	• A stable landform with a self-sustaining vegetation cover of appropriate species composition established to enable natural vegetation progression and minimal weed invasion.
Supporting infrastructure	• Modular infrastructure removed from the site and reused elsewhere. • Borrow pits contoured to establish a stable landform. • Permanent office infrastructure left in place for continued operation or third party use with landowner agreement. • Solid or liquid wastes associated with accommodation camps collected and removed to licensed waste facilities. • Any contaminated land remediated to appropriate human health and environmental standards. • Former disturbance area reduced to as small as practicable, with ground surface shaped. • A stable landform with a self-sustaining vegetation cover of appropriate species composition established to enable natural vegetation progression and minimal weed invasion.
Monitoring Requirements	
• Undertake annual verification to ensure mitigation measures are working as planned and to intervene early, should the desired objectives not be achieved. • Compliance with this management plan will be assessed during periodic HSEMS audits described in Section 3.7 of this environmental management plan.	
Performance Indicators	
• Minimal impact to humans or animals. • No soils, surface water or groundwater contamination above applicable objectives. • Stable landform with a self-sustaining vegetation cover of appropriate species composition established with natural vegetation and minimal weed invasion.	

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16. ACRONYMS, ABBREVIATIONS AND UNITS

˚C	degrees Celsius
%	per cent
AHD	Australian height datum
Arrow	Arrow Energy
ARS	assessment and reporting schedule
atm	atmosphere
BIM	block identification map
CGPF	central gas processing facility
CLR	contaminated land register
CO	carbon monoxide
CSG	coal seam gas
dB(A)	Unit used to measure A-weighted sound pressure levels. A-weighting is an adjustment made to sound-level measurement to approximate the response of the human ear.
DERM	Department of Environment and Resource Management
DST	drill stem testing
DXP	Dalby Expansion Project
EA	environmental authority
EIS	environmental impact statement
EM Plan	environmental management plan
EMR	environmental management register
EP	Equivalent persons
EP Act	*Environmental Protection Act 1994*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPP Air	Environmental Protection (Air) Policy 2008
EPP Noise	Environmental Protection (Noise) Policy 1997
EPP Waste	Environmental Protection (Waste Management) Policy 2000
EPP Water	Environmental Protection (Water) Policy 1997
ERA	environmentally relevant activities
ESA	environmentally sensitive area
GAB	Great Artesian Basin
GHG	greenhouse gas
GL	gigalitre
GL/a	gigalitre per annum
GQAL	good-quality agricultural land
HDPE	High Density Poly-ethylene

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HSEMS	health, safety and environmental management system
ha	hectare
hr	hour
kg	kilogram
kg/hr	kilogram per hour
km	kilometre
km^2	square kilometre
kPag	kilopascal gauge
kV	kilovolt
L	litre
L/day	litre per day
L/second	litre per second
L_{A90}	A-weighted sound pressure level that is exceeded for 90% of the54 time of which a given sound is measured.
L_{Aeq}	The equivalent continuous A-weighted noise level.
LNG	liquefied natural gas
LP Act	Land Protection (Pest and Stock Route Management) Act 2002
m	metre
m^2	square metre
m^3	cubic metre
Ma	million years ago
MF	microfiltration
mg/L	milligrams per litre
$mg/m^2/d$	milligram per square metre per day
mm	millimetre
MNES	matters of national environmental significance
ML	mega litre
ML/day	mega litre per day
ML/year	mega litre per year
Mscf/d	million standard cubic feet per day
MW	mega watt
NC Act	*Nature Conservation Act 1992*
NGER	*National Greenhouse and Energy Reporting Act 2007*
NHMRC	National Health and Medical Research Council
NRMMC	National Resource Management Ministerial Council
NEPM	National Environment Protection Measures
NO_2	nitrogen dioxide

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NO_x	mono-nitrogen oxides
O_3	ozone
P&G Act	*Petroleum and Gas (Production and Safety) Act 2001* (Qld)
PetroChina	PetroChina Company Limited
pH	the negative decimal logarithm of the hydrogen ion activity in a solution
PJ	petajoule
PJ/a	petajoule per annum
PL	petroleum lease
$PM_{2.5}$	particulate matter with particles measuring 2.5 µm or less
PM_{10}	particulate matter with particles measuring 10 µm or less
psi	pounds per square inch
RE	regional ecosystem
RBP	Roma Brisbane pipeline
RO	reverse osmosis
ROW(s)	right(s) of way
SAR	sodium absorption rate
SCL Act	*Strategic Cropping Land Act 2011*
SCL	Strategic cropping land
SO_2	sulfur dioxide
SO_4	sulfate
t	tonne
TEC	threatened ecological community
TEG	triethylene glycol
TJ	terajoule
TJ/d	terajoule per day
µm	micrometre or micron
µS/cm	microsiemens per centimetre
VOC	volatile organic compounds
WoNS	weeds of national significance
WTF	water treatment facility

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Joanne Kerr

From: Keara Mcdonagh
Sent: Tuesday, 5 February 2013 4:47 PM
To: sch4p4(6) Personal infor
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer
Attachments: DXP EM Plan_Rev 4 20120823.pdf; DXP CWMP_Aug 2012.pdf

Hi sch4p

Had a thought, and have gain approval of the following with my manager.

We have an EM Plan and CSG WMP for Arrow's DXP on file (please see attached). To save time, money and paper, within the additional information provided, it would be fine for Arrow to simply refer EHP to these plans. Provided;

A. Arrow can confirm the versions EHP has on file are the most recent versions of each Plan; and
B. no aspect of either Plan would require updated due to this amendment application.

Hope this helps.

Thanks,

Keara.

From: sch4p4(6) Personal inf mailto: sch4p4(6) Personal i arrowenergy.com.au]
Sent: Tuesday, 5 February 2013 4:15 PM
To: Keara Mcdonagh
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi Keara,

Can you please clarify if you are happy to receive the CSG WMP (EM Plan) or you are looking for the complete EM Plan (a very sizable document).

I realise it has to comply with the following

(2) Also, if the application relates to a coal seam gas environmental authority, it must be accompanied by an environmental management plan (a ***revised (CSG) EM plan***) that—
(a) states the matters mentioned in section 310D(5)(a) to (f); and
(b) complies with section 310D(6).

Cheers

sch4p4(6

From: Keara Mcdonagh [mailto:Keara.Mcdonagh@ehp.qld.gov.au]
Sent: Tuesday, 5 February 2013 3:53 PM

Published on DES Disclosure Log RTI Act 2009

To: sch4p4(6) Personal inf
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi sch4p4

Thanks for letting me know.

Cheers,

Keara.

From: sch4p4(6) Personal inf [mailto: sch4p4(6) Personal ir arrowenergy.com.au]
Sent: Tuesday, 5 February 2013 3:40 PM
To: Keara Mcdonagh
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi Keara, I am hoping to have this to you just after lunch tomorrow.

Cheers

sch4p4

From: Keara Mcdonagh [mailto:Keara.Mcdonagh@ehp.qld.gov.au]
Sent: Tuesday, 5 February 2013 12:47 PM
To: sch4p4(6) Personal inf
Cc: Naylor Gillian; John.Frankish@ehp.qld.gov.au
Subject: FW: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi sch4p4

Regarding the DXP amendment application for a brine dam within a cat C ESA buffer.

Just wondering if you know how long Arrow might need to compile/submit the additional information requested as the decision due date is on Thursday. I'm in the process of preparing an extension notice, if needed.

Thanks,

Keara.

From: Keara Mcdonagh
Sent: Thursday, 31 January 2013 4:37 PM
To sch4p4(6) Personal inf
Cc: Naylor Gillian; Frankish John (John.Frankish@ehp.qld.gov.au)
Subject: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Good afternoon sch4p4(

I email regarding Arrow Energy's amendment application for a brine dam within a category C ESA buffer on PL230 under Arrow's Dalby Expansion Project (PEN100449509).

Please find attached a Notice of Additional Information Request for the above mentioned application.

Published on DES Disclosure Log RTI Act 2009

The decision due date is currently 7 February 2013. Please give a date as to when Arrow will provide the additional information requested.

If you have any questions, please do not hesitate to contact me by email or on (07) 3330 5618.

Kind regards,

Keara McDonagh

Environmental Officer

Energy Assessments Unit

Department of Environment and Heritage Protection (EHP)

Level 7, 400 George Street, Brisbane QLD 4000 | GPO Box 2454, BRISBANE QLD 4001

T: 07 3330 5618

F: 07 3330 5634

E: keara.mcdonagh@ehp.qld.gov.au

W: http://www.ehp.qld.gov.au

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Joanne Kerr

From: Keara Mcdonagh
Sent: Wednesday, 6 February 2013 9:56 AM
To: sch4p4(6) Personal inform
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi sch4p4(

In deciding an amendment application EHP *must consider any criteria that apply for deciding an application to obtain the environmental authority* (s. 310Z (2) of the *Environmental Protection Act 1994*). As such, we refer to s. 310N *Criteria for decision* (inc. s. 310N (vii*) the environmental management plan accompanying the application*) in the assessment of an amendment application. Thus, the applicant is required to submit/reference the current EM Plan for the Project/EA as part of the amendment application.

Hope this helps.

Thanks,

Keara.

From sch4p4(6) Personal in [mailto sch4p4(6) Personal in @arrowenergy.com.au]
Sent: Wednesday, 6 February 2013 7:52 AM
To: Keara Mcdonagh
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Great thanks Keara.

For future reference though when undertaking small amendments like this where there would be no changes to our EM Plan, do we need to submit the full revised EM Plan with a CSG water management plan or is it just a revised CSG water management plan? The legislation seems to refer to the water management aspect more so than then full EM Plan.

Cheers

sch4p4(

From: Keara Mcdonagh [mailto:Keara.Mcdonagh@ehp.qld.gov.au]
Sent: Tuesday, 5 February 2013 5:03 PM
To: sch4p4(6) Personal in
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

…subsequent email with the CSG WMP EHP have on file for Arrow's DXP.

From: Keara Mcdonagh
Sent: Tuesday, 5 February 2013 4:47 PM
To: sch4p4(6) Personal info
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi sch4p4(

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Had a thought, and have gain approval of the following with my manager.

We have an EM Plan and CSG WMP for Arrow's DXP on file (please see attached here and subsequent email). To save time, money and paper, within the additional information provided, it would be fine for Arrow to simply refer EHP to these plans. Provided;

A. Arrow can confirm the versions EHP has on file are the most recent versions of each Plan; and
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Hope this helps.

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(a) states the matters mentioned in section 310D(5)(a) to (f); and
(b) complies with section 310D(6).

Cheers

sch4p4(6

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Sent: Tuesday, 5 February 2013 3:53 PM
To: sch4p4(6) Personal inf
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi sch4p4

Thanks for letting me know.

Cheers,

Keara.

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Sent: Tuesday, 5 February 2013 3:40 PM
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Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

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Cheers

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Sent: Tuesday, 5 February 2013 12:47 PM
To: sch4p4(6) Personal in
Cc: Naylor Gillian; John.Frankish@ehp.qld.gov.au
Subject: FW: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi sch4p4(6

Regarding the DXP amendment application for a brine dam within a cat C ESA buffer.

Just wondering if you know how long Arrow might need to compile/submit the additional information requested as the decision due date is on Thursday. I'm in the process of preparing an extension notice, if needed.

Thanks,

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Please find attached a Notice of Additional Information Request for the above mentioned application.

The decision due date is currently 7 February 2013. Please give a date as to when Arrow will provide the additional information requested.

If you have any questions, please do not hesitate to contact me by email or on (07) 3330 5618.

Kind regards,

Keara McDonagh

Environmental Officer

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Energy Assessments Unit

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Joanne Kerr

From: Keara Mcdonagh
Sent: Thursday, 7 February 2013 2:49 PM
To: sch4p4(6) Personal info
Cc: Naylor Gillian; Frankish John (John.Frankish@ehp.qld.gov.au)
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer
Attachments: Notice_Extension of Decision Period_PEN100449509_PL230 Brine Dam_07022013.pdf

Hi sch4p

As per your email below, please find attached the Notice of Extension of decision period for Arrow's DXP PL230 Brine Dam amendment application.

The revised decision due date is 14 February 2013.

I would be most grateful if Arrow could submit the additional information requested by COB 8 February 2013 so as to allow EHP adequate time to assess the information submitted and draft EA conditions.

Should you have any queries, please do not hesitate to contact me on telephone (07) 3330 5618.

Kind regards,

Keara.

From: sch4p4(6) Personal info mailto: sch4p4(6) Personal i @arrowenergy.com.au]
Sent: Thursday, 7 February 2013 9:32 AM
To: Keara Mcdonagh
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi Keara,

We have had some other issues come up, so review of this will be delayed and I doubt I will be able to get it to you today. I hope that it will be to you tomorrow.

Sorry but can you please extend the for another week, although I hope that wont be required.

Cheers

sch4p4(6)

From: Keara Mcdonagh [mailto:Keara.Mcdonagh@ehp.qld.gov.au]
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W: http://www.ehp.qld.gov.au

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Joanne Kerr

From: sch4p4(6) Personal in <sch4p4(6) Personal i@arrowenergy.com.au>
Sent: Friday, 8 February 2013 4:28 PM
To: Keara Mcdonagh
Cc: Naylor Gillian; Frankish John
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer
Attachments: Letter response _2013-02-08_.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Keara,

Thanks for your patience.

Please find attached a letter response to the Request for Information from EHP for the application to allow for a brine dam with a Cat C ESA buffer.

Please don't hesitate to call with any queries.

Cheers

sch4p4

sch4p4(6) Personal
Team Leader Upstream Approvals

Arrow Energy Pty Ltd
Level 19, AM-60, 42-60 Albert St, Brisbane QLD 4000
GPO Box 5262, Brisbane QLD 4001, Australia
email sch4p4(6) Perso arrowenergy.com.au
T: +61 7 3012 4276 (direct)
F: +61 7 3012 4001
M:+61 sch4p4(6) Pers
www.arrowenergy.com.au

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From: Keara Mcdonagh [mailto:Keara.Mcdonagh@ehp.qld.gov.au]
Sent: Thursday, 7 February 2013 2:49 PM
To: sch4p4(6) Personal in
Cc: Naylor Gillian; John.Frankish@ehp.qld.gov.au
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi sch4p4

As per your email below, please find attached the Notice of Extension of decision period for Arrow's DXP PL230 Brine Dam amendment application.

The revised decision due date is 14 February 2013.

I would be most grateful if Arrow could submit the additional information requested by COB 8 February 2013 so as to allow EHP adequate time to assess the information submitted and draft EA conditions.

Should you have any queries, please do not hesitate to contact me on telephone (07) 3330 5618.

Kind regards,

Keara.

From: sch4p4(6) Personal in [mailto: sch4p4(6) Personal i @arrowenergy.com.au]
Sent: Thursday, 7 February 2013 9:32 AM
To: Keara Mcdonagh
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi Keara,

We have had some other issues come up, so review of this will be delayed and I doubt I will be able to get it to you today. I hope that it will be to you tomorrow.

Sorry but can you please extend the for another week, although I hope that wont be required.

Cheers

sch4p4

From: Keara Mcdonagh [mailto:Keara.Mcdonagh@ehp.qld.gov.au]
Sent: Tuesday, 5 February 2013 3:53 PM
To sch4p4(6) Personal inf
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi sch4p4(

Thanks for letting me know.

Cheers,

Keara.

From sch4p4(6) Personal inf [mailto sch4p4(6) Personal inf arrowenergy.com.au]
Sent: Tuesday, 5 February 2013 3:40 PM
To: Keara Mcdonagh
Subject: RE: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Hi Keara, I am hoping to have this to you just after lunch tomorrow.

Cheers

sch4p4(6) P

From: Keara Mcdonagh [mailto:Keara.Mcdonagh@ehp.qld.gov.au]
Sent: Tuesday, 5 February 2013 12:47 PM
To: sch4p4(6) Personal inf
Cc: Naylor Gillian; John.Frankish@ehp.qld.gov.au
Subject: FW: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

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Hi sch4p4

Regarding the DXP amendment application for a brine dam within a cat C ESA buffer.

Just wondering if you know how long Arrow might need to compile/submit the additional information requested as the decision due date is on Thursday. I'm in the process of preparing an extension notice, if needed.

Thanks,

Keara.

From: Keara Mcdonagh
Sent: Thursday, 31 January 2013 4:37 PM
To: sch4p4(6) Personal inf
Cc: Naylor Gillian; Frankish John (John.Frankish@ehp.qld.gov.au)
Subject: Notice of Additional Information Request for DXP PL230 amendment application to allow for a brine dam within a cat C ESA buffer

Good afternoon sch4p4

I email regarding Arrow Energy's amendment application for a brine dam within a category C ESA buffer on PL230 under Arrow's Dalby Expansion Project (PEN100449509).

Please find attached a Notice of Additional Information Request for the above mentioned application.

The decision due date is currently 7 February 2013. Please give a date as to when Arrow will provide the additional information requested.

If you have any questions, please do not hesitate to contact me by email or on (07) 3330 5618.

Kind regards,

Keara McDonagh

Environmental Officer

Energy Assessments Unit

Department of Environment and Heritage Protection (EHP)

Level 7, 400 George Street, Brisbane QLD 4000 | GPO Box 2454, BRISBANE QLD 4001

T: 07 3330 5618

F: 07 3330 5634

E: keara.mcdonagh@ehp.qld.gov.au

W: http://www.ehp.qld.gov.au

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08 February 2013

Ref: ENV13-028

John Frankish
Petroleum and Gas Unit
Department of Environment and Heritage Protection
GPO Box 2454
Brisbane QLD 4001

Dear John,

Application to amend a Level 1 Environmental Authority (EA) (Chapter 5A activities) number PEN100449509 by Arrow Energy Pty Ltd for the Daandine Expansion Project (DXP) Petroleum Lease (PL) 197, 198, 230, 252, 258 and 260.

Further to emails between Arrow Energy (Arrow) and the Department of Environment and Heritage Protection (EHP) dated 5 February 2013, Arrow can confirm that EHP has the latest revised edition of the Dalby Expansion Project (DXP) Environmental Management Plan, including the Coal Seam Gas Water Management Plan - -Surat Basin. No aspects of these plans have been changed as a result of this amendment application.

2. Impacts, risks to environmental values and mitigation measures

The general description of the proposed site that is located at the intersection of Dalby-Kogan Road and Kumbarilla Lane within Lot 1 SP200461 at Daandine, 20 kilometres north-west of Dalby in southern Queensland (**Error! Reference source not found.** of the supporting information in the initial submission) for the proposed development is as follows

- construction of a brine dam and associated infrastructure;
- clearing of an area approximately 53 hectares of which approximately 24 hectares is within the Category C ESA buffer zone;
- construction of a high density polyethylene (HDPE) lined dam;
- placing of interconnecting pipe work and transfer lines from Daandine Water Treatment Facility to the brine dam;
- a spoil area which will be required during both the construction and operational phase of the brine dam;
- stock proof fencing around the perimeter of the brine dam upon completion of construction; and
- installation of up to 5 monitoring bores.

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Environmental values of the adjoining Category C ESA have been derived from desktop assessments using databases such as Wildlife Online, EPBC Protected Matters, and Regional Ecosystem and Regrowth Vegetation Mapping and an ecological survey of the area confirmed these values. Table 1 (attached) contains descriptions of the potential environmental impacts from the proposed activities within the adjacent Western Creek State Forest area. Table 1 also provides mitigation measures to manage these potential impacts.

Risks associated with a dam overtopping event will be addressed in the Dam Hazard Assessment process that is outlined in the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams" that is assumed to be a requirement under Regulated Structures Schedule of the revised EA PEN100449509.

Arrow will not need to widen the existing access track/s within the Southern Strategic Cropping Land Protected Area or within the mature regrowth area for the construction and operation of the brine dam.

2. Clarification of location

The Map Zone coordinates supplied for the disturbance area for Daandine Brine Dam are in Zone 56.

3. Dam Volume

At this stage of the Arrow's project planning the dam volume has not been confirmed. Once the location of the dam is approved Arrow will undertake the engineering required to comply with the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams". This information will be submitted in the design plan to the administering authority as required under the anticipated Regulated Structures schedule of the EA PEN100449509.

4. Financial Assurance

This proposed brine dam is one of seven (7) regulated structures (>401ML) under the existing environmental authority for the Dalby Expansion Project. The current Financial Assurance amount held has taken this and all petroleum activities authorised under the current environmental authority into consideration.

Arrow Energy is currently undertaking a revised financial assurance calculation as part of a broader amendment application for the Dalby Expansion Project environmental authority and will be provided to EHP prior to granting the decision of that amendment.

To calculate the financial assurance for other current project amendments, Arrow has engaged EHS Support Corporation (EHS Support) which has extensive experience in the calculation of financial assurance cost estimates. Draft costings are being prepared for internal review to ensure consistency with anticipated operational requirements for the years 2013–2015, inclusive.

If you require any further information or have any queries in relation the attached EA amendment information please contac sch4p4(6) Persona (Regulatory Approvals Coordinator) on +61 7 3012 4912 or by email at sch4p4(6) Personal arrowenergy.com.au.

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sch4p4(6) Personal information

sch4p4(6) Persona

Team Leader Upstream Approvals

ARROW ENERGY PTY LTD

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Table 1 - Details of EHP's DXP amendment application information request for Point 2 and Arrow's response

Environmental Values	Aspect	Potential Impacts	Mitigation Measures
• Mature regrowth containing Of Concern regional ecosystems • Fauna habitat/potential fauna breeding habitat • EPBC and NCA Threatened Species • EPBC Species (refer to **Appendix 1** for a complete list of threatened flora (**Table 2)** and fauna (**Table 3**) species recorded within 10km of the site)	Vegetation clearing adjacent to the ESA	• Destruction of nests, roost and breeding sites • Edge effects • Dust • Erosion and sedimentation • Reduction in feeding and foraging resources • Fauna injury and/or mortality • Fauna displacement and increased competition for resources • Weed spread	• ESA Category C area will be fenced off from construction activities. • Prior to commencing vegetation clearing activities, a qualified spotter catcher shall assess the presence of any significant habitat features, that require: – Specific actions to minimize fauna injury. – Protection. – Clearance and relocation. • A qualified spotter catcher shall conduct a search of the area proposed to be cleared for the presence of fauna species. If fauna are detected, the spotter catcher shall assess the most appropriate method to avoid or minimize impacts to the individual. The following hierarchy of control shall be employed: – Avoid. – Minimize. – Mitigate. • Threatened Species Management Plans will be developed when project activities are identified by the spotter catcher as likely to impact on threatened species individuals or when works are

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			undertaken within close proximity to threatened species. • Fallen vegetation shall be retained where possible to provide cover and habitat. • Where activities pose barriers to the movement of fauna for extended periods of time, reasonable measures shall be implemented to facilitate fauna movement around or through the workplace. • Disturbance or harassment of wildlife and the unauthorized collection of flora and forest products is prohibited. • Trees not identified for removal will be protected from damage. Construction activities will limit the scraping of standing tree trunks and breaking of limbs by equipment as far as practicable. • Trees will be felled away from existing stands where practicable. Where trees unavoidably fall into a stand, the tree will be left in situ to emulate natural tree fall and provide habitat for ground-dwelling species, where practicable. • Wherever possible, vegetation shall be removed at ground level by cutting / slashing (rather than removing root stock) and then stored for reuse as mulch during site

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			rehabilitation, or sediment and erosion control. • Develop and implement soil management procedures. • Develop and implement site specific erosion and sediment control plans. • Maintain the integrity of private roads and tracks and minimise dust generation, where appropriate, in consultation with relevant landowners and council. • Use existing roads and tracks, where practicable. • Implement dust suppression measures for roads and construction sites to ensure that dust does not cause a nuisance. • Strip, salvage and stockpile topsoil near the work site separately to subsoils (in consultation with landowners). Ensure topsoil stockpiles have a maximum height of 2 m, where the future use is intended for rehabilitation, and are protected from erosion where possible. • Where possible, mulch vegetation and reuse in site rehabilitation. • Stockpile cleared or mulched vegetation along the inside edge of the work sites (separate from soil stockpiles), to aid the control of runoff and ensure stockpiled

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			vegetation does not pose a bushfire hazard. • Prevent subsurface water flows and erosion along the backfilled trench by appropriate means such as, trench blocks and compaction of backfilled soils. • Clear areas progressively and implement rehabilitation as soon as practicable following decommissioning activities. • Ensure erosion, drainage and sediment controls installed are appropriate to the nature of the activity undertaken (e.g. permanent or temporary controls required). • Prior to, during and after conducting activities, the presence of weed infestations on-site shall be assessed and monitored, and the results recorded and communicated to staff. • Operational and maintenance activities shall be planned so that movement of plant and equipment between properties, corridors or areas with weed infestations or evidence of pathogen infection is minimised. • All vehicles and personnel shall only enter and exit the site from designated access tracks and roads. • Washdown facilities shall be

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			designed to contain run-off and not transfer weed seeds, spores or infected soils to adjacent areas.
	Night lighting	• Lighting during drilling works has the potential to affect nocturnal hunting habits of certain species. • Night lighting is likely to attract prey species such as insects and, subsequently, significant species to the project area. • Lighting pollution is likely to impact on local bat colonies. • Impact on nocturnal fauna which inhabit the adjacent areas.	• Use shrouded, downcast lighting to minimise spill and restrict it to the minimum required for safety and security. Design lighting in accordance with AS 4282-1997, Control of the Obtrusive Effects of Outdoor Lighting (Standards Australia, 1997).
	Noise	• Displacement and/or injury of fauna. • Physical detrimental effects to terrestrial fauna. • Disturbance of migratory fauna. • Disturbance of noise-sensitive fauna.	• Ensure all engines, machinery equipment and pollution control mechanisms are operated and efficiently maintained. • Operate equipment and handle materials in a manner that does not cause unnecessary noise (e.g., excessive revving or dropping materials).
	Weed and Pathogen Management	• Introduction or spread of new or existing exotic terrestrial flora or fauna.	• Prior to, during and after conducting activities, the presence of weed infestations on-site shall be assessed and results recorded and communicated to staff. • Operational and maintenance activities shall be planned so that movement of plant and equipment between properties, corridors or areas with weed infestations or evidence of pathogen infection is

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			minimised. • All vehicles and personnel shall only enter and exit the site from designated access tracks and roads. • Weed control methods such as chipping, spraying or employing a contractor to carry out weed control, shall be utilised. • To minimise the risk of weed spread where practicable, topsoil shall be stockpiled and reused in the area it came from. • Materials shall be accompanied by a Weed Hygiene Declaration Form stating that the material is free of weeds before being accepted at site. • Where necessary, portable washdown facilities will be located near designated work areas for the duration of works and / or government provided washdown facilities are to be used if available. • Washdown facilities shall be such that any run-off is contained and does not transfer weed seeds, spores or infected soils to adjacent areas. • After washdown, vehicles must obtain a Weed Hygiene Declaration Form and display a sticker/tag that indicates the vehicle is clean and can enter the relevant site.

