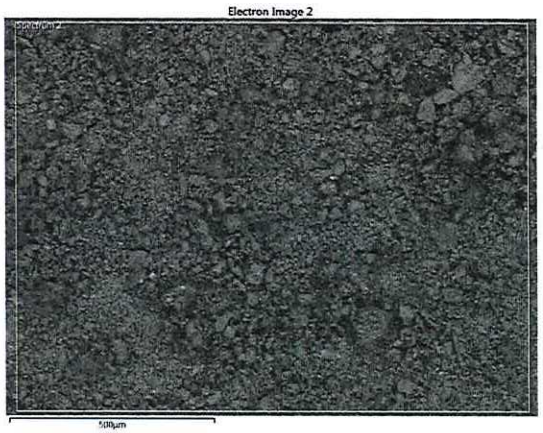
5.3 AN SEM/BSE IMAGE AND SEM/EDS SPECTRUM OF AN OVERALL AREA OF THE DEPOSIT



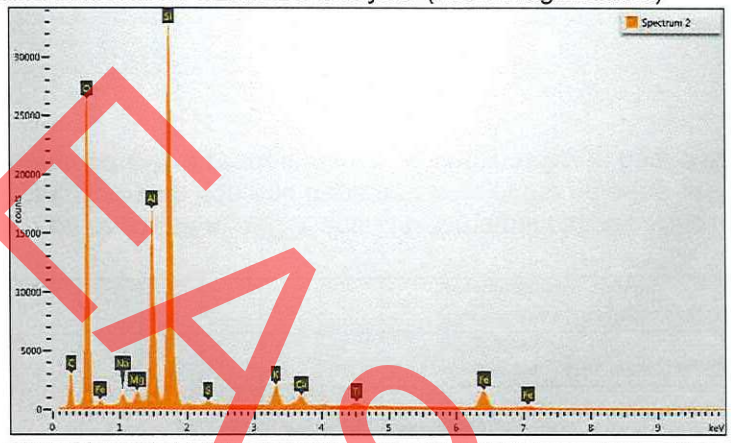
PM1. CV-DSI-0417, UQMP # 14907. An SEM/BSE image of a characteristic overall area selected for SEM/EDS analysis. (200 x Magnification)



EDS1. CV-DSI-0417, UQMP # 14907. The SEM/EDS spectrum of the overall area displays major peaks of carbon, oxygen, aluminium and silicon with minor amounts of potassium and iron and trace amounts of the balance of the elements. This elemental profile is consistent with observations a deposit consisting predominantly of mineral dust.



PM2. CV-DSI-0417, UQMP # 14907. An SEM/BSE image of a characteristic overall area selected for SEM/EDS analysis. (100 x Magnification)



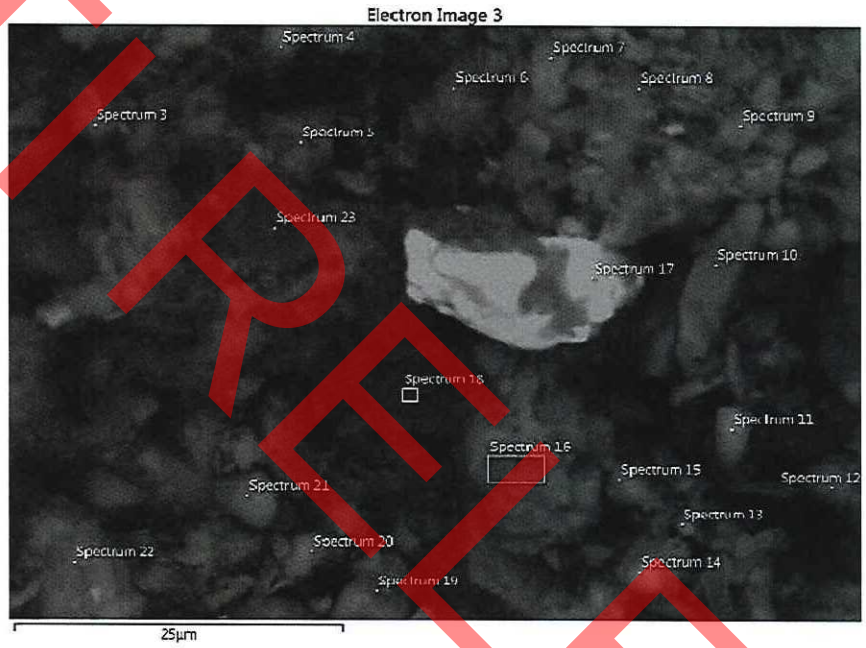
EDS1. CV-DSI-0417, UQMP # 14907. The SEM/EDS spectrum of the overall area displays major peaks of carbon, oxygen, aluminium and silicon with minor amounts of potassium and iron and trace amounts of the balance of the elements. This elemental profile is consistent with observations a deposit consisting predominantly of mineral dust.