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			• Develop and implement a training program to minimise and control the use of herbicides on Arrow sites. • Activities shall be conducted in compliance with the 99-H-PR-0030 Weed and Pathogen Management Procedure.
	Fire	• Destruction of the ESA through fire.	• Fire-fighting equipment shall be installed where required and routinely inspected and tested. • Where there is a fire risk to a facility from the surrounding environment, through bush fires, ash and/or smoke, the following fire prevention activities shall be considered and/or implemented: – Plant growth shall be prevented in controlled and cleared areas such as firebreaks; – Access ways to be maintained by regularly removing weeds and dead undergrowth; – Dead wood and other combustible fuels, grass and litter shall be removed in the facilities perimeter area. • Activities shall be conducted in accordance with the 99-H-PR-0020-Fire Prevention Procedure.

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	Land contamination	• Contamination of adjacent ESA through fuel and/or chemical spills etc.	• Apply appropriate international, Australian and industry standards and codes of practice for the handling of hazardous materials (such as chemicals, fuels and lubricants). • Develop and implement emergency response and spill response procedures to minimise any impacts that could occur as a result of releases of hazardous materials or any loss of containment of storage equipment. • Ensure appropriate spill response equipment, including containment and recovery equipment, is accessible on site. • Carry out corrective actions immediately upon the identification of any contamination of soil or groundwater that has occurred as a result of project activities. • Undertake an environmental site assessment in response to the identification of contamination that may have occurred as a result of project activities. • Complete appropriate excavation, remediation, characterisation and validation activities in response to the identification of contamination that may have occurred as a result of project activities.

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Appendix 1: Threatened Species Database results within 10km of the site

Table 2 - Threatened Flora Species within 10km of the site

Scientific Name	Common Name	EPBC Act Status	NC Act Status
Cadellia pentastylis	Ooline	Vulnerable	Vulnerable
Digitaria porrecta	Finger Panic Grass	Endangered	Near Threatened
Homopholis belsonii	Belson's Panic	Vulnerable	Endangered
Philotheca sporadica	-	Vulnerable	Vulnerable
Rhaponticum australe	Austral Cornflower, Native Thistle	Vulnerable	Vulnerable
Thesium australe	Austral Toadflax	Vulnerable	Vulnerable

Table 3 - Threatened Fauna Species within 10km of the site

Scientific Name	Common Name	EPBC Act Status	NC Act Status	Migratory	Marine
Threatened Species					
Geophaps scripta scripta	Squatter Pigeon	Vulnerable	Vulnerable	-	-
Lathamus discolor	Swift Parrot	Endangered	Endangered	-	Y
Lophoictinia isura	Square-tailed Kite	-	Near Threatened	-	-
Neochmia ruficauda ruficauda	Star Finch	Endangered	Endangered	-	-
Rostratula australis	Australian Painted Snipe	Vulnerable	Vulnerable	Y	Y
Maccullochella peelii peelii	Murray Cod	Vulnerable	-	-	-
Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Vulnerable	-	-

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Scientific Name	Common Name	EPBC Act Status	NC Act Status	Migratory	Marine
Threatened Species					
Chalinolobus picatus	Little Pied Bat	-	Near Threatened	-	-
Dasyurus hallucatus	Northern Quoll	Endangered	-	-	-
Nyctophilus corbeni	South-eastern Long-eared Bat	Vulnerable	-	-	-
Petrogale penicillata	Brush-tailed Rock-wallaby	Vulnerable	Vulnerable	-	-
Phascolarctos cinereus	Koala	Vulnerable (QLD, NSW & ACT)	Vulnerable (SEQ)	-	-
Anomalopus mackayi	Five-clawed Worm-skink	Vulnerable	Endangered	-	-
Delma torquata	Collared Delma	Vulnerable	Vulnerable	-	-
Egernia rugosa	Yakka Skink	Vulnerable	Vulnerable	-	-
Furina dunmalli	Dunmall's Snake	Vulnerable	Vulnerable	-	-
Paradelma orientalis	Brigalow Scaly-foot	Vulnerable	Vulnerable	-	-
Strophurus taenicauda	Golden-tailed Gecko	-	Near Threatened	-	-
Tympanocryptis pinguicolla	Grassland Earless Dragon	Endangered	Endangered	-	-
Migratory Species					
Apus pacificus	Fork-tailed Swift	-	-	Y	Y
Ardea alba	Great Egret	-	-	Y	Y
Ardea ibis	Cattle Egret	-	-	Y	Y
Haliaeetus leucogaster	White-bellied Sea-Eagle	-	-	Y	Y
Hirundapus caudacutus	White-throated Needletail	-	-	Y	Y
Merops ornatus	Rainbow Bee-eater	-	-	Y	Y
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	-	-	Y	Y
Rostratula australis	Australian Painted Snipe	Vulnerable	Vulnerable	Y	Y
Anseranas semipalmata	Magpie Goose	-	-	-	Y

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Notice

Environmental Protection Act

Notice of extension of decision period

This statutory notice is issued by the administering authority pursuant to s. 555 of the Environmental Protection Act 1994, *to advise you of a decision to extend the decision period for your application.*

Your reference : ENV12-318

Our reference : PEN100449509 / BNE43018

Arrow Energy Pty Ltd
'AM-60', Level 19
42-60 Albert St
BRISBANE QLD 4000

Attention: Ms sch4p4(6) Personal ir

Re: Application to amend a level 1 environmental authority (chapter 5A activities) number PEN100449509 by Arrow Energy Pty Ltd (Arrow) for Petroleum Leases (PL) 194, 198, 230, 238, 252, 258 and 260 received on 13 December 2012.

The administering authority extends the decision period for the above mentioned application, received by this office on 24 December 2012, to a newly revised decision date of **21 February 2013**.

The extension of time is required for the following reasons:

- To enable the applicant time to review and accept or provide comment on the draft conditions provided on 14 February 2013.
- To allow the administering authority sufficient time to assess Arrow's response to draft conditions and decide the application.

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Planning and Environment Court.

Information outlining the review and appeal processes under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this notice, please contact Keara McDonagh of the Department of Environment and Heritage Protection on telephone (07) 3330 5618.

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Notice of extension of decision period

sch4p4(6) Personal information

Signature

14/2/2013

Date

Steven Tarte
Manager, Energy Assessments
Delegate of administering authority
Department of Environment and Heritage Protection

Enquiries:
Energy Assessments (Level 7, 400 George St.)
Department of Environment and Heritage Protection

Regular Post:
GPO Box 2452, Brisbane QLD 4001

Courier or Registered Post:
Level 3, 400 George Street, BRISBANE QLD 4000
Phone: **(07) 3330 5618**
Fax: (07) 3330 5634

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Joanne Kerr

From: Keara Mcdonagh
Sent: Thursday, 14 February 2013 4:58 PM
To: sch4p4(6) Personal infor
Cc: Naylor Gillian; Frankish John (John.Frankish@ehp.qld.gov.au); Tarte Steven
Subject: DXP Amendment Application for a brine dam in buffer zone of a Cat C ESA - Draft conditions and notice of extension of decision period
Attachments: Environmental Authority Review and Comment_140213.doc; Notice_EXP_PEN100449509_14022013.pdf; DRAFT PEN100449509_14022013.docx

Good afternoon sch4p4

I refer to the amendment application of the Dalby Expansion Project (DXP) (PEN100449509), received by EHP on 12 December 2012, and additional information provided by Arrow Energy Pty Ltd (Arrow) on 8 February 2013.

Please find attached the draft EA PEN100449509 for DXP. Please provide any comments in the document provided or Arrow's acceptance of the conditions of the attached draft EA.

The draft EA includes the proposed condition amendment and a few other amendments to reflect updates to the scoping table (as per your discussions with Gill), QBOP requirements & updates to plans & definitions going forward from the date of granting this EA, current legislation, model conditions, dates past and grammatical edits for clarity.

As today is the due date for decision of this EA, please find attached a notice to extend the decision period to 21 February 2013.

Please confirm whether you are satisfied with the draft EA or provide any comments you may have in the review and comment template (attached) by close of business Monday, 18 February 2013.

The hard copy of the Notice of Extension to Decision Period will be posted out to you shortly.

If there is anything you need further clarification on, please contact me on (07) 3330 5618 or via email.

Kind regards,

Keara McDonagh
Environmental Officer
Energy Assessments Unit
Department of Environment and Heritage Protection (EHP)
Level 7, 400 George Street, Brisbane QLD 4000 | GPO Box 2454, BRISBANE QLD 4001
T: 07 3330 5618
F: 07 3330 5634
E: keara.mcdonagh@ehp.qld.gov.au
W: http://www.ehp.qld.gov.au

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Environmental Protection Act 1994

Level 1 Environmental Authority

Chapter 5A petroleum activity

Permit[1] Number: PEN100449509

Under section 310Y(2) of the *Environmental Protection Act 1994* this permit is issued to:

Principal Holder

Arrow Energy Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

ACN: 078 521 936

Joint Holders

Arrow CSG (Australia) Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Australian CBM Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Arrow (Tipton) Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Arrow (Tipton Two) Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Arrow (Daandine) Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Stanwell Corporation Limited
Level 12, Waterfront Place
1 Eagle Street
BRISBANE QLD 4000

in respect to carrying out a Level 1 chapter 5A activity(ies) as per Section 23 of the Environmental Protection Regulation 2008 on the relevant resource authorities listed below:

Project Name	**Petroleum Authority Type(s) and Number(s)**
Arrow Energy Dalby Expansion Project	Petroleum Leases (PL) 194, 198, 230, 238, 252, 258 and 260

This environmental authority takes effect from **XX February 2013**.

The anniversary date of this environmental authority is **17 December**.

This environmental authority is subject to the attached schedule of conditions.

Date

Steven Tarte
Delegate of Administering Authority
Department of Environment and Heritage Protection

Commented [MK1]: Amended to reflect new Government logo

[1] Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Heritage Protection.

DRAFT
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Additional advice about the approval

Commented [MK2]: Updated to current additional advice included on all current EAs

1. This approval is for the carrying out the following level 1 chapter 5A activity(ies):

Schedule 5 of the Environmental Protection Regulation 2008
6. A petroleum activity carried out on a site containing a high hazard dam or a significant hazard dam.
8. A petroleum activity, other than a petroleum activity mentioned in items 1 to 7, that includes 1 or more chapter 4 activities for which an aggregate environmental score is stated, namely: ERA 14 – Electricity generation by using gas at a rated capacity of 10MW electrical or more. ERA 15 – Fuel burning consists of using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour. ERA 60 (1) (d) – Operating a facility for disposing of, in a year, more than 200,000t of regulated waste. ERA 63 (2) (b) – Sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 100 to 1500EP. ERA 64 (2) (b) – Desalinating, in a day, more than 5ML, allowing the release of waste to waters other than seawater.

Commented [MK3]: Edited to reflect relevant legislation

Commented [MK4]: Completed full definition of ERA 63(2)(b) as per Environmental Protection Regulation 2008

2. This approval pursuant to the *Environmental Protection Act 1994* does not remove the need to obtain any additional approval for this activity which might be required by other State and/or Commonwealth legislation. Other legislation administered by the Department of Environment and Heritage Protection for which a permit may be required includes but is not limited to the:
   - *Aboriginal Cultural Heritage Act 2003*;
   - The contaminated land provisions of the *Environmental Protection Act 1994*;
   - *Queensland Heritage Act 1992*
   - *Forestry Act 1959;*
   - *Nature Conservation Act 1992*;
   - *Water Act 2000*; and
   - *Water Supply (Safety and Reliability) Act 2008*

   Applicants are advised to check with all relevant statutory authorities and comply with all relevant legislation.

3. This environmental authority does not authorise environmental harm unless a condition contained in this environmental authority explicitly authorises that harm. Where there is no condition, the lack of a condition shall not be construed as authorising harm.

4. This approval for the carrying out of a level 1 petroleum activity is not an acceptance of impacts on water levels or pressure heads in groundwater aquifers in or surrounding coal seams. There are obligations to minimise or mitigate any such impact under other Queensland Government and Australian Government legislation.

5. Terms are defined in Schedule L of this environmental authority. Where a term is not defined in this environmental authority, the definition in the *Environmental Protection Act 1994*, its regulations and Environmental Protection Policies, then the *Acts Interpretation Act 1954* then the

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Macquarie Dictionary then the *Petroleum and Gas (Production and Safety) Act 2004* or its regulations must be used in that order.

6. This environmental authority does not authorise the taking of protected animals or the tampering with an animal breeding place as defined under the Nature Conservation Act 1992 and its regulations.

7. It is a requirement under the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware of a Notifiable Activity (as defined by Schedule 4 of the Environmental Protection Act 1994) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 22 business days after becoming so aware, give notice to the Department of Environment and Heritage Protection.

8. Separate to the requirements found in the conditions of this environmental *authority, the holder must also meet their obligations under the Environmental* Protection Act 1994, and the regulations made under that Act. For example, the holder must comply with the following provisions of the Act:
   - s319 – general environmental duty
   - s320 – duty to notify environmental harm
   - s440 – offence of causing environmental nuisance
   - s440ZG – offence of depositing prescribed water contaminants in waters and related matters
   - s443 – offence to place contaminant where environmental harm or nuisance may be caused

9. It is a requirement under section 312A of the *Environmental Protection Act 1994* for the holder of the environmental authority to:
   - make a surrender application for the environmental authority within 30 days after the cancellation of a relevant resource authority for the environmental authority; or
   - a reduction in the area of a relevant resource authority for the environmental authority under a requirement of noncompliance action taken under resource legislation; or
   - within 90 days before any of the following occurs:
     - a relevant resource authority for the environmental authority is, according to its provisions, to end other than by cancellation;
     - a relinquishment of part of the area of a relevant resource authority for the environmental authority other than under a requirement of noncompliance action taken under resource legislation; or
     - a surrender of part of the area of a relevant resource authority for the environmental authority.

10. The duty to notify is a requirement contained in the *Environmental Protection Act 1994* which applies to all persons. The duty to notify arises where a person carries out activities and becomes aware of the act of another person arising from or connected to those activities which causes or threatens serious or material environmental harm. If a person carries out or is carrying out a chapter 5A activity, such as coal seam gas activities, the law requires that person to notify the administering authority where:
    - the activity negatively affects (or is reasonably likely to negatively affect) the water quality of an aquifer; or
    - the activity has caused the unauthorised connection of two or more aquifers.

    For more information about the duty to notify, refer to section 320A of the *Environmental Protection Act 1994* and/or the guideline, *The Duty to Notify of Environmental Harm* (EM467), published by the Department of Environment and Heritage Protection.

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11. This environmental authority consists of the following Schedules:

Schedule A	General Conditions
Schedule B	Water
Schedule C	Regulated Dams
Schedule D	Land
Schedule E	Environmental Nuisance
Schedule F	Air
Schedule G	Waste
Schedule H	Rehabilitation
Schedule I	Monitoring Programs
Schedule J	Community Issues
Schedule K	Notification Procedures
Schedule L	Definitions

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SCHEDULE A – GENERAL CONDITIONS

Authorised Petroleum Activities

(A1) In the carrying out of the petroleum activity(ies), the holder of this environmental authority must not exceed the number and maximum size for each of the specified petroleum activities listed in *Schedule A, Table 1 – Authorised Petroleum* Activities for each petroleum tenure.

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Schedule A, Table 1 – Authorised Petroleum Activities

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Petroleum Activity(ies)	Number of Existing Petroleum Activities	Number of Proposed Petroleum Activities	Maximum Disturbance Authorised
Seismic surveys	0	200 km	200 km, 120 ha
Total coal seam gas wells, including: • Core wells (indicative) • Exploration wells (indicative) • Development wells (indicative) • Production wells (indicative)	 0 0 0 576	 0 0 0 115	691 wells 691 ha
Compressor units	40	0	40 units, ? ha
Central gas processing facilities	2	0	2 facilities, 8 ha
Regulated dams	22	0	22 dams
Water treatment facilities	2	0	12 ML/d (each), 2 ha
Sewage treatment plants	2	0	< 450 EP (each), ? ha
Power stations	1	0	40 MW, 1.2 ha

Prevent or Minimise Likelihood of Environmental Harm

(A2) This environmental authority does not authorise environmental harm unless a condition contained in this environmental authority explicitly authorises that harm. Where there is no condition, the lack of a condition shall not be construed as authorising harm.

Maintenance of Measures, Plant and Equipment

(A3) The holder of the environmental authority must:

(a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
(b) maintain such measures, plant and equipment in their proper and effective condition; and
(c) operate such measures, plant and equipment in a proper and effective manner.

(A4) No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration materially increases, or is likely to increase, the environmental harm caused by the petroleum activity.

Operational Plan

(A5) The holder of this environmental authority must develop an Operational Plan that provides detailed information about the activities to be carried out under the environmental authority.

(A6) The activities identified in the Operational Plan must incorporate but not be limited to the petroleum activities set out in the approved Work Program and/or Development Plan for the relevant petroleum authority as required under the *Petroleum Act (1923)* or the *Petroleum and Gas (Production and Safety) Act 2004.*

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(A7) The Operational Plan must be consistent with the requirements of the environmental authority and include, but not be limited to:

(a) a stated period, not exceeding three (3) years, to which the Operational Plan applies;
(b) a description of the existing petroleum and **incidental infrastructure**;
(c) a description of all proposed petroleum and incidental infrastructure that will be developed during the term of the Plan
(d) a map or maps that:
  i. record the location of all existing petroleum and incidental infrastructure that exists at the commencement of the period of the Operational Plan, including but not limited to:
    - regulated dams;
    - wells;
    - transmission flow lines;
    - gas processing facilities;
    - water treatment facilities;
    - sewage treatment facilities; and
    - compressor stations
  ii. records the location of all programmed and approved future **infrastructure** that will be developed during the period of the Operational Plan.
(e) proposed maximum disturbance area to be cleared under the life of the Operational Plan;
(f) for proposed disturbance or vegetation clearing in an Environmentally Sensitive Area (ESA) provide details on the scale and extent of the disturbance or **clearing** of these areas specifically;
(g) for forecasted vegetation clearing in an ESA that is an "Endangered" or "Of Concern Regional Ecosystem (RE), the Operational Plan must provide details of environment offsets that are at least equivalent in environmental value of the disturbance caused to the ESA.
(h) for each **site** to be disturbed, a plan of the rehabilitation activities to be performed during the period of the Operational Plan, including but not limited to a description of the following:
  i. location (e.g. tenure, coordinates) and disturbance type (e.g. well lease, flow line, access track);
  ii. pre-disturbance land use;
  iii. forecasted total area to be rehabilitated under the life of the Operational Plan;
  iv. reference sites for rehabilitated areas;
  v. floristic species to be planted in the rehabilitation and their proposed densities;
  vi. soil types of areas to be rehabilitated;
  vii. post-disturbance land use;
  viii. monitoring program to measure rehabilitation success;
  ix. rehabilitation specifications for all proposed petroleum activities and incidental infrastructure which will achieve the standards stated in Schedule H – Rehabilitation; and
  x. a high level rehabilitation strategy for all proposed petroleum and incidental infrastructure which is not sited at the commencement of the Operational Plan; and
(i) a description of the progressive rehabilitation carried out and the performance of rehabilitated sites in relation to the requirements and acceptance criteria set out in the environmental authority and the proposed rehabilitation activities carried out under the previous Operational Plan(s); and
(j) the calculation of financial assurance for the proposed maximum disturbance expected during the period of the Operational Plan.

(A8) All subsequent Plans must be submitted to the administering authority not less than three months prior to the expiry of the current Plan period, and must also include a record of disturbance to **State significant biodiversity values** of all petroleum activity(ies) that commenced after XX February 2013 (the date of grant of this EA).

Commented [MK7]: Added requirement for subsequent operational plans to also include consideration of SSBVs, but only for activities commenced after date of grant of this EA

Financial Assurance

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(A9) The holder of this environmental authority must:

(a) provide to the administering authority financial assurance in the amount and form required from time to time by the administering authority for the authorised petroleum activities; and
(b) review and maintain the amount of financial assurance based on the maximum disturbance from proposed and existing activities and rehabilitation to be undertaken during the period of the Operational Plan that is current from time to time.

(A10) The calculation of financial assurance must be in accordance with the most recent version of the Department of Environment and Heritage Protection's Guideline "Financial assurance for petroleum activities".

Existing petroleum activities

(A12) Conditions (D2) to (D17) and (D43) to (D45) in the Land Schedule relating to disturbance only apply to petroleum activities which commenced after 15 March 2011 subject to the holder of the environmental authority having complied with all disturbance conditions of the relevant environmental authority that applied at the time the existing petroleum activity was constructed.

Commented [MK8]: Relates to activities requiring offsetting under QBOP

Third Party Audit

(A13) Compliance with the conditions of this environmental authority must be audited by an appropriately qualified **third party auditor**, nominated by the holder of this environmental authority and accepted by the administering authority, for each period of the Operational Plan required under Conditions (A5) to (A8).

(A14) Notwithstanding Condition (A13), the holder of this environmental authority may, prior to undertaking the third party audit, negotiate with the administering authority the scope and content of the third party audit.

Note: Where minimal activities have been undertaken on a tenure, the negotiation of the scope of the third party audit may also include the postponing of the third party audit to an agreeable time between the holder of this environmental authority and the administering authority.

(A15) The report prepared by the third party auditor for the relevant prior Operational Plan period must be submitted to the administering authority by the holder of this environmental authority with each revised Operational Plan submitted in accordance with Condition (A8).

(A16) The third party auditor must certify (including a statutory declaration) the findings of the audit in the report.

(A17) The financial cost of the third party audit is to be borne by the holder of this environmental authority.

(A18) The holder of this environmental authority must immediately act upon any recommendations arising from the audit report by:

(a) investigating any non-compliance issues identified; and
(b) as soon as practicable, implementing measures or taking necessary action to ensure compliance with the requirements of this environmental authority.

(A19) Subject to Condition (A18), and not more than 60 business days following the submission of the audit report, the holder of this environmental authority must provide a written report to the administering authority addressing the:

(a) actions taken by the holder to ensure compliance with this environmental authority; and
(b) actions taken to prevent a recurrence of any non-compliance issues identified.

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Contingency Plan for Emergency Environmental Incidents

(A20) A contingency plan for emergency environmental incidents which includes but is not limited to the impacts of flooding, must be developed and implemented to respond to environmental emergency events and incidents where environmental harm is caused or threatened.

(A21) The contingency plan for emergency environmental incidents required under condition (A20) must address the following matters as a minimum:

(a) a clear definition of what constitutes an environmental emergency incident for the activity;
(b) identification of the types of environmental incidents that may occur, relevant to the activities authorised to be carried out under this environmental authority;
(c) response procedures to be implemented to prevent or minimise the risk of environmental harm arising from environmental emergency incidents;
(d) response procedures to minimise the extent and duration of environmental harm caused by environmental emergency incidents;
(e) the practices and procedures to be employed to restore the environment or mitigate any environmental harm caused;
(f) communication procedures and lines of communication within and beyond the organisation to be employed in responding to environmental emergency incidents;
(g) the resources to be used in response to environmental emergency incidents;
(h) procedures to investigate the cause of any incidents, including releases, and where necessary, the remedial actions to be implemented to reduce the likelihood of recurrence of similar events;
(i) a receiving environment (surface waters/land) monitoring program, to be specifically implemented in the event of a release to waters/land to examine/assess environmental impacts (for waters this must include upstream and downstream monitoring);
(j) the provision and availability of documented procedures to staff attending any emergency environmental incident to enable them to effectively respond;
(k) training of staff that will be called upon to respond to emergency environmental incidents to enable them to effectively respond;
(l) timely and accurate reporting of the circumstance and nature of emergency environmental incidents to the administering authority in accordance with conditions of this environmental authority;
(m) procedures for accessing monitoring points during emergency environmental incidents; and
(n) procedures to notify any potentially impacted stakeholder who may be affected by an environmental emergency incident.