Table 1. CV-DSI-0417, UQMP # 14907. An Elemental Summary of Overall Areas (Sludge Overall) analysed by SEM/EDS.

Spectrum Label	C	N	O	Na	Mg	Al	Si	P	S	Cl	K	Ca	Ti	V	Mn	Fe	Ni	Cu	Ag	La	Ce	Pr	Nd	Sm	Description/Nominated Particle
1	Major		Major	Trace	Trace	Major	Major		Trace		Minor	Trace	Trace			Minor	Trace								Overall area of the deposit at 100 x magnification
2	Major		Major	Trace	Trace	Major	Major		Trace		Minor	Trace	Trace			Minor									Overall area of the deposit at 200 x magnification

The elemental summary table of CV-DS-0417 displays elements detected for an overall area captured at 100 X and 200 X magnification. Major elements detected were carbon, oxygen, aluminium and silicon with minor amounts of potassium and iron and trace amounts of the balance of the elements. The SEM/EDS elemental profile of this deposit is typical of all the deposits examined with a predominance of aluminosilicate based mineral dust, typically from soil and rock.

5.1 AN SEM/BSE IMAGE OF PARTICLES SELECTED FOR SEM/EDS ANALYSIS



PM3. CV-DSI-0417, UQMP # 14907. An SEM/BSE image of a particles selected for SEM/EDS analysis.

Table 2. AN SEM/EDS ELEMENTAL SUMMARY PARTICULATES SELECTED ABOVE FOR ANALYSIS.

Spectrum Label	C	N	O	Na	Mg	Al	Si	P	S	Cl	K	Ca	Ti	V	Mn	Fe	Ni	Cu	Ag	La	Ce	Pr	Nd	Sm	Description/Nominated Particle
3	Major		Major	Trace	Trace	Major	Major	Trace	Trace		Trace	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
4	Major		Major	Minor	Trace	Major	Major				Minor	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
5	Major		Major	Trace	Trace	Major	Major	Trace	Trace		Minor	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
6	Major		Major	Trace	Trace	Major	Major				Trace	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
7	Major		Major	Minor	Trace	Major	Major	Trace	Trace		Trace	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
8	Major		Major	Minor	Trace	Major	Major				Minor	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
9	Major		Major	Minor	Trace	Major	Major				Trace	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
10	Major		Major	Minor	Trace	Major	Major				Trace	Minor	Trace			Minor									Mineral dust, Aluminosilicate - clay
11	Major		Major	Trace	Trace	Major	Major				Major					Minor									Mineral Dust, Potassium Aluminosilicate - clay
12	Major		Major	Trace	Trace	Major	Major				Minor	Trace	Trace			Major									Mineral dust, Aluminosilicate - clay
13	Major		Major	Trace	Trace	Major	Major				Minor	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
14	Major		Major	Trace	Major	Major	Major				Trace	Minor				Minor									Mineral Dust - Calcium, Magnesium, Aluminosilicate - clay
15	Major		Major	Trace	Minor	Major	Major		Trace		Trace	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
16	Major		Major	Minor	Trace	Major	Major				Trace	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
17	Major		Major	Minor	Trace	Major	Major	Trace			Trace	Trace				Minor			Trace	Major	Major	Minor	Major	Minor	Mineral Dust, Lanthanide - Aluminosiilcate
18	Major		Major	Trace	Trace	Major	Major		Trace		Minor	Trace	Trace			Major									Mineral dust, Aluminosilicate - clay
19	Major		Major	Trace		Minor	Major			Trace	Trace	Trace	Trace			Minor									Mineral dust, Silicon rich - quartz
20	Major		Major	Trace	Trace	Major	Major		Trace	Trace	Minor	Trace	Trace			Major									Mineral dust, Aluminosilicate - clay
21	Major		Major	Trace	Trace	Major	Major				Trace	Trace	Trace			Major									Mineral dust, Aluminosilicate
22	Major		Major	Trace	Trace	Major	Major		Trace		Minor	Trace	Trace			Minor									Mineral dust, Aluminosilicate - clay
23	Major		Major	Trace	Trace	Minor	Major	Trace	Trace		Trace	Trace	Trace			Minor									Coal - High ash