(A22) Prior to the commissioning of the Daandine brine dam 2, the contingency plan for emergency environmental incidents required by conditions (A20) and (A21) must be revised to include the following additional requirements:

(a) a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity(ies) authorised to be carried out under this environmental authority;
(b) procedures for responding to incidents resulting from stimulation activities, including specific rectification measures in the event of non-routine stimulation events;
(c) plans for restoring loss of well mechanical integrity so as to prevent environmental harm;
(d) procedures to avoid / minimise discharges resulting from any overtopping or loss of structural integrity of a dam;
(e) procedures to respond to a regulated dam reaching its mandatory reporting level;
(f) procedures to respond to a regulated dam reaching its design storage allowance;
(g) procedures to investigate the cause of any incidents including releases or near misses, and where necessary, the remedial actions to be implemented to reduce the likelihood of recurrence of similar events;
(h) a receiving environment (surface waters/land) monitoring program, to be specifically implemented in the event of a release to waters/land to examine/assess environmental impacts. For waters this must include upstream and downstream monitoring and impact

Commented [MK9]: As brine dams are high risk activities, added this condition to meet requirements of model conditions from the date of grant of the EA

Commented [MK10]: Edited to be consistent with current model conditions

Commented [MK11]: Added to be consistent with current model conditions

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site monitoring procedures. For soils monitoring, three replicate samples must be taken at depth intervals of 0-10 cm, 20-30 cm and 50-60 cm at both a reference site and the impact site as a minimum; and

(i) timely and accurate reporting of the circumstance and nature of emergency environmental incidents to the administering authority and any affected landholder, occupier and / or their nominated representative in accordance with conditions of this environmental authority.

Commented [MK12]: Added to be consistent with current model conditions

Commented [MK13]: Added to be consistent with current model conditions

Documentation and Records Management

(A23) All records and results required by the conditions of this environmental authority must be kept for a minimum of five (5) years.

(A24) All documentation required by this environmental authority (including but not limited to plans, systems, programs, procedures, results of audits, assessments, monitoring, inspections and complaint records) must be made available to the administering authority upon request.

Cultural Heritage

(A25) In the carrying out of the petroleum activity the holder of this environmental authority must not adversely impact on the cultural heritage values of any place registered on the Queensland Heritage Register.

Underground Gas Storage

(A26) Testing, evaluating, developing and using natural underground reservoirs for petroleum storage or to store **prescribed storage gases** is not authorised under this environmental authority.

Stimulation of Underground Reservoirs

(A27) The **stimulation** of underground reservoirs is prohibited under this environmental authority.

Encapsulation of Solid Salt in a Landfill Monocell

(A28) The disposal of solid salt on site, including encapsulation of solid salt in a **landfill monocell**, is prohibited under this environmental authority.

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SCHEDULE B – WATER

Contaminant Release

(B1) Contaminants that will or may cause environmental harm must not be directly or indirectly released to any **waters** except as permitted under this environmental authority.

Erosion and Sediment Control

(B2) The Erosion and Sediment Control Plan which has been certified by a suitably qualified person must be implemented to minimise erosion and the release of sediment and contaminated stormwater to waters for all stages of the petroleum activities.

Commented [MK14]: Edited to remove date as date has passed

(B3) The Erosion and Sediment Control Plan required by Condition (B2) must include but not be limited to:

(a) diverting uncontaminated stormwater run-off around areas disturbed by petroleum activities or where contaminants or wastes are stored or handled that may contribute to stormwater;
(b) contaminated stormwater runoff and incident rainfall is collected; and treated, reused, or released in accordance with the conditions of this environmental authority;
(c) roofing or minimising the size of areas where contaminants or wastes are stored or handled;
(d) revegetating disturbed areas as soon as practicable after the completion of works;
(e) using alternate materials and or processes (such as dry absorbents) to clean up spills that will minimise the generation of contaminated waters;
(f) erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;
(g) an inspection and maintenance program for the erosion and sediment control features;
(h) provision for adequate access to maintain all erosion and sediment control measures especially during the wet season months from November to April;
(i) additional erosion and sediment control measures for **construction** of wells and pipelines on slopes >10%;
(j) surface water monitoring program designed to detect erosion and sediment runoff into **watercourses**;
(k) identification of remedial actions that would be required to ensure compliance with the conditions of this environmental authority; and
(l) details of community consultation strategies and processes to be used in further developing and implementing the Erosion and Sediment Control Plan.

(B4) A copy of the Erosion and Sediment Control Plan must be submitted to any potentially affected landholders upon request.

Maintenance and Cleaning

(B5) The maintenance and cleaning of vehicles and any other equipment or plant must be carried out in areas from where the resultant contaminants cannot be released into any waters, roadside gutter or stormwater drainage system.

Watercourses, Wetlands and Springs

(B6) In the carrying out of the petroleum activity the holder of this environmental authority must not clear vegetation or place **fill**, in or within:

(a) 200 metres from any natural significant **wetland**;
(b) 100 metres from any natural wetland, **lakes** or **springs**; or
(c) 100 metres of the **high bank** of any other watercourse.

(B7) The holder of this environmental authority must not excavate or place fill in a way that interferes with the flow of water in a watercourse, wetland, or spring, including works that divert the course of flow of the water or works that impound the water.

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(B8) Despite Conditions (B6) and (B7), pipeline and road construction works may be undertaken in watercourses, wetlands or springs where there is no reasonable and practicable alternative (such as the use of horizontal directional drilling methods) for a maximum period of 10 days, provided that the works are conducted in accordance with the following order of preference:

(a) conducting work in times of no flow; and
(b) using all reasonable and practicable measures to reduce impacts in times of flow.

(B9) Offsets must be provided for impacts to watercourses, wetlands, lakes or springs with **State Significant Biodiversity Values** in accordance with the Queensland Biodiversity Offset Policy, and a signed **deed of agreement**.

Commented [GN15]: The construction of works in watercourses with SSBVs post date of grant of this EA will trigger an offset requirement.

To be reworded based on the rewording to be finalised for Schedule D.

(B10) Activities or works resulting in **significant disturbance** to the bed or banks of a watercourse or wetland, or a spring must:

(a) only be undertaken where necessary for the construction and/or maintenance of roads, tracks and pipelines that are essential for carrying out the authorised petroleum activities and no reasonable or practicable alternative location exists;
(b) be no greater than the minimum area necessary for the purpose of the significant disturbance;
(c) be designed and undertaken by a suitably qualified person taking into account the matters listed in Section 5 - Planning Activities and Section 6 - Impact Management During Activities of the Department of Environment and Heritage Protection's "*Guideline – Activities in a watercourse, lake or spring associated with mining operations"* dated April 2008, or more recent editions as such become available; and
(d) upon cessation of the activities or works, commence rehabilitation immediately such that the final rehabilitation is to a condition that will ensure the ongoing physical integrity and the natural ecosystem values of the site.

(B11) Sediment control measures must be implemented to minimise any increase in water turbidity due to carrying out petroleum activities in the bed or banks of a watercourse or wetland, or a spring.

(B12) Routine, regular and frequent visual monitoring must be undertaken while carrying out construction work and/or any maintenance of completed works in a watercourse, wetland or spring.

(B13) If, due to the petroleum activities, water turbidity increases in the watercourse, wetland or spring outside contained areas, works must cease and the sediment control measures must be rectified to limit turbidity before activities recommence.

(B14) All measures must be taken to minimise adverse impacts to or reversal of any river improvement works carried out in River Improvement Areas by Queensland's River Improvement Trusts.

Note: Locations and details of River Improvement Areas and River Improvement Trusts are provided in the Schedule to the River Improvement Trust Regulation 1998.

Floodplains

(B15) Where petroleum activities are carried out on floodplain areas, the holder of this environmental authority must ensure that petroleum and incidental activities do not:

(a) concentrate flood flows that cause or threaten an adverse environmental impact;
(b) divert flood flows from natural drainage paths and alter flow distribution;
(c) increase the local duration of floods;
(d) increase the risk of detaining flood flows;
(e) pose an **unacceptable risk** to the safety of persons from flooding; or
(f) pose an unacceptable risk of damage to property from flooding.

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Groundwater

(B16) The extraction of groundwater as part of the petroleum activity from underground aquifers must not directly or indirectly cause environmental harm to any spring, wetland or other surface waters.

Wild Rivers

(B17) In a declared Wild River Area, petroleum activities must be consistent with the conditions stated in the relevant **Wild River Declaration**.

(B18) Where the conditions of this environmental authority conflict with the conditions of the Wild River Declaration, the conditions of the Wild River will Declaration prevail.

Release to Waters of Treated CSG Water

(B19) The release of contaminants to waters must only occur from the release points specified in *Schedule B, Table 1 – Contaminant Release Points, Sources and Receiving Waters* and depicted in Figure 1 attached to this environmental authority.

Schedule B, Table 1 – Contaminant Release Points, Sources and Receiving Waters

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Release Point	Latitude or Northing (GDA94)	Longitude or Easting (GDA94)	Contaminant Source and Location	Monitoring Point	Receiving Waters Description
U1, defined as the outlet of discharge pipe to unnamed tributary of Wilkie Creek	-27° 5' 35"	150° 58' 9"	Treated CSG water from the RO plant located on PL230	U1	Unnamed tributary of Wilkie Creek

(B20) The release of contaminants to waters must comply with the release limits and limit types as stated in *Schedule B, Table 2 – Contaminated Release Limits for Release Point U1* when measured at the monitoring points specified in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* for each quality characteristic.

Schedule B, Table 2 – Contaminant Release Limits for Release Point U1

Quality Characteristic	Release Limits	Limit Type	Monitoring Frequency
Electrical conductivity (µS/cm)	580	Maximum	Daily during discharge
pH (pH Unit)	6.5 - 9	Range	
Suspended Solids (mg/L)	180	Maximum	
Cations and anions (mg/L)	Calcium (cation) 34 Magnesium (cation) 26 Sulphate (anion) 9.6	Maximum	

(B21) The release of contaminants to waters from the release points must be monitored at the monitoring point specified in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* for each quality characteristic and at the frequency specified in *Schedule B, Table 2 – Contaminated Release Limits for Release Point U1* .

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Contaminant Release

(B22) In the event of a release of treated CSG water to Wilkie Creek, and before the commencement of the release, the holder of this environmental authority must install, operate and maintain a stream flow gauging station as specified in *Schedule B, Table 3 – Contaminated Release During Flow Events* to determine and record stream flows at a location 50 to 100 metres upstream from each release point as shown in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* .

(B23) Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in *Schedule B, Table 3 – Contaminated Release During Flow Events* to for the contaminant release point(s) specified in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* .

Schedule B, Table 3 – Contaminant Release During Flow Events

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Receiving water description	Gauging station description	Latitude or northing (GDA94)	Longitude or easting (GDA94)	Minimum Flow in Receiving Water Required for a Release Event	Flow recording Frequency
Unnamed tributary of Wilkie Creek	Gauging station 1 (GP1)	50-100 metres upstream of Release Point U1	50-100 metres upstream of Release Point U1	0.8 m^3/s (equivalent to 0.5 metres on Gauging station 1)	at 6 hour intervals during discharge (minimum twice daily)

(B24) The volume released through the release point(s) must not exceed 0.8 m^3/s and 20 ML/day.

(B25) Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build up of sediment in such waters.

Characterisation of Other Contaminants

(B26) If water has been released from authorised release points listed in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* , the holder of this environmental authority must undertake an annual assessment of the contaminants of treated CSG water to determine the risk of environmental harm from release of treated CSG water to surface waters. This should consider the contaminants mentioned in the ANZECC & ARMCANZ 2000 guidelines. This annual assessment must be included in the Annual Return.

Event Based Surface Water Monitoring

(B27) Each monitoring and release point as specified in *Schedule B, Table 2 – Contaminated Release Limits for Release Point U1* must be marked and readily identifiable from the banks of the unnamed tributary of Wilkie Creek prior to commencing any release of treated CSG water authorised under this environmental authority.

(B28) The water quality of the receiving waters must be monitored daily during discharge at a monitoring point 50-100 metres upstream and 200 metres downstream of release point U1 for the following water quality parameters:

(a) Electrical conductivity (µS/cm)
(b) pH (pH Unit)
(c) Turbidity (NTU)
(d) Suspended Solids (mg/L)
(e) Calcium (mg/L)
(f) Magnesium (mg/L)
(g) Fluoride

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(B29) The holder of this environmental authority must keep written records of all discharge events to the unnamed tributary of Wilkie Creek. The records must include, but not be limited to:

(a) the volume of water released through the release point(s);
(b) the release rate;
(c) date and time of discharge;
(d) water levels at Gauging Station GP1 during the discharge event;
(e) water quality characteristics monitoring results; and
(f) details of any observed impacts.

Water Release Reduction Strategy

(B30) As part of the Coal Seam Gas Water Management Plan the holder of the environmental authority must develop and implement an on-going Release Reduction Strategy to maximise CSG water reuse and minimise any release to waters and the storage of CSG water in holding dams. The strategy must address the following matters:

(a) implementation of schemes to achieve maximum use of the water;
(b) specific targets for achieving increased use of CSG water both treated and untreated;
(c) a market analysis at least every three (3) years to identify existing and future opportunities for water use;
(d) on-going review of emerging technologies and/or re-use options that could achieve significant reductions in mass loads of contaminants released to the environment;
(e) investigation of the feasibility of alternative options, practices and procedures to further minimise the volume and concentration of contaminants released to waters; and
(f) programs to implement feasible options to achieve increased water use and reduction in contaminant loads, including actions and timeframes for completion.

(B31) A progress report on the Release Reduction Strategy must be submitted to the administering authority with each annual return. The report(s) must address at least the following matters:

(a) details of the specific options, practices and procedures investigated;
(b) details of new practices, procedures and programs implemented since the last reporting period and targets met;
(c) where alternative options, practices and procedures are not considered feasible, the provision of justification to support that determination; and
(d) details of the option(s) yet to be implemented, including the timeframes for implementation, and justification for the chosen option(s).

Water General

(B32) The release of contaminants directly or indirectly to waters:

(a) must not produce any visible plume within receiving waters; nor
(b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

Metering of treated CSG water releases

(B33) A measuring device/ meter must be installed prior to commencement of release of treated CSG water and its installation must comply with the '*Draft standards and specifications for measuring /metering disposal of treated CSG water*'.

(B34) Upon practical completion of the meter installation, the holder of this environmental authority must provide a completed 'meter installation form' signed by the installer and the environmental authority holder confirming that the installation complies with the manufacturer's specifications and/or national standards and/or the Department of Environment and Heritage Protection's metering standards (whichever is applicable).

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Note: The Draft standards and specifications for measuring/metering disposal of treated CSG water is available from the administering authority upon request.

(B35) The holder of this environmental authority must measure and record daily:

(a) the volume released to surface waters from each release point at the monitoring point(s) in *Schedule B, Table 1 - Contaminant Release Points, Sources and Receiving Waters;*
(b) the release rate;
(c) for any change in the release rate:
(i). the date and time of the change; and
(ii). the new release rate.

(B36) The holder of this environmental authority must provide the administrative authority with safe access to facilitate inspections, and must comply with any instructions issued by the administrative authority relevant to the operation of the pump and meter installation.

(B37) The holder of this environmental authority must notify the administering authority within five (5) business days of any meter malfunction or maintenance of the measuring device (meter).

(B38) The holder of this environmental authority must arrange for the repair or replacement of a malfunctioning meter within five business days of becoming aware of the malfunction and provide a repair and/or maintenance completion report within ten business days of the repair or maintenance.

Sewage Treatment Works (21 – 450 EP)

Release of Treated Sewage Effluent Contaminants to Land

(B39) Sewage pump stations must be fitted with a stand-by pump and a visible or audible high level alarm.

(B40) Treated effluent may only be released to land at the designated, fenced and delineated contaminant release area(s).

(B41) The contaminant release area(s) must be maintained in a proper and efficient condition so as to provide adequate assimilation, percolation, evaporation and transpiration of the released contaminants.

(B42) Treated effluent must not be applied by spray irrigation and must be applied in a manner that does not cause ponding or runoff of effluent beyond the contaminant release area(s).

(B43) When weather conditions or soil conditions preclude the release of contaminants, the contaminants must be directed to on-site storage or lawfully disposed of off-site.

Quality of Contaminants Released from the Sewage Treatment Works

(B44) Treated effluent must comply, at the sampling and in-situ measurement point(s), with each of the release limits specified in *Schedule B, Table 4 - Treated Sewage Effluent Standards* for each quality characteristic.

(B45) The release of contaminants to land must be monitored at the frequency and at the sampling and in-situ measurement point specified in *Schedule B, Table 4 - Treated Sewage Effluent Standards* and records of the monitoring results kept for at least five (5) years and made available to the administering authority on request.

(B46) The influent annual average daily dry weather flow of sewage must not exceed 60 kilolitres per day for each authorised sewage treatment plant under this environmental authority.

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Schedule B, Table 4 - Treated Sewage Effluent Standards

Commented [MK18]: Completed title where incomplete throughout EA

Quality Characteristic	Sampling and in-situ measurement Point Location	Limit Type	Release Limit	Frequency
5-day Biochemical Oxygen Demand (inhibited)	Release pipe from sewage treatment plant located on PL198; Release pipe from sewage treatment plant located on PL230	Maximum	20 mg/L	Monthly
Suspended Solids		Maximum	30 mg/L	
pH		Range	6.0 to 9.0	
E-Coli		80th percentile based on at least 5 samples with not less than 30 minutes between samples.	1000 cfu per 100 mL	
		Maximum	10000 cfu per 100 ml	

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SCHEDULE C – REGULATED DAMS

(C1) The name of each **regulated dam** must be clearly sign posted at the dam location at all times.

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(C2) Construction of any dam or modifications to an existing dam determined to be in the high **hazard** or significant **hazard category** in accordance with the most recent version of *"Manual for Assessing Hazard Categories and* ***Hydraulic Performance*** *of Dams"* is prohibited unless the required **design plan** details have been entered into the regulated dam Register and certified by the chief executive officer for the holder of the environmental authority, or their delegate, as being accurate and correct.

Regulated Dam Register

(C3) The holder of this environmental authority must maintain a Register of regulated dams that must include, as a minimum, the following information for each regulated dam:

(a) dam name, the coordinates for its location and date of entry in the register;
(b) dam purpose and its proposed/actual contents;
(c) hazard category assessed using the most recent version of *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"* ;
(d) details of the composition and construction of any liner;
(e) dimensions (metres) and surface area (hectares) measured at the footprint of the dam;
(f) maximum operational volume (megalitres);
(g) design storage allowance at 1 November each year (megalitres);
(h) mandatory reporting level (metres);
(i) date construction was certified as compliant with the design plan;
(j) name and qualifications of certifier;
(k) dates on which the dam was inspected for structural and operational adequacy;
(l) date on which the report of the annual structural and operational adequacy inspection was provided to the administering authority;
(m) dates on which the dam was inspected for the detection of leakage through any liner; and
(n) dates on which the dam was inspected for the purpose of annually ascertaining the available storage capacity on the 1 November each year.

Note: The dam register in the approved departmental format is available for download at: http://www.ehp.qld.gov.au/management/coal-seam-gas/pdf/regulated_dam_register.xls

(C4) The holder of this environmental authority must provisionally enter the required information in the Register of regulated dams when a design plan for a regulated dam is submitted to the administering authority.

(C5) The holder of this environmental authority must make a final entry of the required information in the Register of Regulated Dams once compliance with condition C16 has been achieved.

(C6) The holder of this environmental authority must ensure that the information contained in the Register of regulated dams is complete and current on any given day.

(C7) All entries in the Register of regulated dams must be certified by the chief executive officer for the environmental authority holder, or their delegate, as being accurate and correct.

(C8) The holder of this environmental authority must submit the Register of regulated dams or information contained in the Register available to the administering authority at each annual return and when requested to do so in the form requested by the administering authority.

Construction and Operational Requirements for New Dams

(C9) All **aggregation dams** must:

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(a) be designed with a floor and sides of material that will contain the wetting front and any entrained contaminants within the bounds of the containment system during its operational life including any period of decommissioning and rehabilitation; and
(b) have a system that will detect any passage of the wetting front or entrained contaminants through the floor or sides of the dam and enable the repair of the containment system or its decommissioning and rehabilitation.

(C10) All **brine** dams must:

Commented [MK20]: Removed date as it has passed

(a) be designed with a floor and sides of material that will contain the wetting front and any entrained contaminants within the bounds of the containment system during its operational life including any period of decommissioning and rehabilitation;
(b) have a system that will detect any passage of the wetting front or entrained contaminants through the floor or sides of the dam, enable the repair of the containment system or its decommissioning and rehabilitation; and
(c) the collection and proper disposal of any contaminants that move beyond the bounds of the containment system.

(C11) The holder of this environmental authority must ensure that regulated dams constructed after 15 March 2011:

(a) are constructed to provide flood immunity such that the dam is adequately protected against overtopping and will be provided with erosion protection from external flooding events, at or above the Annual Exceedence Probability (AEP) specified for determining Spillway capacity; and
(b) are not to be constructed in areas that are estimated to be submerged by a flooding event from a recognised watercourse, at or above an Annual Exceedence Probability (AEP) of 0.02 (1 in 50).

(C12) All regulated dams must be designed in accordance with the requirements of the most recent version of *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"* by and constructed under the supervision of a **suitably qualified and experienced person**.

Regulated Dam Design Plan and 'As Constructed' Certification

(C13) The construction and operation of regulated dams is prohibited unless the holder of this environmental authority has submitted to the administering authority a copy of the design plan, together with the **certification** of a **suitably qualified and experienced person** that the regulated dam:

(a) will deliver the performance stated in the design plan;
(b) has had its hazard category assessed and been designed in accordance with the requirements of the most recent version of *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"*; and
(c) when constructed and operated, will be compliant in all respects with the relevant conditions of this environmental authority.

(C14) The design plan must include, but not be limited to:

(a) a statement of the relevant legislation, regulatory documents and engineering practice relied upon in the design plan;
(b) a statement of the facts and data being used in the design plan and the limitations to the application and interpretation of that material;
(c) an assessment of the hazard category of the proposed dam based on the indentification of potential impacts on any relevant sensitive places for any applicable dam failure scenarios, including the cumulative impact should all dams fail at once;
(d) detailed specifications for the design, operation, maintenance and decommissioning of the dam(s);
(e) an operational plan that includes contingency / emergency response procedures designed to avoid / minimise discharges resulting from any overtopping or loss of structural integrity of the dam;

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(f) design, specification and operational rules for any related structures and systems used to prevent the overtopping of the proposed dam;
(g) a detailed plan for the decommissioning and rehabilitation of the dam at the **end** of its operational life;
(h) any other matter required by the certifying suitably qualified and experienced person; and
(i) evidence supporting the claims of the certifier that they are a suitably qualified and experienced person.

(C15) If, within the 20 business days following the lodgement of a certified design plan the administering authority notifies the holder of this environmental authority, in writing, that the design plan is not compliant with either:

(b) the conditions of this environmental authority; or
(c) the requirements set out in the most recent version of "*Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*"

then the construction and operation of the regulated dam is prohibited until the administering authority provides written advice that its construction may proceed.

(C16) When construction of any regulated dam is complete, the holder of this environmental authority must submit to the administering authority one hard copy and one electronic copy of a set of 'as constructed' drawings, together with the certification of a suitably qualified and experienced person that the dam 'as constructed' will deliver the performance stated in the design plan and at the time of certification it is compliant in all respects with Conditions (C9) to (C14) of this environmental authority.

(C17) Each regulated dam must be maintained and operated in a manner that is consistent with the design plan and the certified 'as constructed' drawings for the duration of its operational life and until decommissioned and rehabilitated.

(C18) Upon any change in its purpose or stored contents of a regulated dam, the hazard category of the dam must be determined by a suitably qualified and experienced person prior to any such change.

Mandatory Reporting Level

(C19) The Mandatory Reporting Level must be marked on each regulated dam in such a way that it is clearly observable during routine inspections of each dam.

(C20) The holder of this environmental authority must notify the administering authority immediately when the level of the contents of any regulated dam reaches the Mandatory Reporting Level, and immediately act to prevent or, if unable to prevent, to minimise any actual or potential environmental harm.

Annual Inspection and Report

(C21) Each regulated dam must be inspected annually by a suitably qualified and experienced person.

(C22) At each annual inspection, each regulated dam must be assessed for:
(a) its hazard category in accordance with the most recent version of *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"*; and
(b) condition and adequacy for dam safety; and
(c) its structural, geotechnical and hydraulic performance against the criteria contained in the certified design plan.

(C23) An assessment of the adequacy of the available storage in each regulated dam is to be made, based on an actual dam level observed in the month of October in each year, and the resultant estimate of the level in that dam as at 1 November in each year must be equal or less than the design storage allowance for the dam.

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(C24) Where the assessment of the adequacy of the available storage in any regulated dam indicates that the design storage allowance will be exceeded, or at any other time the holder of this environmental authority becomes aware that the design storage allowance has been or will be exceeded, the holder of this environmental authority must immediately notify the administering authority, and immediately act to prevent or, if unable to prevent, to minimise any actual or potential environmental harm.

(C25) For each annual inspection, a copy of a report on the condition and adequacy of each regulated dam, certified by the suitably qualified and experienced person and including any recommended actions to be taken to ensure the integrity of each regulated dam, must be provided to the administering authority upon request.

(C26) The holder of this environmental authority must, upon receipt of the annual inspection report, consider the report and its recommendations, take action to ensure that each regulated dam will safely perform its intended function, and within one month of receiving the report, notify the administering authority in writing of the recommendations of the inspection report and the actions taken to ensure the integrity of each regulated dam.

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SCHEDULE D — LAND

General

(D1) Contaminants that will or may cause environmental harm must not be directly or indirectly released to land except as permitted under this environmental authority.

Disturbance to Land – General

(D2) Prior to conducting petroleum activities that involve significant disturbance to land, an assessment must be undertaken of the condition, type and ecological value of any vegetation in such areas where the activity is proposed to take place.

(D3) The assessment required by Condition (D2) must be undertaken by a suitably qualified person and include the carrying out of field validation surveys, observations and mapping of any **Category A, B or C Environmentally Sensitive Areas (ESA's)** and the presence of species classed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992* and for petroleum activities that commenced after XX February 2013 (the date of grant of this environmental authority), areas containing State significant biodiversity values.

Commented [MK21]: QBOP requirement

(D4) If the assessment required by Conditions (D2) and (D3) indicates that a regional ecosystem (RE) mapped as 'Endangered' or 'Of Concern' by the Queensland Herbarium should be in a lower conservation value classification and the holder of this environmental authority wishes to undertake activities as if the ecosystem is of the lower conservation value they must notify the administering authority in writing before any significant disturbance to land takes place.

(D5) If, within the 20 business days following the lodgement of the notification under Condition (D4) the administering authority notifies the holder of this environmental authority, in writing, that the RE mapping requires further validation, then significant disturbance to land in the mapped regional ecosystem are prohibited until the administering authority provides written advice that significant disturbance to land may proceed.

(D6) The holder of this environmental authority, when carrying out petroleum activities must:

(a) avoid, minimise or mitigate (in order of preference) any impacts on areas of vegetation or other areas of ecological value;
(b) minimise disturbance to land that may otherwise result in land degradation;
(c) ensure that for land that is to be **significantly disturbed** by petroleum activities:
  (i). the top layer of the soil profile is removed;
  (ii). stockpiled in a manner that will preserve its biological and chemical properties; and
  (iii). used for **rehabilitation** purposes (in accordance with Condition (H4));
(d) avoid clearing mature trees; and
(e) prior to carrying out field based activities, make all relevant staff, contractors or agents carrying out those activities, aware of the location of any category A, B or C ESA's and the requirements of this environmental authority.

Note: This environmental authority does not authorise the taking of protected animals or the tampering with an animal breeding place as defined under the Nature Conservation Act 1992 *and Regulations*.

(D7) In accordance with Condition (D6), if significant disturbance to land is unavoidable, the holder of this environmental authority must not clear vegetation or place fill:

(a) in a way which significantly isolates, fragments or dissects tracts of vegetation resulting in a reduction in the current level of ecosystem functioning, ecological connectivity (i.e. stepping stone or contiguous bioregional/local corridor networks) and/or results in an increase in **threatening processes** (e.g. potential impacts associated with edge effects or introduced species);
(b) on slopes greater than 10% for activities other than pipelines and wells; or
(c) in **discharge areas**.

(D8) Clearing of remnant vegetation shall not exceed 10 metres in width for the purpose of establishing tracks and 20 metres in width for dual carriageway roads unless otherwise approved by the administering authority in writing.

(D9) Cleared vegetation must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

Disturbance to Land – Environmentally Sensitive Areas

(D10) The holder of this environmental authority must ensure that petroleum activities:

(a) are not conducted in any Category A, B or C ESA;
(b) are not conducted within 200m of any category A, B or C ESAs (protection zone); and
(c) do not involve activities other than **limited petroleum activities** within 1km of a category A ESA, or within 500m of a listed category B or C ESA (buffer zone).

Note: Indicative ESA mapping is available on the Department of Environment and Heritage Protection's website at http://www.ehp.qld.gov.au/licences-permits/maps_of_environmentally_sensitive_areas.php

(D11) Limited petroleum activities carried out in accordance with Condition (D10(c)) must be preferentially located in pre-existing areas of clearing or significant disturbance to the greatest practicable extent and avoid the clearing of mature trees.

(D12) Despite Condition (D10), limited petroleum activities may be undertaken within 200m of, or in the following specified Category B and C ESAs:

(a) 'Endangered' regional ecosystems;
(b) 'Of Concern' regional ecosystems;
(c) State Forests;
(d) Timber Reserves

provided that they do not overlap with any other Category A, B or C ESA or its associated protection zone.

(D13) Where limited petroleum activities are proposed to be undertaken within 200m of, or in the Category B and C ESAs specified in Condition (D12), the holder of this environmental authority must:

(a) be able to demonstrate that no reasonable or practicable alternative exists; and
(b) where the ESA is a State Forest or Timber Reserve:
  (i). obtain written approval from the authority responsible for the administration of the *Forestry Act 1959*;
  (ii). comply with all restrictions and conditions contained within the approval required under Condition (D13(b)(i));
  (iii). where the conditions of the approval required under Condition (D13(b)(i)) conflict with the conditions of this environmental authority, comply with the conditions of this environmental authority; and
  (iv). provide a copy of the written approval required under Condition (D13(b)(i)) to the administering authority upon request.

(D14) Where limited petroleum activities are undertaken within 200m of, or in the Category B or C ESAs specified in Condition (D12), disturbance to land must only be located and carried out in areas according to the following order of preference:

(a) pre-existing cleared areas or significantly disturbed areas less than 200m from a Category C ESA;
(b) pre-existing cleared areas or significantly disturbed areas less than 200m from a Category B ESA;
(c) undisturbed areas less than 200m from a Category C ESA;
(d) undisturbed areas less than 200m from a Category B ESA;

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(e) pre-existing areas of significant disturbance within a Category C ESA (e.g. areas where significant clearing or thinning has been undertaken within a RE, and/or areas containing high densities of weed or **pest** species which has inhibited re-colonisation of native regrowth);
(f) pre-existing areas of significant disturbance within a Category B ESA (e.g. areas where significant clearing or thinning has been undertaken within a RE, and/or areas containing high densities of weed or pest species which has inhibited re-colonisation of native regrowth);
(g) areas where clearing of a Category C ESA is unavoidable; and
(h) areas where clearing of a Category B ESA is unavoidable.

(D15) Notwithstanding Conditions (D12) to (D14), where limited petroleum activities are proposed to be undertaken within 200m of, or in a Category B or C ESAs specified in Condition (D12), any vegetation clearing must not exceed any of the following areas:

(a) if the disturbance relates to an Endangered or Of Concern RE, 10% of the **remnant unit** of Endangered or Of Concern RE as ground truthed and mapped before any activity commences as per Condition (D2) and (D3) of this environmental authority for the life of the project; and
(b) more than $30m^2$ for the construction of a sump; or
(c) six (6) metres in width for tracks; or
(d) 12 metres in width for pipeline construction purposes.

(D16) For each well site within 200m of, or in a Category B or C ESA specified in Condition (D12), all reasonable and practical measures are taken to minimize the area cleared which must include but not be limited to, for each well site, ranked constraints mapping and a risk assessment which considers safety.

(D17) Details of any significant disturbance to land undertaken within 200m of, or in a Category B or C ESA, along with a record of the assessment required by Conditions (D2) and (D3) must be kept and submitted to the administering authority upon request.

(D18) Despite Condition (D10), the Daandine Brine Dam 2 and associated activities necessary for construction, operation, maintenance and monitoring of the dam, located within the area bound by the coordinates prescribed by *Schedule C, Table 1 – Coordinates Enclosing the Disturbance Area for Daandine Brine Dam 2*, are permitted within the buffer zones of Category B and Category C Environmentally Sensitive Areas.

Commented [GN22]: New conditions as per requested in amendment application

Schedule C, Table 1 – Coordinates Enclosing the Disturbance Area for Daandine Brine Dam 2

Point	Latitude or Northing (GDA94, Zone 56)	Longitude or Easting (GDA94, Zone 56)
1	7001708	297524
2	7001153	297384
3	7001051	298345
4	7001418	298444
5	7001601	298406
6	7001620	298190

Offsets

(D19) If the holder of this environmental authority requires access to Endangered Regional ecosystems, 'Of Concern' Regional Ecosystems, State Forests or Timber Reserves, the environmental authority holder must enter in to an environmental offset agreement with the administering authority which is at least equivalent to the value of any disturbed 'Endangered' or 'Of Concern' RE within six (6) months after submitting an Operational Plan in accordance with Conditions (A5) – (A8).

(D20) The environmental authority holder must implement any environmental offset agreement entered into in accordance with Condition (D19) as soon as practicable after finalisation.

Commented [GN23]: May have implications on wording due to the insertion of new QBOP related conditions. *To be considered by Arrow and EHP when finalising EA amendment.*

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Soil Management

(D21) The holder of this environmental authority must develop and implement soils management procedures, which have been certified by a suitably qualified person, for areas to be disturbed by petroleum activities prior to commencement of these petroleum activities to prevent or minimise the impacts of soil disturbance.

(D22) Despite condition D21, for areas of disturbance at the time of issue of this environmental authority, the holder of this environmental authority must develop and implement soils management procedures, which have been certified by a suitably qualified person by 18 July 2011.

(D23) The Soil Management Procedures required by conditions D21 and D22 must include, but not necessarily be limited to:

(a) identify soil units within areas to be disturbed by petroleum activities at a scale of 1:50 000, in accordance with the "Guidelines for Surveying Soil and Land Resources, 2nd Edition" (McKenzie et al. 2008), "Australian Soil and Land Survey Handbook, 3rd Edition" (National Committee on Soil and Terrain 2009), "The Australian Soil Classification" (Isbell 2002) and "Guidelines for agricultural land evaluation in Queensland" (Queensland Department of Primary Industries Information Series QI90005 1990) or subsequent versions thereof;
(b) establish baseline soils information for the soil units to be disturbed including soil depth, pH, electrical conductivity (EC), chloride, cations (aluminium, calcium, magnesium, potassium and sodium), exchangeable sodium percentage (ESP), particle size and soil fertility (including nitrogen, phosphorous, potassium, sulphur and micronutrients);
(c) a soils monitoring program outlining parameters to be monitored, frequency of monitoring and maximum limits for each parameter for each soil unit;
(d) identify the types of soils and soil units requiring specific management practices (e.g. saline or sodic soils) relevant to assessment for agricultural suitability erodibility and rehabilitation
(e) detailed topsoil and topsoil stockpile management procedures for each soil unit in the event of any significant soil disturbance;
(f) detailed mitigation measures and procedures for each soil unit to manage the risk of adverse soil disturbance in the carrying out of the petroleum activity(ies);
(g) for pipelines, methods of keeping soil horizons separate on excavation, storage and backfilling; and
(h) for areas of good quality agricultural land, detailed methods to be undertaken to minimise potential impacts.

(D24) A copy of the Soils Management Procedures must be submitted to any potentially affected landholders upon request.

Acid Sulfate Soils

(D25) The holder of this environmental authority must determine the presence of **acid sulfate soils** prior to:

(a) any excavation or otherwise removing 100m^3 or more of soil or sediment; or
(b) filling of land involving 500m^3 or more of material with an average depth of 0.5 of a metre or greater.

(D26) The holder of this environmental authority must determine the presence of acid sulfate soils prior to any excavation or filling at, or in exceedance of, the thresholds in Condition (D25)(a) or (b) in any of the following areas:

(a) areas to be disturbed where there are lithologies with sulfide bearing minerals; or
(b) naturally saline areas (*.e.g.* salt pans, lakes *etc*); or

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(c) wetland areas (*e.g.* mapped as Land zone three (3) on the regional ecosystem database preclear layer and/or areas mapped as wetlands under the QLD Wetlands program, WetlandInfo*);* or
(d) areas with elevation less than 2 metres AHD; or
(e) areas with soil and sediment of recent geological age (Holocene); or
(f) areas where marine or estuarine sediments and tidal lakes are present; or
(g) low-lying coastal wetlands or back swamp areas, waterlogged or scalded areas; or
(h) stranded beach ridges and adjacent swales, interdune swales or coastal sand dunes; or
(i) coastal alluvial valleys; or
(j) areas where the dominant vegetation is tolerant of salt, acid and/or waterlogging conditions (e.g. mangroves, saltcouch).

(D27) Subject to Conditions (D25) and (D26) and prior to any disturbance of acid sulfate soils, the holder of this environmental authority must prepare an acid sulfate soil environmental management plan in accordance with Appendix 4 of the State Planning Policy 2/02 Guideline Acid Sulfate Soils.

(D28) The acid sulfate soil environmental management plan must be prepared and implemented by a suitably qualified person.

(D29) The holder of this environmental authority must comply with the acid sulphate soil environmental management plan.

Fauna Management

(D30) Fauna management procedures must be developed and implemented to ensure that petroleum activities (including, but not limited to, pipeline construction, dam construction and operation) are carried out in a manner that minimises the risk of injury, harm, or entrapment to wildlife and stock.

(D31) **Well lease infrastructure** and dams must be securely fenced and / or screened as soon as practicable, but within one (1) month after construction is completed to:

(a) exclude and prevent the entrapment of livestock and wildlife; and
(b) limit habitats for the introduction or spread of noxious fauna pest species.

(D32) The fauna management procedures must include training and awareness of staff and contractors and ensure that any planned fauna handling is undertaken by a suitably qualified person.

Note: The procedures required by Conditions (D30) and (D32) should consider the "Australian Pipeline Industry Association Code of Environmental Practice – Onshore Pipelines" dated March 2009, or subsequent versions thereof.

Pest management

(D33) In carrying out the petroleum activity(ies) the holder of this environmental authority must develop and implement an effective pest management program by 18 October 2011 which has been certified by a suitably qualified person that includes but is not limited to the following:

(a) identification of pest species and infestation areas;
(b) prevention and/or minimisation of the introduction and/or spread of pests;
(c) control and management of pest outbreaks as a result of petroleum activities; and
(d) details of community consultation in developing the pest management program.

Note: The pest management program required by Condition (D33) should consider the "Petroleum Industry (including coal seam methane gas) Minimising Pest Spread Guidelines" dated June 2008, or subsequent versions thereof. This document is available for download from: http://www.dpi.qld.gov.au/documents/Biosecurity_EnvironmentalPests/IPA-Minimising-Pest-Spread-Advisory-Guidelines.pdf

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(D34) A copy of the pest management procedures must be made available to any potentially affected landholders upon request.

Chemical and Fuel Storage

(D35) All explosives, hazardous chemicals, corrosive **substances**, toxic substances, gases, dangerous goods, flammable and combustible liquids (including petroleum products and associated piping and infrastructure) must be stored and handled in accordance with the relevant Australian Standard where such is available.

(D36) Notwithstanding the requirements of any Australian Standard, any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land. Where no relevant Australian Standard is available, the following must be applied:

(a) storage tanks must be **bunded** so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and
(b) drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.

(D37) All containment systems must be designed to minimise rainfall collection within the system.

Pipelines

(D38) Pipelines must be preferentially located alongside existing linear infrastructure such as roads, tracks and powerlines.

(D39) Pipeline trenches must only be left open for the minimum time practicable.

(D40) The length of pipeline trench open at any one time must be minimised as far as practicable.

(D41) Completed pipeline construction areas must be:

(a) a stable landform with no subsidence or erosion gullies for at least five (5) years;
(b) be re-profiled to original contours and established drainage lines;
(c) be visually consistent with the surround land features; and
(d) be reinstated to the pre-disturbed land use and soil suitability class.

(D42) The holder of this environmental authority must monitor reinstated pipeline corridors for subsidence at least every 20 business days for the first 120 business days after reinstatement to ensure compliance with Condition (D41).

Impacts to State Significant Biodiversity Values

(D43) Impacts to State significant biodiversity values for activities that commenced after XX February 2013 (the date of grant of this environmental authority) may only occur once an **Offset Area Management Plan** for those impacts has been submitted and accepted in writing by the administering authority and is recorded within a signed **deed of agreement** between the holder of this environmental authority and the administering authority.

(D44) The deed of agreement must be implemented.

(D45) Offsets must be provided for impacts to State significant biodiversity values in accordance with the Queensland Biodiversity Offset Policy, and the signed deed of agreement.

Commented [MK24]: QBOP requirement which only required for any new activities post grant of this EA

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SCHEDULE E – ENVIRONMENTAL NUISANCE

Odour, dust and other airborne contaminants

(E1) The release of odour, dust or any other airborne contaminant(s), or light from the petroleum activity(ies) must not cause an environmental nuisance at any **sensitive place**.

Noise

(E2) Prior to undertaking petroleum activities that will result in **short-term**, **medium-term** or **long term noise events** that are likely to impact on a sensitive receptor, the holder of this environmental authority must model or calculate any potential noise emissions from the relevant petroleum activity and determine if noise emissions are likely to exceed the noise levels specified in *Schedule E, Table 1 – Noise limits at Sensitive Receptors*.

(E3) If noise modelling or the calculations indicates that petroleum activities are likely to exceed the noise levels specified in *Schedule E, Table 1 – Noise limits at sensitive receptors*, the holder of this environmental authority must prepare a Noise Management Plan prior to undertaking petroleum activities, which demonstrates how the noise limits specified in *Schedule E, Table 1 – Noise limits at sensitive receptors* will be achieved in the event of a valid noise complaint.

(E4) Despite condition E3, for any petroleum activities existing at the time of issue of this environmental authority, if noise modelling or the calculations indicates that petroleum activities are likely to exceed the noise levels specified in *Schedule E, Table 1 – Noise limits at sensitive receptors*, the holder of this environmental authority must implement a Noise Management Plan, which demonstrates how the noise limits specified in *Schedule E, Table 1 – Noise limits at sensitive receptors* will be achieved in the event of a valid noise complaint.

Commented [MK25]: Removed date as date has passed.

(E5) The Noise Management Plan must address, but not be limited to, the following matters:

(a) a location based noise assessment to determine compliance with the noise limits in *Schedule E, Table 1 – Noise limits at Sensitive Receptors*
(b) the measured and/or predicted noise level of these noise sources and activities at noise sensitive receptors, taking into account any tonal or impulsive noise impacts;
(c) the reasonable and practicable control or abatement measures (including relocating the activity, hours of operation, or having an **alternate arrangement** in place with any potentially affected person) that can be undertaken to reduce identified intrusive noise sources;
(d) the level of noise at noise sensitive receptors that would be achieved from implementing these measures;
(e) the handling of future noise complaints;
(f) community liaison and consultation including but not limited consultation processes for when night time activities (i.e. between 10:00 pm and 6:00 am) are likely to exceed 25dBA; and
(g) training of staff and contractors in best available noise management practices.

(E6) The emission of noise from the licensed place must not result in levels greater than those specified in *Schedule E, Table 1 – Noise limits at Sensitive Receptors* in the event of a valid complaint about noise being made to the administering authority.

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Schedule E, Table 1 – Noise Limits at Sensitive Receptors

Time Period	Metric	Short Term Noise Event	Medium Term Noise Event	Long Term Noise Event
7:00am – 6:00pm	$L_{Aeq,adj,15\ min}$ Max $L_{pA,\ 15\ mins}$	45 dBA 55 dBA	43 dBA 51 dBA	40 dBA 45 dBA
6:00pm – 10:00pm	$L_{Aeq,adj,15\ min}$ Max $L_{pA,\ 15\ mins}$	40 dBA 50 dBA	38 dBA 46 dBA	35 dBA 40 dBA
10:00pm – 6:00am	$L_{Aeq,adj,15\ min}$ Max $L_{pA,\ 15\ mins}$	28 dBA 38 dBA	28 dBA 36 dBA	28 dBA 33 dBA
6:00am – 7:00am	$L_{Aeq,adj,15\ min}$ Max $L_{pA,\ 15\ mins}$	40 dBA 50 dBA	38 dBA 46 dBA	35 dBA 40 dBA

Commented [MK26]: Added as title was missing

L_{Aeq} and Max L_{pA} *are to be measured over any 15 minute period*
Deemed background noise levels (L_{ABG}) for Schedule E, Table 1 – Noise Limits at Sensitive Receptors are:
7:00 am - 6:00pm: 35 dBA
6:00 pm – 10:00 pm: 30 dBA
10:00 pm – 6:00 am: 25 dBA
6:00 am – 7:00 am: 30 dBA

(E7) If the noise subject to a complaint is tonal or impulsive, the adjustments detailed in *Schedule E, Table 2 – Adjustments to be Added to Noise Levels at Sensitive Receptors* are to be added to the measured noise level(s) to derive $L_{Aeq,\ adj,\ 15\ min}$.

Schedule E, Table 2 – Adjustments to be Added to Noise Levels at Sensitive Receptors

Noise Characteristic	Adjustment to Noise
Tonal characteristic is just audible	+ 2 dBA
Tonal characteristic is clearly audible	+ 5 dBA
Impulsive characteristic is just audible	+ 2 dBA
Impulsive characteristic is clearly audibly	+ 5 dBA

(E8) Where alternative arrangements are in place with any affected person as referred to by Condition (E5)(c), the noise limits in *Schedule E, Table 1 – Noise limits at Sensitive Receptors* do not apply at that location for the duration for which the alternative arrangements are in place.

Low Frequency Noise

(E9) Notwithstanding Condition (E2), emission of any noise below 315 Hz must not cause an environmental nuisance.

(E10) Low frequency noise from the petroleum activities is not considered to be an environmental nuisance under Condition (E9) if monitoring shows that noise emissions do not exceed the following limits:

(a) 50 dB(Z) measured inside the sensitive receptor; and
(b) the difference between the internal A-weighted and Z-weighted noise levels is no greater than 15 dB.

Vibration and Blasting Activities

(E11) The holder of this environmental authority must develop a blast management plan in accordance with Australian Standard 2187 for each planned blasting activity before it is undertaken.

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(E12) The blast management plan required by Condition (E11) must include measures to minimise the likelihood of any adverse effects being caused by airblast overpressure and/or ground borne vibrations at any sensitive receptor and demonstrate current best practice environmental management.

(E13) All blasting must be carried out in a proper manner by a suitably qualified person.

(E14) All blasting must be carried out in accordance with the Blast Management Plan.

(E15) Noise from blasting operations must not exceed an airblast overpressure level, when measured at or extrapolated to any sensitive receptor, of 115 dB (linear peak) for nine (9) out of any ten (10) consecutive blasts initiated nor 120 dB (linear peak) at any time.

(E16) Ground-borne vibration peak particle velocity caused by blasting operations, when measured at or extrapolated to any sensitive receptor must not exceed more than 5 mm per second for nine (9) out of any ten (10) consecutive blasts initiated, or 10 mm per second at any time.

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SCHEDULE F – AIR

Fuel Burning or Combustion Equipment

(F1) The only type of fuel to be burned in fuel burning or combustion equipment under normal operating conditions is coal seam gas.

(F2) Contaminants releases to air emitted from fuel burning and combustion equipment point sources that are capable of burning at least 500 kg in an hour must be directed vertically upwards without any impedance or hindrance.

(F3) The holder of this environmental authority must maintain a register of fuel burning and combustion equipment that is capable of burning at least 500 kg of fuel in an hour that must include, as a minimum, the following information for each piece of equipment:

(a) fuel burning or combustion equipment name and location;
(b) stack emission height (metres);
(c) minimum efflux velocity (m/s);
(d) mass emission rates (g/s); and
(e) contaminant concentrations (mg/Nm^3 @ x $\%O_2$ dry gas at 0°Celsius and 1 atmosphere).

(F4) The holder of this environmental authority must ensure that the information contained in the register of fuel burning and combustion equipment is always current and complete.

(F5) All entries in the register of fuel burning and combustion equipment must be certified by the chief executive officer for the tenure holder, or their delegate, as being accurate and correct.

Fuel Burning or Combustion Equipment Located Outside Hubs or Populated Areas

(F6) Prior to the installation and operation of any new fuel burning or combustion equipment, that is capable of burning at least 500 kg of fuel in an hour, the holder of this environmental authority must conduct air dispersion modelling to calculate the ground level concentrations of emissions from all existing and proposed fuel burning or combustion equipment under maximum operating conditions (including other industry) within the ambient airshed and identify any potential impacts to air quality within the study area.

(F7) The holder of this environmental authority must ensure that the calculated ground level concentrations required under condition (F6) do not exceed the criteria for each air contaminant in *Schedule F, Table 1 – Maximum Ground Level Concentration Criteria*.

Schedule F, Table 1 – Maximum Ground Level Concentration Criteria

Contaminant	Concentration at 0°Celsius	Units	Averaging time
NOx as Nitrogen Dioxide	250	µg/m^3	1 hour
NOx as Nitrogen Dioxide	33	µg/m^3	1 year
Carbon Monoxide	11	mg/m^3	8 hour

(F8) The holder of this environmental authority must undertake emissions testing within 3 months post commissioning of any fuel burning and combustion equipment capable of burning at least 500 kg of fuel in an hour to verify the estimates used in the air dispersion modelling.

(F9) Where the results of the emissions testing required under condition (F8) indicate that the emission estimates used in the air dispersion modelling required under condition (F6) are exceeded, the holder of this environmental authority must:

(a) provide details to the administering authority within 10 **business days**;

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(b) re-undertake the modelling based on the new information; and
(c) determine and implement appropriate pollution control measures to bring the emissions into compliance with the limits specified in *Schedule F, Table 1 – Maximum Ground Level Concentration Criteria*.

Fuel Burning and Combustion Equipment in Hubs and / or Places within 5 km of Populated Areas

(F10) Fuel burning or combustion equipment that is capable of burning at least 500 kg of fuel in an hour must not be located in hubs or in places within 5km of a populated area unless it is specified in *Schedule F, Table 2 – Release of Contaminants to Air*.

(F11) Fuel burning or combustion equipment located in hubs or in places within 5km of a populated area, that is capable of burning at least 500 kg of fuel in an hour, must only release contaminants to the atmosphere at a height and a efflux velocity not less than the corresponding height and velocity stated for that release point (RP) as provided for in *Schedule F, Table 2 - Release of Contaminants to Air*.

(F12) Fuel burning or combustion equipment located in hubs or in places within 5km of a populated area, that is capable of burning at least 500 kg of fuel in an hour, must not release contaminants to the atmosphere from a release point at a mass emission rate or concentration in excess of that stated in *Schedule F, Table 2 - Release of Contaminants to Air*.