CV-DSI-0417 (Sludge Overall), UQMP # 14907. A summary table of particles selected above for SEM/EDS analysis. A high ash coal particle was detected with most of the particles consisting of a grain size of < 2 µm. Clay minerals typically are aluminium silicates containing cations, alkalies and alkaline earth metals as essential components. Magnesium and iron often substitute in the matrix for aluminium. There small size creates a large surface area to volume ration and reactive surface area with high cation exchange capacities. Some clays can increase their volume by 50 % with water absorption, which can create instability in soils.

5.2 AN SEM/BSE IMAGE OF PARTICLES SELECTED FOR SEM/EDS ANALYSIS

PM4. CV-DSI-0417 (Sludge Overall), UQMP # 14907. An SEM/BSE image of a particles selected for SEM/EDS analysis.

Table 3. AN SEM/EDS ELEMENTAL SUMMARY OF PARTICULATES SELECTED ABOVE FOR ANALYSIS.

Spectrum Label	C	N	O	Na	Mg	Al	Si	P	S	Cl	K	Ca	Ti	V	Mn	Fe	Ni	Cu	Ag	La	Ce	Pr	Nd	Sm	Description/Nominated Particle
24	Major		Major	Trace	Trace	Major	Major	Minor			Trace	Trace				Minor			Minor	Minor	Major		Minor		Mineral Dust, Phosphorous, Lanthanide - Aluminosiilcate
25	Major		Major	Minor	Trace	Major	Major				Trace	Minor				Trace									Mineral dust, Aluminosilicate - clay
26	Major		Major	Trace	Trace	Minor	Major	Trace	Trace		Trace	Trace	Trace			Minor									Coal - High ash

CV-DSI-0417 (Sludge Overall), UQMP # 14907. The elemental summary suggests a particle typical of the elemental profile displayed in each spectrum.

5.3 SEM/BSE IMAGE OF PARTICLES SELECTED FOR SEM/EDS ANALYSIS

PM5. CV-DSI-0417 (Sludge Overall), UQMP # 14907. An SEM/BSE image of a particles selected for SEM/EDS analysis.

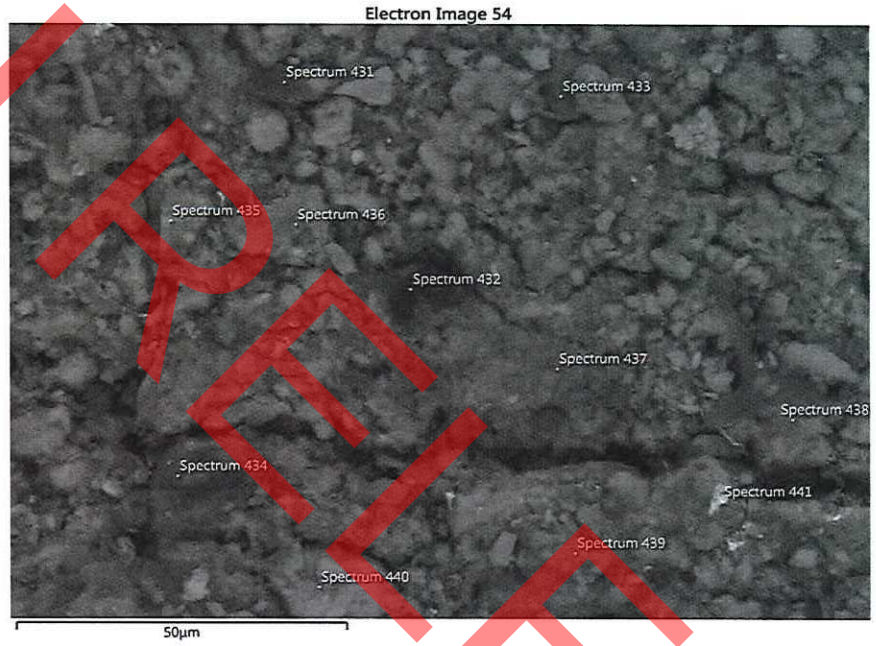
Table 4. AN SEM/EDS ELEMENTAL SUMMARY OF PARTICULATES SELECTED ABOVE FOR ANALYSIS.