Schedule F, Table 2 - Releases of Contaminants to Air

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Resource Authority	Field	Facility	Release Point No. (EA)	Unit Description	Release Height (m)	Minimum Efflux Velocity (m/sec)	NOx		CO	
							Maximum Release limit	Release limit type	Maximum Release limit	Release limit type
PL 230	Daandine	DD CGPF	A1	K-0001 Compressor 1	8.1	30	6.8	g/sec	5.5	g/sec
PL 230	Daandine	DD CGPF	A2	K-0002 Compressor 2	8.1	30	6.8	g/sec	5.5	g/sec
PL 230	Daandine	DD CGPF	A3	K-0003 Compressor 3	8.1	30	6.8	g/sec	5.5	g/sec
PL 230	Daandine	DD CGPF	A4	K-0004 Compressor 4	8.1	30	6.8	g/sec	5.5	g/sec
PL 230	Daandine	DD CGPF	A5	K-0005 Compressor 5	8.1	30	6.8	g/sec	5.5	g/sec
PL 230	Daandine	DD CGPF	A6	K-0006 Compressor 6	8.1	30	6.8	g/sec	5.5	g/sec
PL 230	Daandine	DD CGPF	A7	K-0007 Compressor 7	8.1	30	6.8	g/sec	5.5	g/sec
PL 230	Daandine	DD CGPF	A8	TEG Reboiler	6.8	14	100	ppm	na	na
PL 230	Daandine	DD CGPF	A9	Diesel Backup Generator	1.3	29	na	na	na	na
PL230	Daandine	TBA	TBA	Power Generation for RO Plant	TBA	TBA	TBA	TBA	TBA	TBA

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Resource Authority	Field	Facility	Release Point No. (EA)	Unit Description	Release Height (m)	Minimum Efflux Velocity (m/sec)	NOx		CO	
							Maximum Release limit	Release limit type	Maximum Release limit	Release limit type
PL 198	Tipton	TW CGPF	A10	K-0001 Compressor 1	7.6	30	6.8	g/sec	5.5	g/sec
PL 198	Tipton	TW CGPF	A11	K-0002 Compressor 2	7.6	30	6.8	g/sec	5.5	g/sec
PL 198	Tipton	TW CGPF	A12	K-0003 Compressor 3	7.6	30	6.8	g/sec	5.5	g/sec
PL 198	Tipton	TW CGPF	A13	K-0004 Compressor 4	7.6	30	6.8	g/sec	5.5	g/sec
PL 198	Tipton	TW CGPF	A14	K-0005 Compressor 5	7.6	30	6.8	g/sec	5.5	g/sec
PL 198	Tipton	TW CGPF	A15	K-0006 Compressor 6	7.6	30	6.8	g/sec	5.5	g/sec
PL 198	Tipton	TW CGPF	A16	TEG Reboiler	6.8	14	100	ppm	na	na
PL 198	Tipton	TW CGPF	A17	Diesel Backup Generator	1.3	29	na	na	na	na

Note 1: Minimum efflux velocity, maximum mass emission and maximum concentration are calculated at the Maximum Continuous Rating.

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(F13) The holder of this environmental authority must undertake emissions testing within 3 months of the issue of this environmental authority of all fuel burning and combustion equipment listed in *Schedule F, Table 2 - Release of Contaminants to Air*.

(F14) The holder of this environmental authority must undertake air dispersion modelling using the results of the emission testing required under condition (F13) to verify that emissions will not result in an exceedance of the maximum ground level concentration for each air contaminant listed in *Schedule F, Table 1 – Maximum Ground Level Concentration Criteria*.

(F15) A report on the results of air emission testing and modelling required by conditions (F13) and (F14) must be provided to the administering authority with the next annual return.

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SCHEDULE G – WASTE

General

(G1) All general and regulated waste must be removed from the site and sent to a site that is lawfully able to accept the waste under the *Environmental Protection Act 1994* except as permitted under another condition of this environmental authority.

(G2) All regulated waste removed from the site must be undertaken by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994*.

(G3) Waste must not be burned or allowed to be burned on the licensed site.

(G4) All waste fluids and muds resulting from drilling and exploration activities must be contained in a properly lined dam or containment structure for disposal, remediation or reuse where applicable.

Coal Seam Gas Water Management Plan

(G5) A Coal Seam Gas Water Management Plan that includes but is not necessarily limited to the matters outlined in (a) and (b) must be implemented:

(a) the matters required by sections 310D (5), 310D (6) and 662 of *the Environmental Protection Act 1994*; and
(b) a management strategy for all integrated coal seam gas water management operations.

(G6) Where any inconsistency exists between the conditions of this environmental authority and the Coal Seam Gas Water Management Plan, the conditions of this environmental authority prevail.

Coal Seam Gas Water Use

(G7) Coal seam gas water may be used for the following purposes within the areas of the relevant resource authority(ies), subject to conditions (G8), (G9), (G10) and (G11):

(a) for dust suppression on roads and at other **sites**; and
(b) for **construction**; and
(c) for **operational purposes**.

(G8) Written approval from the relevant Local Government must be obtained prior to the application of coal seam gas water on any local government controlled roads in accordance with condition (G7)(a).

(G9) Any coal seam gas water being used for the purposes listed in conditions (G7)(a) and (b) must meet the limits specified in *Schedule G, Table 1 – Water Contaminant Release Limits* for each of the water quality characteristics listed:

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Schedule G, Table 1 – Water Contaminant Release Limits

Water Quality Characteristics	Unit	Limit	Limit Type
pH	pH units	6.0 to 9.0	Range
Sodium Adsorption Ratio	ratio	6	80th Percentile
		12	Maximum
Total Dissolved Solids	mg/L	1500	Maximum
Total Petroleum Hydrocarbons	mg/L	10	Maximum

(G10) The use of coal seam gas water for the uses listed in conditions (G7)(a) and (b) must be carried out in a manner that:

(a) vegetation is not damaged;
(b) soil quality is not adversely impacted;
(c) there is no surface ponding or runoff of the coal seam gas water from the application area;
(d) minimises deep drainage below the root zone of any vegetation;
(e) quality of shallow aquifers is not adversely affected; and
(f) there are no releases of coal seam gas waters to any surface waters.

(G11) Any coal seam gas water released to the environment in accordance with conditions (G7)(a) and (G7)(b) must not have any properties that could cause, nor contain any contaminants in concentrations that are capable of causing environmental harm.

Supply of Coal Seam Gas Water to a Third Party

(G12) Coal seam gas water may be transferred to a third party to be used for the following purposes subject to compliance with (G13) and (G14):

(a) dust suppression if the coal seam gas water quality complies with the limits specified in *Schedule G, Table 1 – Water Contaminant Release Limits*;
(b) construction and operational purposes if the coal seam gas water quality complies with the limits specified in *Schedule G, Table 1 – Water Contaminant Release Limits*;
(c) **irrigation** and **livestock watering purposes**;
(d) the following industrial purposes:
  (i) coal washing;
  (ii) power stations; and
  (iii) water treatment facilities.

(G13) Any coal seam gas water supplied to a third party for irrigation and/or livestock watering purposes in accordance with condition (G12)(c) must comply with the relevant trigger values contained in *ANZECC and ARMCANZ Water Quality Guidelines 2000*, or subsequent versions thereof.

(G14) If the responsibility of coal seam gas water is given or transferred to a third party in accordance with condition (G12), the holder of environmental authority must ensure that:

(a) the responsibility of the coal seam gas water is given or transferred in accordance with a written agreement (the third party agreement); and
(b) the third party is made aware of the General Environmental Duty under section 319 of the *Environmental Protection Act 1994*.

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SCHEDULE H – REHABILITATION

(H1) The holder of this environmental authority must not abandon any dam but must decommission each dam so as to prevent and/or minimise any environmental harm.

(H2) As a minimum, decommissioning must be conducted such that each dam either:

(a) becomes a stable landform similar to that of the surrounding undisturbed areas, that no longer contains substances that will migrate into the environment; or
(b) the administering authority and the landholder agree that the dam will be used by the landholder following the cessation of the petroleum activities

(H3) Progressive rehabilitation of disturbed areas must commence as soon as practicable following the completion of any construction or operational works associated with the petroleum activities.

(H4) As soon as practicable but no later than 12 months (or longer period agreed in writing by the administering authority) after the end of petroleum activities causing significant disturbance to land, the holder of the authority must:

(a) remediate contaminated land (e.g. dams containing salt);
(b) reshape all significantly disturbed land to a stable landform similar to that of surrounding undisturbed areas;
(c) on all significantly disturbed land:
  (i). re-establish surface drainage lines;
  (ii). reinstate the top layer of the soil profile; and
  (iii). promote establishment of vegetation.
(d) undertake rehabilitation in a manner such that any actual and potential acid sulfate soils in or on the site are either not disturbed, or submerged, or treated so as to not be likely to cause environmental harm; and
(e) decommission all inactive buried pipelines in accordance with the requirements of AS 2885 and ensuring that there will not be any subsequent subsidence of land along the pipeline route.

(H5) All significantly disturbed land caused by the carrying out of the petroleum activities must be rehabilitated to meet the following final acceptance criteria:

(a) all significantly disturbed land is reinstated to the pre-disturbed land use unless otherwise agreed to between the environmental authority holder, the landholder and the administering authority;
(b) all significantly disturbed land is reinstated to the pre-disturbed soil suitability class;
(c) the landform is safe for humans and fauna;
(d) the landform is stable with no subsidence or erosion gullies for at least five (5) years;
(e) the minimum percent foliage cover of immediate surrounding area is maintained in the rehabilitated land for at least three (3) years;
(f) a minimum of 80% of the flora species in the immediate surrounding area is maintained in the rehabilitated land for at least three (3) years;
(g) a minimum of 80% of the fauna species diversity in the immediate surrounding area is maintained in the rehabilitated land for at least three (3) years;
(h) erosion is minimised with appropriate sediment traps and erosion control measures installed as determined by a suitably qualified person;
(i) the water quality of any residual **void** or water bodies constructed by petroleum activities meets criteria for subsequent uses and does not have potential to cause environmental harm.
(j) there is no ongoing contamination to surface water;
(k) there is no ongoing contamination to groundwater from dams or monocells (demonstrated via groundwater monitoring and leak detection);
(l) the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance by petroleum activities.

(H6) Regular maintenance and at least yearly monitoring of rehabilitated areas must take place to measure compliance with the requirements of Condition (H5).

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SCHEDULE I – MONITORING PROGRAMS

General

(I1) The holder of this environmental authority must develop and implement a monitoring program, the result of which will demonstrate compliance with the conditions of this environmental authority.

(I2) All monitoring under this environmental authority must be conducted by a suitably qualified person.

(I3) All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this environmental authority must be calibrated, and operated and maintained effectively.

(I4) All laboratory analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA certification for such analyses and tests, except as otherwise authorised by the administering authority.

(I5) The method of water sampling required by this environmental authority must comply with that set out in the most recent version of the *Queensland Monitoring Water Quality Sampling Manual* published by the administering authority.

Note: Condition (I5) requires the Queensland Monitoring Water Quality Sampling Manual *to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.*

(I6) Any management or monitoring plans, systems, programs or procedures required to be developed and implemented by a condition of this environmental authority must be reviewed for performance and amended if required on an annual basis in accordance with the requirements for the particular plans, systems, programs and procedures.

(I7) If monitoring conducted in accordance with this environmental authority indicates a condition or contaminant level that has caused, or has potential to cause, environmental harm, the environmental authority holder must:

(a) as soon as is practicable, take the necessary actions to rectify the condition or contaminant level so as to avoid or minimise environmental harm; and
(b) notify the administering authority of the condition or contaminant level and the actions taken to rectify it.

(I8) An annual monitoring report must be prepared each year and submitted to the administering authority upon request. This report shall include but not be limited to:

(a) a summary of the previous 12 months monitoring results obtained under any monitoring programs required under this environmental authority and, a comparison of the previous 12 months monitoring results to both the limits set in this environmental authority and to relevant prior results; the date on which the samples was taken;
(b) the time at which the samples was taken;
(c) the monitoring point at which the sample was taken;
(d) the release flow rate of any authorised discharges to waters from all release points;
(e) the results of all monitoring and details of any exceedences with the conditions of this environmental authority and the dates and times these exceedences were reported to the administering authority.
(f) a summary of all records of quantities of releases required to be kept under this environmental authority including the total volume of any authorised discharges to waters for the previous yearly period from all release points and the individual daily volume of any authorised discharges to waters from all release points;
(g) details of all maintenance or work carried out on any discharge meter(s) and the impact (if any) on the release volume readings;
(h) an evaluation/explanation of the data derived from any monitoring programs;

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(i) data analyses and interpretation to assess the nature and extent of any contamination and, if so, the level of environmental harm caused as a result of the contamination and the environmentally relevant activity; and
(j) an outline of actions taken or proposed to minimise the risk of environmental harm from any condition or elevated contaminant level identified by the monitoring or recording programs.

(I9) The evaluation and explanation of data for the purposes of the annual monitoring report must be performed by a suitably qualified person.

(I10) The holder of this environmental authority must continue to conduct monitoring as per that prescribed in Conditions (I11) to (I17) for a minimum of five (5) years after the activities prescribed in Condition (A1) have ceased and submit the results annually in accordance with Condition (I8).

Groundwater Monitoring

(I11) The Groundwater Monitoring Program, which must be implemented, must be able to detect any significant risks and changes to groundwater quality and level as a result of activities authorised under this environmental authority and must:

(a) be developed, installed and maintained by a suitably qualified person in the fields of hydrogeology, groundwater sampling design and groundwater monitoring program design;
(b) include locations of monitoring points, parameters to be measured, frequency of monitoring, monitoring methodology used, and trigger values;
(c) include procedures to establish background groundwater quality;
(d) a sufficient number of monitoring sites to provide information on the following:
  (i) seepage to groundwater and surrounding soils from any regulated dam authorised under this environmental authority and its effect on groundwater and soils; and
  (ii) background monitoring sites (i.e. groundwater quality in representative bore(s) that have not been affected by the activities authorised under this environmental authority);
(e) conduct a geodetic survey of all groundwater monitoring bores to determine the relative water surface elevations, measured to the nearest millimetre in each bore and reported in metres relative to the AHD;
(f) determine the hydraulic conductivity, groundwater flow direction and groundwater flow rate; and
(g) include a rationale containing details on the program purpose, program conceptualisation and verification of assumptions.

Commented [MK32]: EHP has removed the reference to 40 business days after date of grant of the EA, as date has passed since original EA with this condition was granted.

(I12) All groundwater bores must be installed according to the standards outlined in the latest edition of the Department of Environment and Heritage Protection's *Minimum Construction Requirements for Water Bores in Australia or the Minimum Standards for the Construction and Reconditioning of Water Bores that Intersect the Sediments of Artesian Basins in Queensland*.

(I13) Groundwater monitoring bores must be constructed by, or under the supervision of a licensed Queensland water bore driller who has the correct endorsements on their licence for the type of activity being performed.

(I14) The Groundwater Monitoring Program must provide for monitoring of groundwater quality as often as necessary to detect impacts of the petroleum activities authorised under this environmental authority, but not for fewer parameters or less frequently than that specified in *Schedule I, Table 1 – Minimum Groundwater Monitoring Parameters and Monitoring Frequency* and in compliance with Condition (I15).

(I15) Groundwater samples taken as part of the Groundwater Monitoring Program must be analysed for, but not be limited to, the water quality parameters at the minimum frequencies

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specified in *Schedule I, Table 1 – Minimum Groundwater Monitoring Parameters and Monitoring Frequency*.

Schedule I, Table 1 – Minimum Groundwater Monitoring Parameters and Monitoring Frequency

Groundwater parameter	Monitoring frequency
Flow [m/hr]	Biannually
Water level to the nearest millimetre [m AHD]	Biannually
Groundwater Pressure in Geological Strata [kPa]	Biannually
pH	Biannually
Electrical conductivity [µS/m]	Biannually
Total Dissolved Solids [mg/L]	Biannually
Temperature [ºC]	Biannually
Dissolved Oxygen [mg/L]	Biannually
Alkalinity as $CaCO_3$ [mg/L]	Biannually
Residual Alkali [mg/L]	Biannually
Anions (bicarbonate, carbonate, hydroxide, chloride, fluoride, sulphate) [mg/L]	Biannually
Cations (aluminium, calcium, magnesium, potassium, sodium) [mg/L]	Biannually
Silica [mg/L]	Biannually
Total and dissolved Iron, manganese, zinc, aluminium, boron, copper, phosphorous [mg/L]	Biannually
Ammonia, nitrate, nitrite [m/L]	Biannually
Total Petroleum Hydrocarbons [mg/L]	Biannually
Polycyclic Aromatic Hydrocarbons [mg/L]	Biannually
Benzene, Toulene, Ethyl-benzene, Xylenes (BTEX) [mg/L]	Biannually

(I16) All groundwater monitoring bores must be maintained in an operative condition and be reasonably accessible at all times to any authorised person.

(I17) If groundwater monitoring indicates that any significant changes in groundwater quality caused by petroleum activities are detected, then information must be submitted to the administering authority within 10 business days of receipt of the analysis indicating these changes, including any proposed actions to mitigate the changes in groundwater quality.

Air Monitoring (Point Source)

(I18) The holder of this environmental authority must conduct a monitoring program of contaminants released to the atmosphere at each release point recorded in the register of fuel burning and combustion equipment for the contaminants and efflux velocities listed in *Schedule F, Table 1 – Maximum Ground Level Concentration Criteria* and at the frequencies specified in *Schedule I, Table 3 – Monitoring Frequency for Contaminants*.

Schedule I, Table 3 – Monitoring Frequency for Contaminants

Contaminant	Monitoring frequency
NOx as Nitrogen Dioxide	Within three (3) months after commissioning of any fuel burning equipment; and annually thereafter.
Carbon monoxide	

(I19) The monitoring program must include, but not necessarily be limited to:

(a) monitoring provisions for the release points which complies with the most recent edition of **Australian Standard 4323**.
(b) tests for each sample taken at each release point specified in the register of fuel burning or combustion equipment (condition (F7)) including:
  (i) gas velocity, volume and mass flow rate;
  (ii) temperature; and

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(iii) water vapour concentration (for non-continuous sampling);

(c) representative samples of the contaminants discharged when operating under maximum operating conditions;

(d) the collection of production rate and plant status during sampling periods; and

(e) monitoring of contaminant release carried out in accordance with the latest edition of the Department of Environment and Heritage Protection's "Air Quality Sampling Manual" 1997, as amended from time to time.

Monitoring of Contaminant Releases to the Atmosphere

(I20) When requested by the administering authority, contaminant monitoring and recording must be undertaken to investigate any complaint, and the results notified with 14 days to the administering authority. When monitoring is requested the following must be complied with:

(a) the holder of this environmental authority must conduct and keep records of a monitoring program of contaminant release to the atmosphere at the release points, frequency, and the parameters specified in *Schedule I, Table 4 – Required Monitoring* which complies with the following:

(b) Monitoring provision for the release points listed in *Schedule I, Table 4 – Required Monitoring* must comply with the Australian Standard AS4323.1 – 1995 'Stationary source emissions Method 1: Selection of sampling provisions' or subsequent versions as they become available.

(c) The following tests must be performed for each required determination specified in *Schedule I, Table 4 – Required Monitoring* :
(i) gas velocity and volume flow rate;
(ii) temperature and oxygen content;
(iii) water vapour concentration (moisture content).

(d) Where practicable samples taken must be representative of the contaminants discharged when emissions are expected to be at maximum rates.

(e) During the sampling period the following additional information must be gathered:
(i) fuel used;
(ii) number of equipment and operating units; and
(iii) reference to actual test methods and accuracies.

Schedule I, Table 4 – Required Monitoring

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Determination Required	Release Point Numbers	Frequency[2]
Mass emission rate (g/s) and concentration (mg/Nm^3) of oxides of nitrogen (NOx) in the flue gas at the 5% oxygen reference level.	Stacks A1, A2, A3, A4, A5, A6, A7, A8 A9	Within three months upon the granting of the environmental authority and then annually thereafter

[2]*Note: Out of the seven (7) release points A1 to A7, at least three (3) stacks must be monitored each year on a rotational basis.*

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Noise Monitoring

(I21) The holder of this environmental authority must undertake noise monitoring when requested by the administering authority to investigate a complaint of environmental nuisance at a sensitive receptor within the reasonable and practicable timeframe nominated by the administering authority, and report the results to the administering authority within three (3) business days of completion of the monitoring.

(I22) Noise monitoring and recording must include the following descriptor, characteristics and matters:
- (a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T=15);
- (b) $L_{Aeq\ adj,\ 15\ mins}$;
- (c) background noise level as $L_{A\ 90,\ T}$;
- (d) Max $L_{pA,\ 15\ mins}$
- (e) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;
- (f) atmospheric conditions including temperature, relative humidity and wind speed and directions;
- (g) effects due to any extraneous factors such as traffic noise;
- (h) location, date and time of monitoring;
- (i) if the complaint concerns low frequency noise, Max $L_{pZ,\ 15\ min}$; and
- (j) If the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range for both the noise source and the background noise in the absence of the noise source.

(I23) The method of measurement and reporting of noise levels and background sound pressure levels must comply with the latest edition of the administering authority's *Noise Measurement Manual* or the most recent version of Australian Standard 1055 Acoustics – description and measurement of environmental noise.

Nuisance Monitoring (other than Noise)

(I24) When the administering authority advises the holder of this environmental authority of a complaint alleging nuisance other than noise, the holder must investigate the complaint and advise the administering authority in writing of the action proposed or undertaken to resolve the complaint.

(I25) When requested by the administering authority, the holder of this environmental authority must undertake monitoring as specified by the administering authority, within a reasonable and practical timeframe nominated by the administering authority to investigate any complaint of environmental harm at any sensitive place.

(I26) The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within 10 business days of completion of the investigation, or receipt of the monitoring results, whichever is the latter.

(I27) If monitoring in accordance with Condition (I25) and (I26), indicates that emissions exceed the limits set in this environmental authority or are causing environmental nuisance, then the holder of this environmental authority must:

- (a) address the complaint including the use of alternative dispute resolution services if required; and/or
- (b) as soon as practicable implement abatement or attenuation measures so that light, dust, particulate or odour emissions from the authorised activities do not result in further environmental nuisance.

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Impact Assessment

(I28) Notwithstanding any other condition of the environmental authority, the environmental authority does not authorise any environmental harm arising from any release to the atmosphere of any of the contaminants mentioned in *Schedule I, Table 5 – Contaminants and Benchmarks for Evaluation*.

(I29) For the purpose of ensuring and demonstrating compliance with Condition (I28), the holder of the environmental authority must implement the findings of the evaluation, conducted by a suitably qualified and experienced person and provided to the administering authority, of the potential environmental impacts of the contaminants mentioned in *Schedule I, Table 5 – Contaminants and Benchmarks for Evaluation*. The evaluation addresses all matters relevant to the assessment of potential for environmental impacts to occur and includes, but not be limited to:

(a) Sampling, monitoring and analysis of the contaminants mentioned in *Schedule I, Table 5 – Contaminants and Benchmarks for Evaluation* for the range of plant operations likely to be encountered:
   i. entail sufficient levels of detection to adequately characterise the emissions; and
   ii. be representative; and complies with relevant Department of Environment and Heritage Protection's monitoring methods including the quality control requirements inherent in those methods;

(b) Using the air pollution dispersion models, an estimation of Ground Level Concentrations at the most sensitive nearest receptor(s) (using efflux velocity, temperature and flow rate) for emissions of the contaminants mentioned in *Schedule I, Table 5 – Contaminants and Benchmarks for Evaluation*;

(c) A comparison between the worst case measured emissions with the benchmarks maximum GLC mentioned in *Schedule I, Table 5 – Contaminants and Benchmarks for Evaluation*;

(d) The use of methods and guidelines for modelling and assessment of air pollutants approved by the New South Wales Department of Environment and Climate Change or by the Victoria Environmental Protection Agency.

Schedule I, Table 5 – Contaminants and Benchmarks for Evaluation

Contaminant	Averaging Periods	Maximum GLC concentration
Nitrogen dioxide	1 hour – health and wellbeing	250 µg/m^3 (at 0 ^{o}C)
	1 year – health and wellbeing	62 µg/m^3 (at 0 ^{o}C)
	1 year – health and biodiversity of ecosystems	33 µg/m^3 (at 0 ^{o}C)

Commented [MK34]: Removed reference to date as date has passed

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SCHEDULE J – COMMUNITY ISSUES

(J1) The holder of this environmental authority must maintain a record of complaints and incidents causing environmental harm, and actions taken in response to the complaint or incident; and

(J2) The holder of this environmental authority must record the following details for all complaints received and provide this information to the administering authority on request:

(a) name, address and contact number for complainant;
(b) time and date of complaint;
(c) reasons for the complaint as stated by the complainant;
(d) investigations undertaken in response to the complaint;
(e) conclusions formed;
(f) actions taken to resolve complaint;
(g) any abatement measures implemented to mitigate the cause of the complaint; and
(h) name and contact details of the person responsible for resolving the complaint.

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SCHEDULE K NOTIFICATION PROCEDURES

(K1) The holder of this environmental authority must telephone the administering authority's Pollution Hotline (telephone: 1300 130 372) and any affected landholder, occupier or their nominated representative as soon as practicable, but within 24 hours after becoming aware of:

(a) any release of contaminants not in accordance with the conditions of this environmental authority; or
(b) any event where environmental harm has been caused or may be caused.

(K2) Notwithstanding Condition (K1), the holder of this environmental authority must telephone the administering authority's Pollution Hotline (telephone: 1300 130 372) as soon as practicable, but within 24 hours after becoming aware of any non-compliance with any condition of this environmental authority.

(K3) Subject to Condition (K1), the holder of this environmental authority is required to report in the case of spills of contaminants (including but not limited to hydrocarbons, CSG water or mixtures of both) of the following volumes or kind:

(a) releases of any volume of contaminants to water; and
(b) releases of volumes of contaminants greater than 200L of hydrocarbons, 1000 L of brine or 5 000 L of coal seam gas water to land; and
(c) releases of any volumes of contaminants where potential serious or material environmental harm has occurred or may occur.

(K4) The notification of emergencies or incidents as required by Conditions (K1) and (K3) must include but not be limited to the following information:

(a) the environmental authority number and name of the holder;
(b) the tenure type and number where the emergency or incident occurred;
(c) the name and telephone number of the designated contact person;
(d) the location of the emergency or incident;
(e) the date and time that the emergency or incident occurred;
(f) the date and time the holder of this environmental authority became aware of the emergency or incident;
(g) details of the nature of the event and the circumstances in which it occurred;
(h) the estimated quantity and type of any contaminants involved in the incident;
(i) the actual or potential suspected cause of the emergency or incident;
(j) a description of the land use at the site of the emergency or incident (*eg. g*razing, pasture, forest etc) and/or the name of any relevant surface waters and other environmentally sensitive features;
(k) a description of the possible impacts from the emergency or incident;
(l) a description of whether stock and/or wildlife were exposed to any contaminants released and measures taken to prevent access for the duration of the emergency or incident;
(m) any sampling conducted or proposed, relevant to the emergency or incident;
(n) landholder details and details of landholder consultation;
(o) immediate actions taken to control the impacts of the emergency or incident and how environmental harm was mitigated at the time of the emergency or incident; and
(p) whether further examination/root cause analysis is required and if so, the expected date by when this examination will be completed and reported to the administering authority.

(K5) Within 10 business days following the initial notification of an emergency or incident or receipt of monitoring results or completion of the examination/root cause analysis, whichever is the later, a written report must be provided to the administering authority, including the following (where relevant to the emergency or incident):

(a) the root cause of the emergency or incident the confirmed quantities and types of any contaminants involved in the incident;

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(b) results and interpretation of any analysis of samples taken at the time of the emergency or incident;
(c) a final assessment of the impacts from the emergency or incident including any actual or potential environmental harm that has occurred or may occur in the longer term as a result of the release;
(d) the success or otherwise of actions taken at the time of the incident to prevent or minimise environmental harm;
(e) results and current status of landholder consultation, including commitment to resolve any outstanding issues/concerns; and
(f) actions and/or procedural changes to prevent a recurrence of the emergency or incident.

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SCHEDULE L DEFINITIONS

Note: *Where a term is not defined in this environmental authority the definition in the* Environmental Protection Act 1994*, its regulations and Environmental Protection Policies or the* Petroleum and Gas (Production and Safety) Act 2004 *and its regulations must be used in that order.*

"acid sulfate soils" means soil or sediment containing highly acidic soil horizons or layers affected by the oxidation of iron sulfides (*actual acid sulfate soils*) and/or soil or sediment containing iron sulfides or other sulfidic material that has not been exposed to air and oxidised (*potential acid sulfate soils*). The term acid sulfate soil generally includes both actual and potential acid sulfate soils. Actual and potential acid sulfate soils are often found in the same soil profile, with actual acid sulfate soils generally overlying potential acid sulfate soil horizons.

"active" for the purposes of landholders' groundwater bores means bores that are able to continue to provide a reasonable yield of water in terms of quantity for the bores authorised purpose or use.

"aggregation dam" means a dam that is used to aggregate and contain CSG water prior to use, treatment or disposal of that water (by means other than evaporation). The primary purpose of the dam must not be to evaporate the water even though this will naturally occur.

"affected land" means land on which an event has caused or threatens serious or material environmental harm.

"AHD" means Australian Height Datum.

"alternative arrangement" means a written agreement between the holder of this environmental authority and an affected or potentially affected person at a sensitive receptor for a defined noise nuisance impact and may include an agreed period of time for which the arrangement is in place. An agreement for alternative arrangements may include, but not necessarily be limited to a range of noise abatement measures to be installed at a sensitive receptor and/or provision of alternative accommodation for the duration of the defined noise nuisance impact.

"analytes" means a chemical parameter determined by either physical measurement in the field or by laboratory analysis.

"appraisal well" means a petroleum well that is drilled to test the potential of 1 or more natural underground reservoirs for producing or storing petroleum.

"associated works" in relation to a dam, means:

- operations of any kind and all things constructed, erected or installed for that dam; and
- any land used for those operations.

"background noise level" means the sound pressure level, measured in the absence of the noise under investigation, as the L A90,T being the A-weighted sound pressure level exceeded for 90 percent of the measurement time period T of not less than 15 minutes, using Fast response.

"bed and banks" for a watercourse or wetland means land over which the water of the watercourse or wetland normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed or banks that is from time to time covered by floodwater.

"black earth" also known as vertosols and is a soil order of the Australian Soil Classification. These are clay soils with shrink/swell properties that display strong cracks when dry and/or lenticular structural aggregates at depth. They have a high soil fertility and a large water holding capacity.

"bore" means a water observation bore or a water supply bore.

"brine" means either saline water with a total dissolved solid concentration greater than 40 000mg/l or CSG water after it has been concentrated through water treatment processes and/or evaporation.

"bund or bunded" in relation to spill containment systems for fabricated or manufactured tanks or containers designed to a recognised standard means an embankment or wall of brick, stone, concrete or other impervious material which may form part or all of the perimeter of a compound and provides a barrier to retain liquid. Since the bund is the main part of a spill containment system, the whole system (or bunded area) is sometimes colloquially referred to within industry as the bund. The bund is designed to contain spillages and leaks from liquids used, stored or processed above ground and to

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facilitate clean-up operations. As well as being used to prevent pollution of the receiving environment, bunds are also used for fire protection, product recovery and process isolation.

"BTEX" means benzene, ethylbenzene, toluene, xylene.

"category A ESA" means any area listed in Section 25 of the *Environmental Protection Regulation 2008*.

"category B ESA" means any area listed in Section 26 of the *Environmental Protection Regulation 2008*.

"category C ESA" means any of the following areas:

- Nature Refuges as defined under the *Nature Conservation Act 1992*;
- Koala Habitat Areas as defined under the *Nature Conservation Act 1992*;
- State Forests or Timber Reserves as defined under the *Forestry Act 1959*;
- Declared catchment areas under the *Water Act 2000*;
- Resources reserves under the *Nature Conservation Act 1992*
- An area identified as "Essential Habitat" for a species of wildlife listed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992*;
- An area identified as "Essential Regrowth Habitat" under the *Vegetation Management Act 1999* for a species of wildlife listed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992* for petroleum activities that commenced after 14 August 2012; or
- "Of concern" regional ecosystems identified in the database maintained by the Department of Environment and Heritage Protection called 'Regional ecosystem description database' containing regional ecosystem numbers and descriptions.

Commented [MK36]: Added to reflect inclusion of Essential Regrowth Habitat since 14 August 2012 – should not have any bearing on brine dam planned in ESA buffer

Commented [MK37]: Removed referrable wetlands as no longer included in suite of Cat C ESA types

"certification or certified by a suitably qualified and experienced person" in relation to a design plan or an annual report regarding dams, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- exactly what is being certified and the precise nature of that certification.
- the relevant legislative, regulatory and technical criteria on which the certification has been based;
- the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

"certification" or "certified" in relation to any other matter in this environmental authority means a written statement from a suitably qualified person that the content of a document is accurate and true and meets the required intent of the document.

"clearing" means:

- in relation to grass, scrub or bush—the removal of vegetation by disturbing root systems and exposing underlying soil (including burning), but does not include—
  - the flattening or compaction of vegetation by vehicles if the vegetation remains living; or
  - the slashing or mowing of vegetation to facilitate access tracks; or
  - the clearing of noxious or introduced plant species; and
- in relation to trees—cutting down, ringbarking, pushing over, poisoning or destroying in any way.

"construction" in relation to a dam includes building a new dam and modifying or lifting an existing dam.

"construction and operational purposes" in relation to the use of coal seam gas water means the construction, use, modification, maintenance, replacement, operation and decommissioning of industrial sites.

"coal seam gas water" means underground water brought to the surface of the earth, or otherwise interfered with, in connection with exploring for or producing coal seam gas. Coal seam gas water is a waste, as defined under s13 of the *Environmental Protection Act 1994*.

"CSG water dams" include any type of dam (storage or evaporation) used to contain groundwater that is necessarily or unavoidably brought to the surface in the process of coal seam gas exploration or production.

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"dam" means a land-based structure or a void that is designed to contain, divert or control **flowable** substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and **associated works**. A dam does *not* mean a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.

"deed of agreement" means a legal agreement between the holder of the environmental authority and the administering authority. The deed of agreement governs the obligations of the holder of the environmental authority in relation to the *Queensland Biodiversity Offset Policy*. For clarity, the term deed of agreement in this environmental authority includes any subsequent version or amendment of the signed deed of agreement.

Commented [MK38]: QBOP requirement – only applied to activities post-grant of EA

"design plan" means the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include design and investigation reports, specifications and certifications, together with the planned decommissioning and rehabilitation works and outcomes. A design plan may include 'as constructed' drawings.

"development well" means a petroleum well that is drilled to produce or store petroleum.

"discharge area" means:
(a) that part of the land surface where groundwater discharge produces a net movement of water out of the groundwater; and
(b) identified by an assessment process consistent with the document: Salinity Management Handbook, Queensland Department of Natural Resources, 1997; or
(c) identified by an approved salinity hazard map held by the Department of Environment and Heritage Protection.

"ecosystem functioning" means the interactions between and within living and nonliving components of an ecosystem and generally correlates with the size, shape and location of an area of vegetation.

"end" means the stopping of the particular activity that has caused a significant disturbance in a particular area. It refers to, among other things, the end of a seismic survey or the end of a drilling operation. It does not refer to the end of all related activities such as rehabilitation. In other words, it does not refer to the 'completion' of the petroleum activity, the time at which the petroleum authority ends or the time that the land in question ceases to be part of an authority.

"equivalent person" or **"EP"** means an equivalent person under volume 1, section 2 of the *Guidelines for Planning and Design of Sewerage Schemes*, October 1991, published by the Water Resources Commission, Department of Primary Industries, Fisheries and Forestry.

"existing regulated dam" means a dam for which construction has substantially commenced on 17 December 2012.

"exploring for petroleum" means carrying out an activity for the purpose of finding petroleum or natural underground reservoirs as per section 14 of the *Petroleum and Gas (Production and Safety) Act 2004* for example including:
(a) conducting a geochemical, geological or geophysical survey
(b) drilling a well
(c) carrying out testing in relation to a well
(d) taking a sample for chemical or other analysis

"evaporation dam" means a land based structure designed to contain or impound CSG water, the purpose of which is to contain or impound the water, until the water content has been removed by evaporation.

"fill" means any kind of material in solid form (whether or not naturally occurring) capable of being deposited at a place but does not include material that forms a part of, or is associated with, a structure constructed in a watercourse, wetland or spring including a bridge, road, causeway, pipeline, rock revetment, drain outlet works, erosion prevention structure or fence.

"flowable substance" means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

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"foreseeable future' means the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptably low probability of failure before that time.

"hazard" in relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

"hazard category" means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the Department of Environment and Heritage Protection's *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008)* or any updated version of the Manual that becomes available from time to time

"heritage place" means any place that may be of cultural heritage significance**,** or any place with potential to contain archaeological artefacts that are an important source of information about Queensland's history.

"high bank" means the defining terrace or bank or, if no bank is present, the point on the active floodplain, which confines the average annual peak flows in a watercourse.

"highly erodible soils" means very unstable soils that are generally described as Sodosols with hard –setting, fine sandy loam to silty clay loam surfaces (solodics, solodised solonetz and solonetz) or soils with a dispersible layer located less than 25cm deep or soils less than 25cm deep.

"hub" means more than one large compressor station and multiple items of fuel burning or combustion units located within three (3) km of each other and capable of burning fuel at a rate >500 kg/hr.

"hydraulic performance" means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* published by EHP on its website.

"impacts to State significant biodiversity values" means to have a negative effect on a State significant biodiversity value as identified by the *Queensland Biodiversity Offset Policy* (Department of Environment and Resource Management, 2011) resulting from petroleum activities that commenced after XX February 2013 (the date of grant of this environmental authority). Examples may include, but are not necessarily limited to:

- clearing, removal or fragmentation of vegetation
- interference or disturbance of fauna habitat

"impacts to watercourse, wetland, lake or spring with state significant biodiversity values" means to have a negative effect on a watercourse, wetland, lake or spring with state significant biodiversity values as identified in Appendix 1 of the *Queensland Biodiversity Offsets Policy* (Department of Environment and Resource Management, 2011) resulting from petroleum activities that commenced after XX February 2013 (the date of grant of this environmental authority).

"impulsive sound" means sound characterised by brief excursions of sound pressure (acoustic impulses) that significantly exceed the background sound pressure. The duration of a single impulsive sound is usually less than one second.

"infrastructure" means water storage dams, roads and tracks, equipment, buildings and other structures built for the purpose and duration of the conduct of the petroleum activities, but does not include other facilities required for the long term management of the impact of those activities or the protection of potential resources. Such other facilities include dams other than water storage dams (e.g. evaporation dams), pipelines and assets, that have been decommissioned, rehabilitated, and lawfully recognised as being subject to subsequent transfer with ownership of the land.

"irrigation" means the application of water to any agricultural or silvicultural crop or to a garden cultivated for domestic use.

"$LA_{eq, adj, 15\ mins}$" means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a 15 minute period has the same square sound pressure as a sound level that varies with time.

"lake" means:

Commented [MK39]: Removal of version of manual as it has been updated and will continue to be

Commented [MK40]: Changed to reflect new dept name

Commented [MK41]: QBOP requirement – only applied to activities post-grant of EA

Commented [MK42]: Inserted into the standard definition to clarify that only impacts post-EA grant date are relevant

Commented [MK43]: QBOP requirement – modified to only include impacts post grant of the EA

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(a) a lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
(b) the bed and banks and any other element confining or containing the water.

"landfill monocell" means a specialised, isolated landfill facility where a single specific waste type is exclusively disposed (i.e. salt).

"leachate" means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of on site which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

"levee" means a dyke or bund that is designed only to provide for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from unplanned releases from other works of infrastructure, during the progress of those stormwater or flood flows or those unplanned releases; and does not store any significant volume of water or flowable substances at any other times.

"limited petroleum activities" mean only activities including:
(a) geophysical surveys (including seismic activities);
(b) well sites;
(c) well pads;
(d) sumps;
(e) flare pits;
(f) flow lines; and
(g) supporting access tracks.
For clarity, limited petroleum activities do not include:
(a) the construction of infrastructure for processing or storing petroleum or by-products;
(b) dams;
(c) compressor stations;
(d) campsites/workforce accommodation;
(e) power supplies;
(f) waste disposal; or
(g) other supporting infrastructure for the project.

"livestock watering purposes" means the supply of water to any livestock.

"long term noise event" is a noise exposure, when perceived at a sensitive receptor, persists for a period of greater than five (5) days, even when there are respite periods when the noise is inaudible within those five (5) days.

"Max $L_{pZ,\ 15\ min}$" means the maximum value of the Z-weighted sound pressure level measured over 15 minutes.

"Max $L_{pA,\ 15\ min}$" means the absolute maximum instantaneous A-weighted sound pressure level, measured over 15 minutes.

"mg/L" means milligrams per litre.

"medium term noise event" is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than five days and does not re-occur for a period of at least four weeks. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a difference source or source location.

"meter" means a device for measuring, or giving an output signal proportional to, quantities of water passed and/or the rate of flow in a pipe."

"Offset Area Management Plan (OAMP)" means a site-specific plan prepared to address the requirements of the *Queensland Biodiversity Offsets Policy* (Department of Environment and Resource Management, 2011) that includes, but is not necessarily limited to:

- the applicant(s) name, postal address, contact details
- lot/plan, stage (or area) to which the OAMP relates, GPS coordinates for the stage (or area)
- a demonstration that the activity has avoided, then minimised impacts to State significant Biodiversity Values
- a detailed description of the State Significant Biodiversity Values to be offset
- a detailed description of the extent of impact on each of the State Significant Biodiversity Values
- the offset delivery mechanism(s):

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- direct land based offsets:
  - values to be offset using a direct land based offset;
  - an assessment of the offset area to demonstrate how it meets the requirements of the *Queensland Biodiversity Offsets Policy* (Department of Environment and Resource Management, 2011);
  - an assessment of ecological equivalence carried out in accordance with the Ecological Equivalence Methodology.;
  - legally binding mechanism; and
  - offset area management plan.
- offset transfer:
  - values to be offset using an offset transfer
  - evidence that State significant biodiversity values to be impacted can be offset within the landscape;
  - an assessment of ecological equivalence carried out in accordance with the Ecological Equivalence Methodology;
  - Brokers Agreement or applicant letter; and
  - identification of financial surety amount
- offset payment:
  - the values to which the proposed offset payment relates; and
  - offset payment amount and calculation method.

Commented [MK44]: QBOP requirement – only applied to activities post-grant of EA

"overland flow water" means water, including floodwater, flowing over land, otherwise than in a watercourse or lake:
- after having fallen as rain or in any other way; or
- after rising to the surface naturally from underground.

"permanent infrastructure" includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads, pipelines etc), which is to be left by agreement with the landowner.

"pest" means species:
(a) declared under the *Land Protection (Pest and Stock route Management) Act 2002*;
(b) declared under Local Government model local laws; and
(c) which may become invasive in the future.

"populated area" includes towns and cities which have a population of 500 or more people and with a minimum density of 40 people/km^2.

"prescribed storage gases" has the meaning provided in section 12 of the *Petroleum and Gas (Production and Safety) Act 2004.*

"regulated dam" means any dam in the significant or high hazard category as assessed using the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008)* or any updated version of the Manual that becomes available from time to time

"rehabilitation" means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land

"remnant unit" means a continuous area of remnant vegetation representative of a single Regional Ecosystem type or a single heterogeneous unit (multiple Regional Ecosystem types that cannot be distinguished individually due to the scale of mapping).

"sensitive place" means:
- a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or
- a library, childcare centre, kindergarten, school, university or other educational institution;
- a medical centre, surgery or hospital; or
- a protected area; or
- a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment; or
- a work place used as an office or for business or commercial purposes, which is not part of the petroleum activities and does not include employees accommodation or public roads.

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"sensitive receptor" means an area or place where noise (including low frequency, vibration and blasting) is measured investigate whether nuisance impacts are occurring and includes:

- a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or
- a library, childcare centre, kindergarten, school, university or other educational institution;
- a medical centre, surgery or hospital; or
- a protected area; or
- a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment; or
- a work place used as an office or for business or commercial purposes, which is not part of the petroleum activities and does not include employees accommodation or public roads.

"short term noise event" is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than eight hours and does not re-occur for a period of at least seven days. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a different source or source location.

"significantly disturbed land or significant disturbance to land" means disturbance to land as defined in section 28 of the *Environmental Protection Regulation 2008*.

"site" means the petroleum authority(ies) to which the environmental authority relates.

"spring" means the land to which water rises naturally from below the ground and the land over which the water then flows.

"stable" in relation to land, means landform dimensions are or will be stable within **tolerable limits** now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

"state heritage place" means a place entered in the Queensland heritage register under Part 4 of the *Queensland Heritage Act 1992*.

"State significant biodiversity values" means those regional ecosystems, essential habitat, wetlands, watercourses, legally secured offset areas and connectivity areas provided in Appendix 1 of the *Queensland Biodiversity Offsets Policy* (Department of Environment and Resource Management, 2011).

Commented [MK45]: QBOP requirement – only applied to activities post-grant of EA

"stimulation" means a technique used to increase the permeability of a natural underground reservoir, including for example, cavitation, hydraulic fracturing/hydrofraccing, fracture acidizing and the use of proppant treatments.

"suitably qualified person" means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.

"suitably qualified and experienced person" in relation to a hazard assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- exactly what has been assessed and the precise nature of that assessment;
- the relevant legislative, regulatory and technical criteria on which the assessment has been based;
- the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

"suitably qualified and experienced person" in relation to dams means one who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 1988, OR registered as a National Professional Engineer (NPER) with the Institution of Engineers Australia, OR holds equivalent professional qualifications to the satisfaction of the administering authority for the Act; AND the administering authority for the Act is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

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- knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- a total of five (5) years of suitable experience and demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry, and
- a total of five (5) years of suitable experience and demonstrated expertise each, in three (3) of the following categories:
  - investigation and design of dams.
  - Construction, operation and maintenance of dams.
  - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology.
  - hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes.
  - hydrogeology with particular reference to seepage, groundwater.
  - solute transport processes and monitoring thereof.
  - dam safety.

"third party auditor" means a suitably qualified person who is either a certified third party auditor or an internal auditor employed by the holder of the environmental authority and the person is independent of the day to day management and operation of activities covered by this environmental authority

"threatening processes" means processes, features and actions that can have a detrimental effect upon the health and viability of an area of vegetation. For example altered hydrology, land use practices, invasion by pest and weed species, land degradation, edge effects and fragmentation.

"tolerable limits" means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing damage and limiting infiltration and percolation.

"topsoil" means the surface (top) layer of a soil profile, which is more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from the natural surface.

"transmissivity" means the rate of flow of water through a vertical strip of aquifer which is one unit wide and which extends the full saturated depth of the aquifer.

"unacceptable risk" is when the results of a hazard assessment indicates that there is both a high consequence and a high likelihood of an event occurring such that the risk is classified as "high", "very high" or "extreme".

"valid complaint" means a complaint the administering authority considers is not frivolous, nor vexatious, nor based on mistaken belief.

"void" means any man-made, open excavation in the ground (includes borrow pits, drill sumps, frac pits, flare pits, cavitation pits and trenches).

"waters" includes all or any part of a creek, river, stream, lake, lagoon, dam, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.

"watercourse" has the meaning provided in s 5 of the *Water Act 2000* and includes the bed and banks and any other element of a river, creek or stream confining or containing water.

"watercourse, **wetland, lake or spring with State significant biodiversity values"** are those described in Appendix 1 of the *Queensland Biodiversity Offsets Policy* (Department of Environment and Resource Management, 2011).

Commented [MK46]: QBOP requirement

"well lease infrastructure" means infrastructure required for the construction and completion of a well including but not limited to cellar pits, dams and drill sumps.

"wetland" means an area shown as a wetland on a 'Map of referable wetlands', a document approved by the chief executive (environment). A map of referable wetlands can be viewed at www.ehp.qld.gov.au .

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"wild river declaration" means a statutory instrument under the *Wild Rivers Act 2005*. A declaration lists the relevant natural values to be preserved and delineates certain parts of the wild river area and the different constraints that may apply in these areas. With reference to environmental authorities for petroleum, each declaration also specifies conditions to be included in a new authority if the activity is to be located within the wild river area.

"20th percentile release limits" means that not more than four (4) of the measured values is to exceed the stated release limit for any five (5) consecutive samples where:
(1) the consecutive samples are taken over a five (5) month period; and
(2) the consecutive samples are taken at approximately equal periods.

"25th percentile release limits" means that not more than three (3) of the measured values is to exceed the stated release limit for any four (4) consecutive samples where:
(1) the consecutive samples are taken over a four (4) month period; and
(2) the consecutive samples are taken at approximately equal periods.

"75th percentile release limits" means that not more than one (1) of the measured values is to exceed the stated release limit for any four (4) consecutive samples where:
(1) the consecutive samples are taken over a four (4) month period; and
(2) the consecutive samples are taken at approximately equal periods.

"80th percentile release limits" means that not more than one (1) of the measured values is to exceed the stated release limit for any five (5) consecutive samples where:
(1) the consecutive samples are taken over a five (5) month period; and
(2) the consecutive samples are taken at approximately equal periods.

End of Conditions

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Environmental Authority Review and Comment Template

APPLICANT: Arrow Energy Pty Ltd
REGISTERED OFFICE ADDRESS: 'AM-60' Level 19, 42 Albert Street, Brisbane QLD 4000
TENEMENTS: Petroleum Leases (PL) 194,198, 230, 238, 252, 258 and 260
ENV AUTHORITY NO.: PEN100449509
FILE NO.: BNE43018 v19
PROJECT NO: 343728
PROJECT NAME: Dalby Expansion Project
DATE: 14 February 2013

During the review of the draft environmental authority supplied to you via email on **14/02/2013**, please provide any comments or proposed amendments in the below table with the supporting, evidenced based assessment.

Please be aware the department will no longer accept track changes and comments within documents as a means of corresponding on the conditioning process.

Condition No.	Condition / Issue	Proposed Amendment / Method to address identified issue	Evidence Based Assessment

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Notice

Environmental Protection Act

Notice of extension of decision period

This statutory notice is issued by the administering authority pursuant to s. 555 of the Environmental Protection Act 1994, *to advise you of a decision to extend the decision period for your application.*

Your reference : ENV12-318

Our reference : PEN100449509 / BNE43018

Arrow Energy Pty Ltd
'AM-60', Level 19
42-60 Albert St
BRISBANE QLD 4000

Attention: Ms sch4p4(6) Personal in

Re: Application to amend a level 1 environmental authority (chapter 5A activities) number PEN100449509 by Arrow Energy Pty Ltd (Arrow) for Petroleum Leases (PL) 194, 198, 230, 238, 252, 258 and 260 received on 13 December 2012.

The administering authority extends the decision period for the above mentioned application, received by this office on 24 December 2012, to a newly revised decision date of **21 February 2013**.