Spectrum Label	C	N	O	Na	Mg	Al	Si	P	S	Cl	K	Ca	Ti	V	Mn	Fe	Ni	Cu	Ag	La	Ce	Pr	Nd	Sm	Description/Nominated Particle
27	Major	Major	Major	Trace	Trace	Major	Major		Trace		Trace	Trace	Major	Trace	Trace	Major		Trace							Mineral Dust -Iron-Titanium aluminosilicate
28	Major	Minor	Major	Trace	Trace	Major	Major		Trace		Minor	Trace	Major	Trace		Major									Mineral Dust -Iron-Titanium aluminosilicate
29	Major	Minor	Major	Trace	Trace	Major	Major		Trace		Minor	Minor	Trace			Major									Mineral Dust -Iron-aluminosilicate - clay
30	Major		Major	Trace	Trace	Major	Major				Minor	Minor	Minor			Major									Mineral Dust -Iron-aluminosilicate - clay
31	Major		Major	Trace	Trace	Major	Major		Trace		Minor	Major	Trace			Major									Mineral Dust - Calcium aluminosilicate
32	Major		Major	Trace	Trace	Major	Major		Trace		Minor	Trace	Trace			Major									Mineral Dust -Iron-aluminosilicate - clay
33	Major		Major	Trace	Trace	Major	Major		Trace		Minor	Trace	Trace			Major		Trace							Mineral Dust -Iron-aluminosilicate - clay

CV-DSI-0417 (Sludge Overall), UQMP # 14907. The elemental summary suggests a particle typical of the elemental profile displayed in each spectrum.

6. SEM/BSE IMAGE AND SEM/EDS ELEMENTAL SUMMARY OF INTERMEDIATE CV-DSI-0417 PARTICLES

6.1 SEM/BSE IMAGE OF PARTICLES SELECTED FOR SEM/EDS ANALYSIS



PM6. CV-DSI-0417, UQMP # 14907. An SEM/BSE image of a particles selected for SEM/EDS analysis.

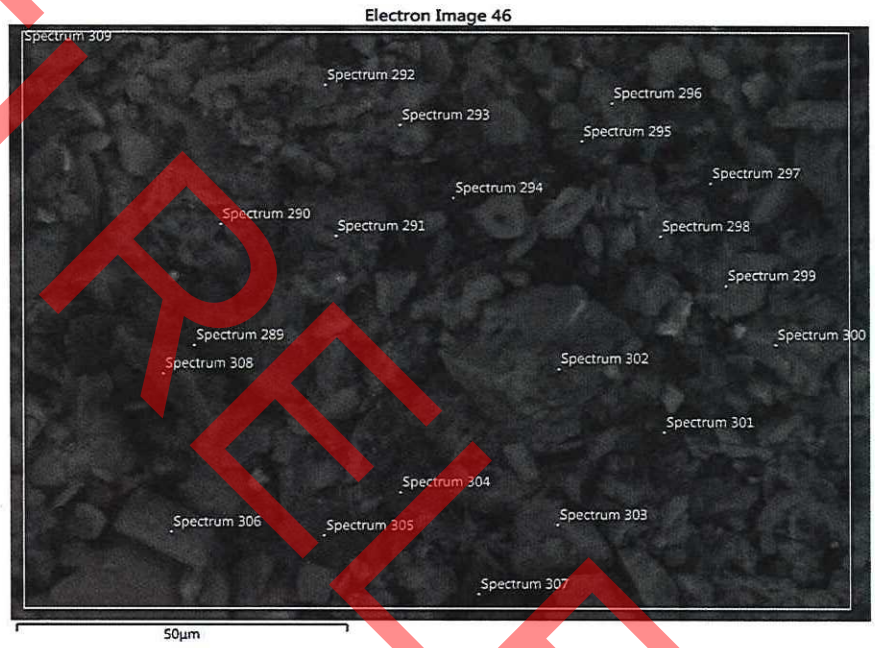
6.2 Table 5. CV-DSI-0417, UQMP # 14907. An Elemental SUMMARY OF INTERMEDIATE CV-DSI-0417 PARTICLES