The extension of time is required for the following reasons:

- To enable the applicant time to review and accept or provide comment on the draft conditions provided on 14 February 2013.
- To allow the administering authority sufficient time to assess Arrow's response to draft conditions and decide the application.

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Planning and Environment Court.

Information outlining the review and appeal processes under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this notice, please contact Keara McDonagh of the Department of Environment and Heritage Protection on telephone (07) 3330 5618.

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sch4p4(6) Personal information

Signature

14/2/2013

Date

Steven Tarte
Manager, Energy Assessments
Delegate of administering authority
Department of Environment and Heritage Protection

Enquiries:
Energy Assessments (Level 7, 400 George St.)
Department of Environment and Heritage Protection

Regular Post:
GPO Box 2452, Brisbane QLD 4001

Courier or Registered Post:
Level 3, 400 George Street, BRISBANE QLD 4000
Phone: **(07) 3330 5618**
Fax: (07) 3330 5634

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Environmental Authority Review and Comment Template

APPLICANT: Arrow Energy Pty Ltd
REGISTERED OFFICE ADDRESS: 'AM-60' Level 19, 42 Albert Street, Brisbane QLD 4000
TENEMENTS: Petroleum Leases (PL) 194,198, 230, 238, 252, 258 and 260
ENV AUTHORITY NO.: PEN100449509
FILE NO.: BNE43018 v19
PROJECT NO: 343728
PROJECT NAME: Dalby Expansion Project
DATE: 14 February 2013

During the review of the draft environmental authority supplied to you via email on **14/02/2013**, please provide any comments or proposed amendments in the below table with the supporting, evidenced based assessment.

Please be aware the department will no longer accept track changes and comments within documents as a means of corresponding on the conditioning process.

Condition No.	Condition / Issue	Proposed Amendment / Method to address identified issue	Evidence Based Assessment
A22	Duplication of conditions already required in condition C14 and Manual for Assessing Hazard Categories and Hydraulic Performance of Dams	Removal of conditions that are duplicated.	Condition C14 and Manual for Assessing Hazard Categories and Hydraulic Performance of Dams

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Joanne Kerr

From: sch4p4(6) Personal info < sch4p4(6) Personal i arrowenergy.com.au>
Sent: Monday, 18 February 2013 12:48 PM
To: Keara Mcdonagh
Cc: Matthew Dunn; Naylor Gillian; Craig Charlton; Frankish John
Subject: RE: DXP Amendment Application for a brine dam in buffer zone of a Cat C ESA - Draft conditions and notice of extension of decision period
Attachments: 130215ADH001 Environmental Authority Review and Comment_140213 (3).docx

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Keara,

Thanks for the draft conditions for the DXP EA sent on Friday 15th February.

Arrow have reviewed the draft and attached some comments for your consideration.

Arrow request that the decision date be extended to Friday 8th March to allow for the following

- Continued discussion on the offsets conditions in the EA
- Finalisation of information for condition A1 as requested.

Please let me know if you would like to discuss the comment made in the attached document.

Cheers

sch4p4(

sch4p4(6) Persona
Team Leader Upstream Approvals

Arrow Energy Pty Ltd
Level 19, AM-60, 42-60 Albert St, Brisbane QLD 4000
GPO Box 5262, Brisbane QLD 4001, Australia
email: sch4p4(6) Pers@arrowenergy.com.au
T: +61 7 3012 4276 (direct)
F: +61 7 3012 4001
M:+61 sch4p4(6) Pers
www.arrowenergy.com.au

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Environmental Authority Review and Comment Template

APPLICANT: Arrow Energy Pty Ltd
REGISTERED OFFICE ADDRESS: 'AM-60' Level 19, 42 Albert Street, Brisbane QLD 4000
TENEMENTS: Petroleum Leases (PL) 194,198, 230, 238, 252, 258 and 260
ENV AUTHORITY NO.: PEN100449509
FILE NO.: BNE43018 v19
PROJECT NO: 343728
PROJECT NAME: Dalby Expansion Project
DATE: 14 February 2013

During the review of the draft environmental authority supplied to you via email on **14/02/2013**, please provide any comments or proposed amendments in the below table with the supporting, evidenced based assessment.

Please be aware the department will no longer accept track changes and comments within documents as a means of corresponding on the conditioning process.

Condition No.	Condition / Issue	Proposed Amendment / Method to address identified issue	Evidence Based Assessment
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Information sheet

Environmental Protection Act 1994

Internal review and appeal to Planning and Environment Court

This information sheet forms part of an information notice under the Environmental Protection Act 1994. *It gives a summary of the process for review and appeal to the Planning and Environment Court under the Environmental Protection Act and subordinate legislation. Refer to ss. 519 - 539 and schedule 2 of the Environmental Protection Act for complete information about the process for internal review and appeal to the Planning and Environment Court.*

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Introduction

The *Environmental Protection Act 1994* (EP Act) provides for a right of internal review and appeal against certain decisions made under the EP Act. Decisions that can be reviewed or appealed are listed in schedule 2 of the EP Act and within certain sections of the regulations and subordinate legislation[1] made under the EP Act. The EP Act also provides that a dissatisfied person for a review decision, other than those listed in part 1 of schedule 2 of the EP Act[2], may appeal the decision to the Planning and Environment Court (the Court).

Summary of the process for internal review and appeal to the Court

Chapter 11, Part 3 of the EP Act

Division 1 — Interpretation

Section 519 Original decisions

1) A decision mentioned in schedule 2 is an 'original decision'.
2) A decision under an environmental protection policy or regulation that the policy or regulation declares to be a decision to which this part applies is also an 'original decision'.

Section 520 Dissatisfied person

This section nominates the dissatisfied person for an original or review decision.

Division 2 — Internal review of decisions

Section 521 Procedure for review

1) A dissatisfied person may apply for a review of an original decision.
2) The application must—
   a) be made in the approved form to the administering authority within—
      i) 10 business days[3] after the day on which the person receives notice of the original decision or the administering authority is taken to have made the decision (the 'review date'); or
      ii) the longer period the authority in special circumstances allows ; and
   b) be supported by enough information to enable the authority to decide the application.
3) On or before making the application, the applicant must send the following documents to the other persons who were given notice of the original decision—

a) notice of the application (the 'review notice');

b) a copy of the application and supporting documents.

4) The review notice must inform the recipient that submission on the application may be made to the administering authority within five business days after the application is made to the authority.

5) If the administering authority is satisfied the applicant has complied with subsection (2) and (3), the authority must, within 10 business days after receiving the application—

a) review the original decision;

b) consider any submissions properly made by a recipient of the review notice; and

c) make a decision (the 'review decision') to—

i) confirm or revoke the original decision; or

ii) vary the original decision in a way the administering authority considers appropriate.

6) The application does not stay the original decision.

7) The application must not be dealt with by—

a) the person who made the original decision; or

b) a person in a less senior office than the person who made the original decision.

8) Within 10 business days after making the review decision, the administering authority must give written notice of the decision to the applicant and persons who were given notice of the original decision.

9) The notice must—

a) include the reasons for the review decision; and

b) inform the person of their right of appeal against the decision.

10) If the administering authority does not comply with subsections (5) or (8), the authority is taken to have made a decision confirming the original decision.

11) Subsection (7) applies despite the *Acts Interpretation Act 1954*, section 27A.

12) This section does not apply to an original decision made by—

a) for a matter, the administration and enforcement of which has been devolved to a local government, the local government itself or the chief executive officer of the local government personally; or

b) for another matter — the chief executive personally.

13) Also, this section does not apply to an original decision to issue a clean-up notice.

Section 522 Stay of operation of original decisions

1) If an application is made for review of an original decision, the applicant may immediately apply for a stay of the decision to—

a) for an original decision mentioned in schedule 2, part 1—the Land Court; or

b) for an original decision mentioned in schedule 2, part 2—the Court.

2) The Land Court or the Court may stay the decision to secure the effectiveness of the review and any later appeal to the Land Court or the Court.

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3) A stay may be given on conditions the Land Court or the Court considers appropriate and has effect for the period stated by the Land Court or the Court.

4) The period of a stay must not extend past the time when the administering authority reviews the decision and any later period the Land Court or the Court allows the applicant to enable the applicant to appeal against the review decision.

Division 4 — Appeals to Court

Section 531 Who may appeal

1) A dissatisfied person who is dissatisfied with a review decision, other than a review decision to which subdivision 1[4] applies, may appeal against the decision to the Court.

2) The chief executive may appeal against another administering authority's decision (whether an original or review decision) to the Court.

3) A dissatisfied person who is dissatisfied with an original decision to which s. 521 does not apply may appeal against the decision to the Court.

Section 532 How to start appeal

1) An appeal is started by—

   a) filing written notice of appeal with the registrar of the Court; and

   b) complying with rules of court applicable to the appeal.

2) The notice of appeal must be filed—

   a) if the appellant is the chief executive—within 33 business days after the decision is made or taken to have been made; or

   b) if the appellant is not the chief executive—within 22 business days after the day the appellant receives notice of the decision or the decision is taken to have been made.

3) The Court may at any time extend the period for filing the notice of appeal.

4) The notice of appeal must state fully the grounds of the appeal and the facts relied on.

Section 533 Appellant to give notice of appeal to other parties

1) Within 8 business days after filing the notice of appeal, the appellant must serve notice of the appeal on—

   a) if the appellant is the chief executive—all persons who were given notice of the original decision; or

   b) if the appellant is not the chief executive—the other persons who were given notice of the original decision.

2) The notice must inform the persons that, within 10 business days after service of the notice of appeal, they may elect to become a respondent to the appeal by filing in the Court a notice of election under rules of court.

Section 534 Persons may elect to become respondents to appeal

A person who properly files in the Court a notice of election becomes a respondent to the appeal.

Section 535 Stay of operation of decisions

1) The Court may grant a stay of a decision appealed against to secure the effectiveness of the appeal.

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2) A stay may be granted on conditions the Court considers appropriate and has effect for the period stated by the Court.

3) The period of a stay must not extend past the time when the Court decides the appeal.

4) An appeal against a decision does not affect the operation or carrying out of the decision unless the decision is stayed.

Section 535A Stay of decision to issue a clean-up notice

5) This section applies to an application under section 535 for a stay of a decision to issue a clean-up notice.

6) In deciding the application, the Court must have regard to—

   a) the quantity and quality of contamination of the environment that is likely to be caused if the stay is granted; and

   b) the proximity of the place at or from which the contamination incident is happening or happened to a place with environmental values that may be adversely affected by the contamination.

Section 536 Hearing procedures

1) The procedure for an appeal is to be in accordance with the rules of court applicable to the appeal or, if the rules make no provision or insufficient provision, in accordance with directions of the judge.

2) An appeal is by way of rehearing, unaffected by the administering authority's decision.

Section 537 Assessors

If the judge hearing an appeal is satisfied the appeal involves a question of special knowledge and skill, the judge may appoint one or more assessors to help the judge in deciding the appeal.

Section 538 Appeals may be heard with planning appeals

1) This section applies if—

   a) a person appeals against an administering authority's decision (whether an original or review decision) to refuse to grant a registration certificate or to accredit an environmental risk management plan (ERMP); and

   b) a person appeals against the assessment manager's decision under the *Sustainable Planning Act 2009* about a planning or development matter for the premises to which the certificate or the ERMP or the application for the certificate relates.

2) On the application of a party to either of the appeals, the Court may order—

   a) the appeals to be heard together or one immediately after the other; or

   b) one appeal to be stayed until the other has been decided.

3) The application may be made—

   a) by an appellant when starting an appeal or at any time before the appeals are decided; or

   b) by another party at any time before the appeals are decided.

4) This section applies even though the parties, or all of the parties, to the appeals are not the same.

Section 539 Powers of Court on appeal

1) In deciding an appeal, the Court may—

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a) confirm the decision appealed against; or

b) vary the decision appealed against; or

c) set aside the decision appealed against and make a decision in substitution for the decision set aside.

2) If on appeal the Court acts under subsection (1)(b) or (c), the decision is taken, for this Act (other than this part), to be that of the administering authority.

Further information

The latest version of this publication can be found at <www.ehp.qld.gov.au>. Note: where available, the publication number (e.g. EM1866 for this document) can be used as a search term.

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[1] The original decisions under the subordinate legislation are subject to change. As at 11 May 2010 they are listed in:

- Regulation 110 of the Environmental Protection Regulation 2008; and
- Regulation 68C of the Environmental Protection (Waste Management) Regulation 2000.

[2] An appeal may be made to the Land Court for original decisions in part 1 of schedule 2.

[3] Under the *Environmental Protection Act 1994* "business days does not include a business day between 26 December and 1 January in the following year".

[4] Subdivision 1 is about appeals to the Land Court and information about this is contained in ss. 519 - 539.

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RTI Act 2009

Notice

Environmental Protection Act

Notice of extension of decision period

This statutory notice is issued by the administering authority pursuant to s. 555 of the Environmental Protection Act 1994*, to advise you of a decision to extend the decision period for your application.*

Your reference : ENV12-318

Our reference : PEN100449509 / BNE43018

Arrow Energy Pty Ltd
'AM-60', Level 19
42-60 Albert St
BRISBANE QLD 4000

Attention: Ms sch4p4(6) Personal inf

Published on DES Disclosure Log RTI Act 2009

Re: Application to amend a level 1 environmental authority (chapter 5A activities) number PEN100449509 by Arrow Energy Pty Ltd for Petroleum Leases (PL) 194, 198, 230, 238, 252, 258 and 260 received on 13 December 2012.

The applicant has requested an extension of time, of 14 business days. A decision on the application will be made by 8 March 2013.

The extension of time is required for the following reasons:

- To allow the applicant sufficient time to compile information for Condition (A1) as requested by the administering authority;
- To allow time for continued discussion on the offset conditions within this environmental authority; and
- To allow the administering authority sufficient time to decide the application.

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Planning and Environment Court.

Information outlining the review and appeal processes under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this notice, please contact Keara McDonagh of the Department of Environment and Heritage Protection on telephone (07) 3330 5618.

Notice of extension of decision period

sch4p4(6) Personal informati

Signature

21/2/2013

Date

John Frankish
A/Manager, Energy Assessments
Delegate of administering authority
Department of Environment and Heritage Protection

Enquiries:
Energy Assessments (Level 7, 400 George St.)
Department of Environment and Heritage Protection

Regular Post:
GPO Box 2452, Brisbane QLD 4001

Courier or Registered Post:
Level 3, 400 George Street, BRISBANE QLD 4000
Phone: **(07) 3330 5618**
Fax: (07) 3330 5634

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RTI Act 2009

Joanne Kerr

From: Keara Mcdonagh
Sent: Thursday, 21 February 2013 3:13 PM
To: sch4p4(6) Personal informa
Cc: Matthew Dunn; Craig Charlton; Frankish John (John.Frankish@ehp.qld.gov.au); Naylor Gillian
Subject: RE: DXP Amendment Application for a brine dam in buffer zone of a Cat C ESA - Draft conditions and notice of extension of decision period
Attachments: DRAFT Notice_EXT_PL230 Brine Dam_210.pdf.pdf; is-bi-review-and-appeal-court-em1866.pdf.pdf.pdf

Good afternoon sch4p4(6

I email regarding Arrow Energy's amendment application for a brine dam within a category C ESA buffer on PL230 under Arrow's Dalby Expansion Project (PEN100449509).

Please find attached a Notice of Extension of the Decision Period for the above mentioned application as per your email below.

I have also attached an information sheet explaining your right to seek the internal review and/or appeal of this decision.

If you have any questions, please do not hesitate to contact me by email or on (07) 3330 5618.

Kind regards,

Keara McDonagh
Environmental Officer
Energy Assessments Unit
Department of Environment and Heritage Protection (EHP)
Level 7, 400 George Street, Brisbane QLD 4000 | GPO Box 2454, BRISBANE QLD 4001
T: 07 3330 5618
F: 07 3330 5634
E: keara.mcdonagh@ehp.qld.gov.au
W: http://www.ehp.qld.gov.au

Please consider the environment before printing this email.

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From: sch4p4(6) Personal in [mailto sch4p4(6) Personal inf arrowenergy.com.au]
Sent: Monday, 18 February 2013 12:48 PM
To: Keara Mcdonagh
Cc: Matthew Dunn; Naylor Gillian; Craig Charlton; Frankish John
Subject: RE: DXP Amendment Application for a brine dam in buffer zone of a Cat C ESA - Draft conditions and notice of extension of decision period

Hi Keara,

Thanks for the draft conditions for the DXP EA sent on Friday 15th February.

Arrow have reviewed the draft and attached some comments for your consideration.

Arrow request that the decision date be extended to Friday 8th March to allow for the following

- Continued discussion on the offsets conditions in the EA

- Finalisation of information for condition A1 as requested.

Please let me know if you would like to discuss the comment made in the attached document.

Cheers

sch4p4(6

sch4p4(6) Persor
Team Leader Upstream Approvals

Arrow Energy Pty Ltd
Level 19, AM-60, 42-60 Albert St, Brisbane QLD 4000
GPO Box 5262, Brisbane QLD 4001, Australia
email: sch4p4(6) Pers@arrowenergy.com.au
T: +61 7 3012 4276 (direct)
F: +61 7 3012 4001
M:+61 sch4p4(6) Pers
www.arrowenergy.com.au

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Environmental Authority Review and Comment Template

APPLICANT: Arrow Energy Pty Ltd
REGISTERED OFFICE ADDRESS: 'AM-60' Level 19, 42 Albert Street, Brisbane QLD 4000
TENEMENTS: Petroleum Leases (PL) 194,198, 230, 238, 252, 258 and 260
ENV AUTHORITY NO.: PEN100449509
FILE NO.: BNE43018 v19
PROJECT NO: 343728
PROJECT NAME: Dalby Expansion Project
DATE: 14 February 2013

During the review of the draft environmental authority supplied to you via email on **14/02/2013**, please provide any comments or proposed amendments in the below table with the supporting, evidenced based assessment.

Please be aware the department will no longer accept track changes and comments within documents as a means of corresponding on the conditioning process.

Condition No.	Condition / Issue	Proposed Amendment / Method to address identified issue	Evidence Based Assessment
A22	Duplication of conditions already required in condition C14 and Manual for Assessing Hazard Categories and Hydraulic Performance of Dams	Removal of conditions that are duplicated.	Condition C14 and Manual for Assessing Hazard Categories and Hydraulic Performance of Dams

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Joanne Kerr

From: sch4p4(6) Personal info sch4p4(6) Personal @arrowenergy.com.au>
Sent: Tuesday, 5 March 2013 8:46 AM
To: Keara Mcdonagh
Cc: Naylor Gillian; Matthew Dunn
Subject: FW: DXP Amendment Application for a brine dam in buffer zone of a Cat C ESA - Draft conditions and notice of extension of decision period
Attachments: 130215ADH001 Environmental Authority Review and Comment_140213 (3).docx

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Keara,

Hope you had a good weekend.

The 8th March is fast approaching so it would be good to see where we are at with the amendment for the DXP Brine dam.

The outstanding issues regarding DXP are as follows:

- EHP consideration of the comments made 18th Feb (see attached)
- Exemption on Offset timing requirements for an imminent project (see below)
- Updated table for condition A1

Offsets
Just to clarify my understanding the Offsets conditions that will be imposed are as follows;

Impacts to State Significant Biodiversity Values

(E1)Impacts to mapped **State significant biodiversity values** may only occur once the following have occurred:
(a) an **Offset Area Management Plan** for those impacts has been submitted and accepted in writing by the administering authority; and
(b) the **Offset Area Management Plan** is recorded within a signed **deed of agreement** between the holder of this environmental authority and the administering authority.

(E2)The **deed of agreement** must be implemented.

(E3)Offsets must be provided for impacts to mapped **State Significant Biodiversity Values** in accordance with the Queensland Biodiversity Offset Policy, and the signed **deed of agreement**.

Could you please let me know if you think that there should also be a definition of "mapped" included?

As DXP is a production tenure, projects are planned ahead of time to allow for necessary scheduling and preparation. DXP has one project that is nearing commencement and may not be able to comply with the above new conditions imposed through the EA amendment. Arrow will require an additional condition that allows for imminent projects to go ahead as planned which is crucial to the supply of gas to the DXP Facility and the Arrow domestic gas business.

(E4) Despite condition E1 if the "Surat Tek Park pipeline" impact any mapped SSBV's, then by December 31 2013 the holder of the EA is to undertake the following

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(a) an **Offset Area Management Plan** for those impacts that has been submitted and accepted in writing by the administering authority; and

(b) the **Offset Area Management Plan** is recorded within a signed **deed of agreement** between the holder of this environmental authority and the administering authority.

Please consider this in line with the amendment of the DXP EA.

Updated table for Condition A1.

In the carrying out of the petroleum activity(ies), the holder of this environmental authority must not exceed the number and maximum size for each of the specified petroleum activities listed in *Schedule A, Table 1 – Authorised Petroleum* Activities for each petroleum tenure.

Schedule A, Table 1 – Authorised Petroleum Activities

Petroleum Activity(ies)	Number of Existing Petroleum Activities	Number of Proposed Petroleum Activities	Maximum Disturbance Authorised
Seismic surveys	0	200 km	200 km, 120 ha
Total coal seam gas wells, including: • Core wells • Exploration wells • Development wells • Production wells	436	255	691 wells 691 ha
Compressor units	40	0	40 units, 8 ha
Central gas processing facilities	2	0	2 facilities, 8 ha
Regulated dams	22	0	22 dams
Water treatment facilities	2	0	12 ML/d (each), 2 ha
Sewage treatment plants	2	0	< 450 EP (each), 0.15 ha
Power stations	1	0	40 MW, 1.2 ha

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As, discussed, I would like to remove the word indicative as I don't believe this is "transparent" to the community.

Please give me a call to discuss any issues you may have, otherwise I look forward to a final draft of the DXP EA ready for grant.

Cheers

sch4p4(6) P

From sch4p4(6) Personal inf
Sent: Monday, 18 February 2013 12:48 PM
To: 'Keara Mcdonagh'
Cc: Matthew Dunn; 'Naylor Gillian'; Craig Charlton; John.Frankish@ehp.qld.gov.au
Subject: RE: DXP Amendment Application for a brine dam in buffer zone of a Cat C ESA - Draft conditions and notice of extension of decision period

Hi Keara,

Thanks for the draft conditions for the DXP EA sent on Friday 15th February.

Arrow have reviewed the draft and attached some comments for your consideration.

Arrow request that the decision date be extended to Friday 8th March to allow for the following

- Continued discussion on the offsets conditions in the EA
- Finalisation of information for condition A1 as requested.

Please let me know if you would like to discuss the comment made in the attached document.

Cheers

sch4p4

sch4p4(6) Persc
Team Leader Upstream Approvals

Arrow Energy Pty Ltd
Level 19, AM-60, 42-60 Albert St, Brisbane QLD 4000
GPO Box 5262, Brisbane QLD 4001, Australia
email: sch4p4(6) Pers@arrowenergy.com.au
T: +61 7 3012 4276 (direct)
F: +61 7 3012 4001
M:+61 sch4p4(6) Pers
www.arrowenergy.com.au

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Environmental Authority Review and Comment Template

APPLICANT: Arrow Energy Pty Ltd
REGISTERED OFFICE ADDRESS: 'AM-60' Level 19, 42 Albert Street, Brisbane QLD 4000
TENEMENTS: Petroleum Leases (PL) 194,198, 230, 238, 252, 258 and 260
ENV AUTHORITY NO.: PEN100449509
FILE NO.: BNE43018 v19
PROJECT NO: 343728
PROJECT NAME: Dalby Expansion Project
DATE: 14 February 2013

During the review of the draft environmental authority supplied to you via email on **14/02/2013**, please provide any comments or proposed amendments in the below table with the supporting, evidenced based assessment.

Please be aware the department will no longer accept track changes and comments within documents as a means of corresponding on the conditioning process.

Condition No.	Condition / Issue	Proposed Amendment / Method to address identified issue	Evidence Based Assessment
A22	Duplication of conditions already required in condition C14 and Manual for Assessing Hazard Categories and Hydraulic Performance of Dams	Removal of conditions that are duplicated.	Condition C14 and Manual for Assessing Hazard Categories and Hydraulic Performance of Dams

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Joanne Kerr

From: sch4p4(6) Personal in sch4p4(6) Personal inf arrowenergy.com.au>
Sent: Friday, 8 March 2013 1:55 PM
To: Frankish John
Cc: Keara Mcdonagh; Naylor Gillian
Subject: Surat Tek Park Pipeline

Follow Up Flag: Follow up
Flag Status: Flagged

Hi John,

As discussed, Arrow has been in the process of planning and designing an area within the DXP leases called the Surat Tek Park and the Surat Tek Park pipeline since late 2011. The aims of the Surat Tek Park is to trial and prove drilling technologies that will minimise landholder impact, environmental impact, land disturbance, cost and drilling duration. The pipeline will go from the pad and ties into the existing field. As Arrow have planned to begin construction in May/June this year, it does not allow enough time to comply with the newly imposed offsets conditions that have been provided in the draft EA by EHP.

Cheers

sch4p4(6

sch4p4(6) Person
Team Leader Upstream Approvals

Arrow Energy Pty Ltd
Level 19, AM-60, 42-60 Albert St, Brisbane QLD 4000
GPO Box 5262, Brisbane QLD 4001, Australia
email: sch4p4(6) Persc arrowenergy.com.au
T: +61 7 3012 4276 (direct)
F: +61 7 3012 4001
M:+61 sch4p4(6) Pers
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Notice

Environmental Protection Act

Decision to grant an amendment application for an environmental authority (chapter 5A activities)

This notice is issued by the administering authority pursuant to section 310Y of the Environmental Protection Act 1994 *to advise you of a decision or action.*

Arrow Energy Pty Ltd
'AM-60', Level 19
42-60 Albert St
BRISBANE QLD 4000

ACN: 078 521 936

Your reference : ENV12-318
Our reference : 343728 / PEN100449509 / BNE43018

Attention: Ms sch4p4(6) Personal info

Re: Application for the amendment of a level 1 environmental authority (chapter 5A activities) number PEN100449509 by Arrow Energy Pty Ltd on Petroleum Leases (PL) 194, 198, 230, 238, 252, 258 and 260.