.

Spectrum Label	C	N	O	Na	Mg	Al	Si	P	S	Cl	K	Ca	Ti	Mn	Fe	Ni	Description/Nominated Particle
Spectrum 431	Major	Minor	Major	Trace	Trace	Minor	Major		Trace		Trace	Trace	Trace	Trace	Minor		Suggestive of Coal
Spectrum 432	Major		Major	Trace	Trace	Minor	Major	Trace	Trace		Trace	Trace	Trace		Minor		Coal
Spectrum 433	Major		Major	Trace	Trace	Minor	Major	Trace	Trace		Trace	Minor	Trace	Trace	Major		Suggestive of Coal
Spectrum 434	Major		Major	Trace	Trace	Minor	Major	Trace	Trace	Trace	Trace	Trace	Trace		Minor		Coal
Spectrum 435	Major		Major	Trace	Major	Minor	Major				Trace	Major	Trace		Major		Mineral Dust - Calcium-Magnesium Aluminosilicate
Spectrum 436	Major		Major	Trace	Minor	Major	Major	Trace	Trace		Trace	Trace	Trace		Major		Mineral Dust - Iron-Aluminosilicate
Spectrum 437	Major		Major	Trace	Minor	Major	Major				Minor	Trace	Trace		Major		Mineral Dust - Iron-Aluminosilicate
Spectrum 438	Major		Major		Trace	Major	Major		Trace		Trace	Trace	Trace		Minor		Mineral Dust - Quartz
Spectrum 439	Major		Major		Minor	Major	Major	Trace	Trace		Minor	Trace	Trace		Major		Mineral Dust - Iron-Aluminosilicate
Spectrum 440	Major		Major	Minor	Minor	Major	Major	Trace			Trace	Trace	Trace		Major		Mineral Dust - Iron-Aluminosilicate
Spectrum 441	Major		Major		Trace	Major	Major	Minor			Trace	Trace	Trace		Minor	Major	Mineral Dust - Nickel Phosphorous aluminosilicate

CV-DSI-0417 (Intermediate), UQMP # 14907. The elemental summary suggests a particle typical of the elemental profile displayed in each spectrum.

7. SEM/BSE IMAGE AND SEM/EDS ELEMENTAL SUMMARY OF FINE CV-DSI-0417 PARTICLES



PM6. CV-DSI-0417, UQMP # 14907. An SEM/BSE image of a particles selected for SEM/EDS analysis.

7.1 Table 6. CV-DSI-0417, UQMP # 14907. An Elemental SUMMARY OF FINE CV-DSI-0417 PARTICLES

Spectrum Label	C	O	Na	Mg	Al	Si	P	S	Cl	K	Ca	Ti	Fe	Cu	Description/Nominated Particle
Spectrum 289	Major	Major	Trace	Trace	Minor	Major		Trace	Trace	Trace	Trace		Trace		Coal
Spectrum 290	Major	Major	Trace	Trace	Major	Major		Trace		Trace	Trace	Trace	Minor		Mineral Dust - Aluminosiilcate - clay
Spectrum 291	Major	Major	Trace	Trace	Major	Major		Trace		Trace	Trace	Trace	Minor		Mineral Dust - Aluminosiilcate - clay
Spectrum 292	Major	Major	Trace	Trace	Minor	Major				Trace	Trace	Trace	Minor		Mineral Dust - Silicon rich - quartz
Spectrum 293	Major	Major	Trace	Minor	Major	Major				Minor	Trace	Trace	Major		Mineral Dust - iron - Aluminosiilcate - clay
Spectrum 294	Major	Major	Trace	Trace	Major	Major		Trace		Trace	Trace	Trace	Minor		Mineral Dust - Aluminosiilcate - clay
Spectrum 295	Major	Major	Trace	Trace	Major	Major				Minor	Minor	Trace	Minor	Trace	Mineral Dust - Calcium Aluminosilicate - clay
Spectrum 296	Major	Major	Minor	Trace	Major	Major				Trace	Minor		Minor		Mineral Dust - Calcium Aluminosilicate - clay
Spectrum 297	Major	Major	Trace	Trace	Major	Major		Trace		Trace	Trace	Trace	Minor		Suggestive of High Ash Coal
Spectrum 298	Major	Major	Trace	Trace	Major	Major		Trace		Trace	Trace	Trace	Minor		Mineral Dust - Aluminosiilcate - clay
Spectrum 299	Major	Major	Minor	Trace	Major	Major				Trace	Minor	Trace	Minor		Mineral Dust - Calcium Aluminosilicate - clay
Spectrum 300	Major	Major	Trace	Minor	Minor	Major		Trace		Trace	Minor	Trace	Minor		Mineral Dust - Calcium Magnesium Aluminosilicate - clay
Spectrum 301	Major	Major	Trace	Trace	Major	Major		Trace		Minor	Minor	Minor	Major	Trace	Mineral Dust - Aluminosilicate - clay
Spectrum 302	Major	Major	Minor	Trace	Major	Major				Minor	Trace	Trace	Minor		Mineral Dust - Sodium Aluminosilicate - clay
Spectrum 303	Major	Major	Major	Trace	Major	Major				Trace	Minor		Trace		Mineral Dust - Sodium Aluminosilicate - clay
Spectrum 304	Major	Major	Trace	Trace	Minor	Major	Trace	Trace		Trace	Trace	Trace	Minor		Coal
Spectrum 305	Major	Major	Trace	Trace	Major	Major		Minor	Trace	Trace	Trace	Trace	Minor		Suggestive of High Ash Coal
Spectrum 306	Major	Major	Trace	Trace	Minor	Major			Trace	Trace	Trace		Trace		Mineral Dust - Aluminosiilcate - clay
Spectrum 307	Major	Major	Trace	Trace	Minor	Minor		Minor	Trace	Trace	Trace	Trace	Trace		Coal
Spectrum 308	Major	Major	Trace	Trace	Minor	Major		Minor	Trace	Trace	Trace	Trace	Minor		Coal
Spectrum 309	Major	Major	Trace	Trace	Major	Major		Trace		Minor	Minor	Trace	Minor	Trace	Overall Area of the fines

CV-DSI-0417 (Fines), UQMP # 14907. The elemental summary suggests a particle typical of the elemental profile displayed in each spectrum.

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The author acknowledges the facilities, and the scientific and technical assistance, of the Australian Microscopy & Microanalysis Research Facility at the Centre for Microscopy and Microanalysis, The University of Queensland

Attachment 4 – Overview of Inter-laboratory Comparison

Currently there is no recognised standard method for the quantification of mass or volumes of coal in sediment, and different laboratories use different methods that will potentially vary with respect to reportable masses or volumes. To assess the potential variation between results obtained from different methods, duplicate samples were sent to UQMP and to ALS Coal Technology (ALS). The duplicate samples were collected at two locations on 28 April 2017; from in the vicinity of the authorised released point and at the site designated as DS1. These sample locations were identified as CV Shore, and CV Wetlands. Samples were collected in the same manner as outlined in the main document.

Both laboratories used microscopic methods; however, ALS reported results on a per cent volume basis and UQMP reported results on a projected per cent area basis. The estimates of coal in the sediments from ALS were – CV Wetlands (15% volume), CV Shore (27% volume) compared to UQMP –projected area CV Wetlands (10% estimated projected area basis) and CV Shore (10% projected area basis).

Further analysis was undertaken by ALS using the density separation method (float and sink testing - reported on a per cent mass basis), as the other methods do not consider the varying densities of coal, mineral and organic matters. This analysis estimated coal in sediment - CV Wetlands (3%), and CV Shore (6%).

To provide an independent review of the unexpected variation in results obtained from the different methodologies used by the laboratories, advice was sought from specialists within CSIRO Energy. This review is provided in Attachment 5.

In order to compare the three methods, the results from the two microscopic methods were converted to per cent abundance by mass by Graham O'Brien, CSIRO Energy (Table A4.1). Overall, the results obtained in the UQMP microscopic method, were in agreement with those obtained by ALS using the density separation method, with the caveat that the float and sink results provided a result for coal plus organic matter. Graham O'Brien's review has suggested that by using oil immersion optics, the ALS microscopic method may have biased the results, and suggested that air lens optics would have made the visual distinction between organic coal and mineral particles less ambiguous.

Table A4.1: Analysis of samples reported on a mass % basis

Laboratory	Method	Sample	Coal %
ALS	Microscopy	CV Shore	18.0
		CV Wetlands	10.0
ALS	Float Sink	CV Shore	6*
		CV Wetlands	3*
UQMP	Microscopy	CV Shore	5.6
		CV Wetlands	5.7

Note: * indicates a result comprised of coal and organic matter.

Attachment 5 – Review of Sediment Sample Results (CSIRO)

ENERGY
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Review of Sediment Sample Results

Qld Dept. of Environment and Heritage

Graham O'Brien
Report number: EP175925 July 2017

Report to:

Department of Environment and Heritage Protection

Department of Science, Information Technology and Innovation

Citation

O'Brien G (2017) Review of sediment samples results – Qld Dept. of Environment and Heritage. CSIRO, Australia.

Copyright and disclaimer

Important disclaimer

Background

Graham O'Brien, Principal Coal Technologist, CSIRO Energy, was requested to undertake a review of two reports produced by ALS Coal Richlands Laboratory and University of Queensland's Materials Performance (UQMP) laboratory for the analysis of two sediment samples identified as CV Shore and CV Wetlands. This review was to include comments on the methods used and the results obtained by both laboratories. This review also compared the results obtained by these laboratories with the results obtained when a density separation method (Float and Sink Analysis) was used to separate the heavier density minerals in the sediments from the lighter density coal and organic particulates. The DISTI and EHP (2017) report provided background material for the purpose of conducting these analyses.

The Department of Science, Information Technology and Innovation (DSITI) was commissioned to conduct a Preliminary Site Assessment of Caley Valley Wetlands adjacent to the Abbot Point Bulk Coal Terminal (Abbot Point Terminal). The site had been subject to an authorised release of water from the secondary settlement pond (which is part of the stormwater system) from Abbot Point Terminal.

Satellite imagery collected after Tropical Cyclone Debbie appeared to show dark waters downstream of a release point extending into the wetland. Consistent with a temporary emissions licence (TEL), the coal terminal operator, Abbot Point Bulkcoal Pty Ltd, sampled the stormwater release as soon as practicable and safe. The results of testing indicated that the release into the wetland was below the thresholds set in the licence condition.

In April 2017, staff from DSITI and the Department of Environment and Heritage Protection (EHP) wetland group undertook a preliminary assessment of the site. The objective for the preliminary site assessment was to assess the presence or otherwise of coal fines associated with the release, and if present, to undertake an initial assessment as to whether this has caused impacts to the wetlands.

The DISTI and EHP (2017) report describes the sampling method used for the collection of the samples. At each sampling location composite sediment samples were taken. This involved the collection of five replicate samples of approximately 10x10 cm in area and approximately 1 cm depth at each site and combining them together before taking a subsample for analysis. This is a standard field sample practice as sediments can be highly heterogeneous and compositing a number of samples into a single sample is a way of adjusting for variation found in sediment samples.

The five replicated samples collected at each site were mixed in a stainless steel bowl using a stainless steel trowel to produce a composite sample for that site. From each composite sample, duplicate samples were obtained by splitting the contents of the bowl into two jars. Samples were kept chilled on ice after collection. For the CV shore and CV Wetlands samples, one jar was supplied to ALS Coal Richlands laboratory and the second jar was sent to University of Queensland's Materials Performance laboratory (UQMP).