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The above mentioned application was received by this office on 13 December 2012. The administering authority has decided to grant the application pursuant to section 310Y of the *Environmental Protection Act 1994* as follows:

Principal Holder	Joint Holder(s)	Resource Authority	Environmental Authority number	Decision
Arrow Energy Pty Ltd	Arrow CSG (Australia) Pty Ltd Australian CBM Pty Ltd Arrow (Tipton) Pty Ltd Arrow (Tipton Two) Pty Ltd Arrow (Daandine) Pty Ltd Stanwell Corporation Limited	PL 194, 198, 230, 238, 252, 258 and 260	PEN100449509	Granted on 8 March 2013

The administering authority gives notice relating to this application to all the applicants by giving it to the principal applicant.

The amended environmental authority is attached to this Notice.

Department of Environment and Heritage Protection
www.ehp.qld.gov.au ABN 46 640 294 485

QUEENSLAND GOVERNMENT

Should you have any queries in relation to this Notice, please contact Keara McDonagh of the Department of Environment and Heritage Protection on telephone (07) 3330 5618.

Signature	Date

John Frankish
Manager, Energy Assessments
Delegate of the Administering Authority
Environmental Protection Act 1994

Enquiries:
Energy Assessments Unit (Level 7, 400 George Street)
Department of Environment and Heritage Protection

Regular Post:
GPO Box 2454, Brisbane QLD 4001

Courier or Registered Post:
Level 3, 400 George Street, Brisbane QLD 4000

Phone: (07) 3330 5618
Fax: (07) 3330 5634

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Joanne Kerr

From: sch4p4(6) Personal info sch4p4(6) Personal i@arrowenergy.com.au>
Sent: Friday, 8 March 2013 4:59 PM
To: Keara Mcdonagh
Subject: RE: Final EA PEN100449509 for DXP Amendment Application for a brine dam within a Category C ESA protection zone

Thanks Keara, following this appears fine. Please grant today as required.

Cheers

sch4p4(

From: Keara Mcdonagh [mailto:Keara.Mcdonagh@ehp.qld.gov.au]
Sent: Friday, 8 March 2013 4:26 PM
To: sch4p4(6) Personal in
Cc: John.Frankish@ehp.qld.gov.au; Naylor Gillian; Matthew Dunn
Subject: Final EA PEN100449509 for DXP Amendment Application for a brine dam within a Category C ESA protection zone

Hi sch4p4

As per our conversation earlier and my later discussions with Gill and John, I have incorporated the following into the final EA PEN100449509 for DXP Amendment Application for a brine dam within a Category C ESA protection zone:

- Amended scoping table as per information provided by Arrow as requested by EHP;
- Removed the word 'indicative' within the scoping table as per Arrow's request;
- Contingency Plan amendments requested by EHP within version 1 of draft conditions (A22, A23, A24, C15) emailed to Arrow today (08/03/2013) have been omitted from this amendment and it has been noted by EHP to incorporate these draft amendments within the next amendment application for the DXP, subject to review by Arrow;
- Addition of the words, 'condition (D18) of' within condition D10 for clarity and upon advice received internally (ie must state specific conditions that authorise this);
- Amended D10(c) as per communication between Keara McDonagh (EHP) and Chris Johnstone (Arrow) on EA conditions for PEN100901910 for ATP683, Arrow requested this condition wording be entered into this EA also;
- Removed 'listed' within condition D10 as the definition of Category A and B ESAs already state that is an area listed in the EP Reg;
- Removal of conditions B9, D19 and D20 as conditions are superseded by QBOP and conditions D41 – D43 (condition numbering amended accordingly);
- Removed "Category B" from D18 as the application describes Daandine Brine Dam 2 to be located within the protection zone of Category C ESAs only;
- Addition of condition D32 as per request within email from Arrow 5 March 2013;
- Inserted condition as per Arrow email 5 March 2013;
- Amended title of manual within conditions I4 and I5, and added footnote as per agreement on EA PEN100901910 for ATP683 – still the same document;

Please provide written agreement to the conditions as per attachment and comments above.

Many thanks,

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Keara McDonagh

Environmental Officer

Energy Assessments Unit

Department of Environment and Heritage Protection (EHP)

Level 7, 400 George Street, Brisbane QLD 4000 | GPO Box 2454, BRISBANE QLD 4001

T: 07 3330 5618

F: 07 3330 5634

E: keara.mcdonagh@ehp.qld.gov.au

W: http://www.ehp.qld.gov.au

Please consider the environment before printing this email.

The information in this email together with any attachments is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. There is no waiver of any confidentiality/privilege by your inadvertent receipt of this material.

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Pages 174 through 175 redacted for the following reasons:
- -
78B(2)(c) Privacy

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Naylor Gillian

DXP-6nLe dam

From: Davidson Wes
Sent: Friday, 21 December 2012 11:49 AM
To: Naylor Gillian
Subject: RE: BRING UP: PR# 343728 - Arrow Energy Pty Ltd

Thanks Gillian,

Much appreciated.

Cheers
Wes

From: Naylor Gillian
Sent: Friday, 21 December 2012 11:37 AM
To: Davidson Wes
c: Wall Kate
Subject: RE: BRING UP: PR# 343728 - Arrow Energy Pty Ltd

Hi Wes,

I have had a quick look at the application and it appears that the amendment relates to a new location for a brine dam. I have mapped the coordinates given for the disturbance footprint of the proposed dam, and it appears that all areas of SCL and of any SSBVs have been narrowly avoided. By avoided, I mean that the proposed location is immediately adjacent to both an SCL protection zone and an area of mature regrowth of an OC RE (see map attached).

As such, I can confirm that an official BOP assessment is not required for this one.

Kind regards,

Gillian Naylor
Principal Environmental Officer, Energy Assessments
Environmental Services and Regulation Division

Department of Environment and Heritage Protection

Phone 07 3330 5620 | **Fax** 07 3330 5634
Email gillian.naylor@ehp.qld.gov.au | **Website** http://www.ehp.qld.gov.au

Please consider the environment before printing this email.

From: Wall Kate
Sent: Friday, 21 December 2012 9:15 AM
To: Naylor Gillian
Subject: Fw: BRING UP: PR# 343728 - Arrow Energy Pty Ltd

Hi Gil,

Could you please respond to Wes's query?

Thanks

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Regards,

Kate Wall,
Manager Petroleum & Gas

From: Davidson Wes
Sent: Thursday, December 20, 2012 12:06 PM
To: Wall Kate; Young Jenny
Subject: RE: BRING UP: PR# 343728 - Arrow Energy Pty Ltd

Hi Kate and Jenny,

We have received this application. I suspect from the material that the dam is a new activity or is it something that has already been approved and this is just a technical amendment of conditions? This will determine the BOP implications.

Can you let us know if you require us to proceed with a BOP assessment on this application?

Thanks
Wes

From: PALM
Sent: Wednesday, 19 December 2012 3:30 PM
To: Wall Kate; Young Jenny
Cc: Story Christel; Davidson Wes
Subject: BRING UP: PR# 343728 - Arrow Energy Pty Ltd
Importance: High

Project Ref: 343728
Permit Ref: PEN100449509
Application No: 510502
Tenure No: Various
Client: Arrow Energy Pty Ltd

Annual Return Date: 17 December
Application Date: 13/12/2012

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Dear Kate,

An application has been received for an amendment. It has been entered into ecotrack on the 19/12/2012 and will be forwarded to you at the P&G Unit on 19/12/2012.

When assessing this application please ensure that Financial Assurance amounts are recalculated to ensure that adequate Financial Assurance is held by the Department.

Please note: The current Annual Return has automatically moved from the Current Permit to the Assessment permit. Please note that the Annual Return will **NOT** generate in Assessment. You are responsible for ensuring that the Annual Return continues to generate.

If the application will NOT be decided 5 weeks prior to the Annual Return date please do the following so that the return will generate automatically.

1 Cancel the Annual Return in the Assessment Permit

2 Manually generate the Annual Return in the Current Permit making sure that the Annual Return date is correct.

3 If/When the Assessment Permit is granted manually, generate the new Annual Return in the new Current Permit making sure that the Annual Return dates are correct.

The entire application including any supporting documentation will be delivered to yourself and Jenny Young in the P&G Unit at 400 George St. Please commence assessment of the application. Do not wait for the hardcopy to arrive in the mail as this may compromise any due legislative dates. Please note that you may need to contact the applicant for any supporting information.

If you have any questions regarding this application please contact
Shari Sievers on 3137 4243 as soon as possible after receiving this bring up.

An electronic copy of this e-mail has been attached to Ecotrack at External Documents for your information.

Please ensure that all emails are sent to the **PaLM email address** rather than the individual person.

Regards, Mike Mullins

Mike Mullins
Administration Officer
Permit and Licence Management
Environmental Regulatory Practice and Support,
Environmental Performance and Coordination
Telephone: 1300 130 372 **(select option 4) Facsimile:** (07) 3330 5875
Email: palm@ehp.qld.gov.au

Department of Environment and Heritage Protection
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001
www.ehp.qld.gov.au

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Environmental Protection Act 1994

Level 1 Environmental Authority

Chapter 5A petroleum activity

Permit[1] Number: PEN100449509

Under section 310Y(2) of the *Environmental Protection Act 1994* this permit is issued to:

Principal Holder

Arrow Energy Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

ACN: 078 521 936

Joint Holders

Arrow CSG (Australia) Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Australian CBM Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Arrow (Tipton) Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Arrow (Tipton Two) Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Arrow (Daandine) Pty Ltd
'AM-60' Level 19
42-60 Albert Street
BRISBANE QLD 4000

Stanwell Corporation Limited
Level 12, Waterfront Place
1 Eagle Street
BRISBANE QLD 4000

in respect to carrying out a Level 1 chapter 5A activity(ies) as per Section 23 of the Environmental Protection Regulation 2008 on the relevant resource authorities listed below:

Project Name	**Petroleum Authority Type(s) and Number(s)**
Arrow Energy Dalby Expansion Project	Petroleum Leases (PL) 194, 198, 230, 238, 252, 258 and 260

This environmental authority takes effect from **XX March 2013**.

The anniversary date of this environmental authority is **17 December**.

This environmental authority is subject to the attached schedule of conditions.

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Date

John Frankish
Delegate of Administering Authority
Department of Environment and Heritage Protection

Commented [MK1]: Amended to reflect new Government logo

[1] Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Heritage Protection.

QUEENSLAND GOVERNMENT

Additional advice about the approval

Commented [MK2]: Updated to current additional advice included on all current EAs

1. This approval is for the carrying out the following level 1 chapter 5A activity(ies):

Schedule 5 of the Environmental Protection Regulation 2008
6. A petroleum activity carried out on a site containing a high hazard dam or a significant hazard dam.
8. A petroleum activity, other than a petroleum activity mentioned in items 1 to 7, that includes 1 or more chapter 4 activities for which an aggregate environmental score is stated, namely: ERA 14 – Electricity generation by using gas at a rated capacity of 10MW electrical or more. ERA 15 – Fuel burning consists of using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour. ERA 60 (1) (d) – Operating a facility for disposing of, in a year, more than 200,000t of regulated waste. ERA 63 (2) (b) – Sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 100 to 1500EP. ERA 64 (2) (b) – Desalinating, in a day, more than 5ML, allowing the release of waste to waters other than seawater.

Commented [MK3]: Edited to reflect relevant legislation

Commented [MK4]: Completed full definition of ERA 63(2)(b) as per Environmental Protection Regulation 2008

2. This approval pursuant to the *Environmental Protection Act 1994* does not remove the need to obtain any additional approval for this activity which might be required by other State and/or Commonwealth legislation. Other legislation administered by the Department of Environment and Heritage Protection for which a permit may be required includes but is not limited to the:
   - *Aboriginal Cultural Heritage Act 2003*;
   - ~~The c~~Contaminated land provisions of the *Environmental Protection Act 1994*;
   - *Queensland Heritage Act 1992*
   - *Forestry Act 1959;*
   - *Nature Conservation Act 1992*;
   - *Water Act 2000*; and
   - *Water Supply (Safety and Reliability) Act 2008*

   Applicants are advised to check with all relevant statutory authorities and comply with all relevant legislation.

3. This environmental authority does not authorise environmental harm unless a condition contained in this environmental authority explicitly authorises that harm. Where there is no condition, the lack of a condition shall not be construed as authorising harm.

4. This approval for the carrying out of a level 1 petroleum activity is not an acceptance of impacts on water levels or pressure heads in groundwater aquifers in or surrounding coal seams. There are obligations to minimise or mitigate any such impact under other Queensland Government and Australian Government legislation.

5. Terms are defined in Schedule L of this environmental authority. Where a term is not defined in this environmental authority, the definition in the *Environmental Protection Act 1994*, its regulations and Environmental Protection Policies, then the *Acts Interpretation Act 1954* then the

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Macquarie Dictionary then the *Petroleum and Gas (Production and Safety) Act 2004* or its regulations must be used in that order.

6. This environmental authority does not authorise the taking of protected animals or the tampering with an animal breeding place as defined under the Nature Conservation Act 1992 and its regulations.

7. It is a requirement under the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware of a Notifiable Activity (as defined by Schedule 4 of the Environmental Protection Act 1994) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 22 business days after becoming so aware, give notice to the Department of Environment and Heritage Protection.

8. Separate to the requirements found in the conditions of this environmental *authority, the holder must also meet their obligations under the Environmental* Protection Act 1994, and the regulations made under that Act. For example, the holder must comply with the following provisions of the Act:
   - s319 – general environmental duty
   - s320 – duty to notify environmental harm
   - s440 – offence of causing environmental nuisance
   - s440ZG – offence of depositing prescribed water contaminants in waters and related matters
   - s443 – offence to place contaminant where environmental harm or nuisance may be caused

9. It is a requirement under section 312A of the *Environmental Protection Act 1994* for the holder of the environmental authority to:
   - make a surrender application for the environmental authority within 30 days after the cancellation of a relevant resource authority for the environmental authority; or
   - a reduction in the area of a relevant resource authority for the environmental authority under a requirement of noncompliance action taken under resource legislation; or
   - within 90 days before any of the following occurs:
     - a relevant resource authority for the environmental authority is, according to its provisions, to end other than by cancellation;
     - a relinquishment of part of the area of a relevant resource authority for the environmental authority other than under a requirement of noncompliance action taken under resource legislation; or
     - a surrender of part of the area of a relevant resource authority for the environmental authority.

10. The duty to notify is a requirement contained in the *Environmental Protection Act 1994* which applies to all persons. The duty to notify arises where a person carries out activities and becomes aware of the act of another person arising from or connected to those activities which causes or threatens serious or material environmental harm. If a person carries out or is carrying out a chapter 5A activity, such as coal seam gas activities, the law requires that person to notify the administering authority where:
    - the activity negatively affects (or is reasonably likely to negatively affect) the water quality of an aquifer; or
    - the activity has caused the unauthorised connection of two or more aquifers.

    For more information about the duty to notify, refer to section 320A of the *Environmental Protection Act 1994* and/or the guideline, *The Duty to Notify of Environmental Harm* (EM467), published by the Department of Environment and Heritage Protection.

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11. This environmental authority consists of the following Schedules:

Schedule A	General Conditions
Schedule B	Water
Schedule C	Regulated ~~Dams~~Structures
Schedule D	Land
Schedule E	Environmental Nuisance
Schedule F	Air
Schedule G	Waste
Schedule H	Rehabilitation
Schedule I	Monitoring Programs
Schedule J	Community Issues
Schedule K	Notification Procedures
Schedule L	Definitions

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SCHEDULE A – GENERAL CONDITIONS

Authorised Petroleum Activities

(A1) In the carrying out of the petroleum activity(ies), the holder of this environmental authority must not exceed the number and maximum size for each of the specified petroleum activities listed in *Schedule A, Table 1 – Authorised Petroleum* Activities for each petroleum tenure.

Schedule A, Table 1 – Authorised Petroleum Activities

Petroleum Activity(ies)	Number of Existing Petroleum Activities	Number of Proposed Petroleum Activities	Maximum Disturbance Authorised
Seismic surveys	0	200 km	200 km, 120 ha
Total coal seam gas wells, including:			
• Core wells (indicative)	0	0	
• Exploration wells (indicative)	0	0	691 wells 691 ha
• Development wells (indicative)	0	0	
• Production wells (indicative)	~~576~~436	~~115~~255	
Compressor units	40	0	40 units, ~~?~~ 8 ha
Central gas processing facilities	2	0	2 facilities, 8 ha
Regulated dams	22	0	22 dams
Water treatment facilities	2	0	12 ML/d (each), 2 ha
Sewage treatment plants	2	0	< 450 EP (each), ~~?~~ 0.15 ha
Power stations	1	0	40 MW, 1.2 ha

Note: Numbers of exploration, appraisal and development wells are indicative only to allow for wells to transition to another type.

Commented [MK5]: Completed title of table

Commented [LV6]: Why was this table changed? Is the new approach to not separate the tenure types? Ex notes explain that "The scoping table enables the ready identification of the scale of the activities being carried out and what CSG activities have been/or are being authorised under the EA. The intent of this section is to describe the scale of activities that were assessed in the Environmental Management Plan (EM Plan) that accompanied the application. Any activities at a scale or intensity over and above those described in Schedule A, Table 1 will require an amendment and an updated EM Plan. For **project environmental authorities, each activity must be described for each tenure in a separate row in the table**.

Commented [GN7]: Please provide information to complete the table as highlighted in yellow.

Commented [LV8]: The number of total wells is absolute and equals the sum of exploration, appraisal and development wells. Numbers of exploration, appraisal and development wells are indicative only to **allow for wells to transition to another type**. The word indicative is not about transparency but about flexibility. A note has been added to explain why indicative is used.

Commented [LV9]: No hectares for dams provided?

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Prevent or Minimise Likelihood of Environmental Harm

(A2) This environmental authority does not authorise environmental harm unless a condition contained in this environmental authority explicitly authorises that harm. Where there is no condition, the lack of a condition shall not be construed as authorising harm.

Maintenance of Measures, Plant and Equipment

(A3) The holder of the environmental authority must:

(a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
(b) maintain such measures, plant and equipment in their proper and effective condition; and
(c) operate such measures, plant and equipment in a proper and effective manner.

(A4) No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration materially increases, or is likely to increase, the environmental harm caused by the petroleum activity.

Operational Plan

(A5) The holder of this environmental authority must develop an Operational Plan that provides detailed information about the activities to be carried out under the environmental authority.

(A6) The activities identified in the Operational Plan must incorporate but not be limited to the petroleum activities set out in the approved Work Program and/or Development Plan for the

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relevant petroleum authority as required under the *Petroleum Act (1923)* or the *Petroleum and Gas (Production and Safety) Act 2004.*

(A7) The Operational Plan must be consistent with the requirements of the environmental authority and include, but not be limited to:

(a) a stated period, not exceeding three (3) years, to which the Operational Plan applies;
(b) a description of the existing petroleum and **incidental infrastructure**;
(c) a description of all proposed petroleum and incidental infrastructure that will be developed during the term of the Plan
(d) a map or maps that:
    i. record the location of all existing petroleum and incidental infrastructure that exists at the commencement of the period of the Operational Plan, including but not limited to:
        - regulated dams;
        - wells;
        - transmission flow lines;
        - gas processing facilities;
        - water treatment facilities;
        - sewage treatment facilities; and
        - compressor stations
    ii. records the location of all programmed and approved future **infrastructure** that will be developed during the period of the Operational Plan.
(e) proposed maximum disturbance area to be cleared under the life of the Operational Plan;
(f) for proposed disturbance or vegetation clearing in an Environmentally Sensitive Area (ESA) provide details on the scale and extent of the disturbance or **clearing** of these areas specifically;
(g) for forecasted vegetation clearing in an ESA that is an "Endangered" or "Of Concern Regional Ecosystem (RE), the Operational Plan must provide details of environment offsets that are at least equivalent in environmental value of the disturbance caused to the ESA.
(h) for each **site** to be disturbed, a plan of the rehabilitation activities to be performed during the period of the Operational Plan, including but not limited to a description of the following:
    i. location (e.g. tenure, coordinates) and disturbance type (e.g. well lease, flow line, access track);
    ii. pre-disturbance land use;
    iii. forecasted total area to be rehabilitated under the life of the Operational Plan;
    iv. reference sites for rehabilitated areas;
    v. floristic species to be planted in the rehabilitation and their proposed densities;
    vi. soil types of areas to be rehabilitated;
    vii. post-disturbance land use;
    viii. monitoring program to measure rehabilitation success;
    ix. rehabilitation specifications for all proposed petroleum activities and incidental infrastructure which will achieve the standards stated in Schedule H – Rehabilitation; and
    x. a high level rehabilitation strategy for all proposed petroleum and incidental infrastructure which is not sited at the commencement of the Operational Plan; and
(i) a description of the progressive rehabilitation carried out and the performance of rehabilitated sites in relation to the requirements and acceptance criteria set out in the environmental authority and the proposed rehabilitation activities carried out under the previous Operational Plan(s); and
(j) the calculation of financial assurance for the proposed maximum disturbance expected during the period of the Operational Plan.

(A8) All subsequent Plans must be submitted to the administering authority not less than three months prior to the expiry of the current Plan period, and must also include a record of

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disturbance to **State significant biodiversity values** of all petroleum activity(ies) that commenced after XX March 2013 (the date of grant of this environmental authority).

Financial Assurance

(A9) The holder of this environmental authority must:

(a) provide to the administering authority financial assurance in the amount and form required from time to time by the administering authority for the authorised petroleum activities; and
(b) review and maintain the amount of financial assurance based on the maximum disturbance from proposed and existing activities and rehabilitation to be undertaken during the period of the Operational Plan that is current from time to time.

(A10) The calculation of financial assurance must be in accordance with the most recent version of the Department of Environment and Heritage Protection's Guideline "Financial assurance for petroleum activities".

Existing petroleum activities

(A12) Conditions (D2) to (D17) and (D43) to (D45) in the Land Schedule relating to disturbance, only apply to petroleum activities which commenced after 15 March 2011 subject to the holder of the environmental authority having complied with all disturbance conditions of the relevant environmental authority that applied at the time the existing petroleum activity was constructed.

Commented [MK10]: Relates to activities requiring offsetting under QBOP

Third Party Audit

(A13) Compliance with the conditions of this environmental authority must be audited by an appropriately qualified **third party auditor**, nominated by the holder of this environmental authority and accepted by the administering authority, for each period of the Operational Plan required under Conditions (A5) to (A8).

(A14) Notwithstanding Condition (A13), the holder of this environmental authority may, prior to undertaking the third party audit, negotiate with the administering authority the scope and content of the third party audit.

Note: Where minimal activities have been undertaken on a tenure, the negotiation of the scope of the third party audit may also include the postponing of the third party audit to an agreeable time between the holder of this environmental authority and the administering authority.

(A15) The report prepared by the third party auditor for the relevant prior Operational Plan period must be submitted to the administering authority by the holder of this environmental authority with each revised Operational Plan submitted in accordance with Condition (A8).

(A16) The third party auditor must certify (including a statutory declaration) the findings of the audit in the report.

(A17) The financial cost of the third party audit is to be borne by the holder of this environmental authority.

(A18) The holder of this environmental authority must immediately act upon any recommendations arising from the audit report by:

(a) investigating any non-compliance issues identified; and
(b) as soon as practicable, implementing measures or taking necessary action to ensure compliance with the requirements of this environmental authority.

(A19) Subject to Condition (A18), and not more than 60 business days following the submission of the audit report, the holder of this environmental authority must provide a written report to the administering authority addressing the:

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(a) actions taken by the holder to ensure compliance with this environmental authority; and
(b) actions taken to prevent a recurrence of any non-compliance issues identified.

Contingency Plan for Emergency Environmental Incidents

(A20) A contingency plan for emergency environmental incidents which includes but is not limited to the impacts of flooding, must be developed and implemented to respond to environmental emergency events and incidents where environmental harm is caused or threatened.

(A21) The contingency plan for emergency environmental incidents required under condition (A20) must address the following matters as a minimum:

(a) a clear definition of what constitutes an environmental emergency incident for the activity;
(b) identification of the types of environmental incidents that may occur, relevant to the activities authorised to be carried out under this environmental authority;
(c) response procedures to be implemented to prevent or minimise the risk of environmental harm arising from environmental emergency incidents;
(d) response procedures to minimise the extent and duration of environmental harm caused by environmental emergency incidents;
(e) the practices and procedures to be employed to restore the environment or mitigate any environmental harm caused;
(f) communication procedures and lines of communication within and beyond the organisation to be employed in responding to environmental emergency incidents;
(g) the resources to be used in response to environmental emergency incidents;
(h) procedures to investigate the cause of any incidents, including releases, and where necessary, the remedial actions to be implemented to reduce the likelihood of recurrence of similar events;
(i) a receiving environment (surface waters/land) monitoring program, to be specifically implemented in the event of a release to waters/land to examine/assess environmental impacts (for waters this must include upstream and downstream monitoring);
(j) the provision and availability of documented procedures to staff attending any emergency environmental incident to enable them to effectively respond;
(k) training of staff that will be called upon to respond to emergency environmental incidents to enable them to effectively respond;
(l) timely and accurate reporting of the circumstance and nature of emergency environmental incidents to the administering authority in accordance with conditions of this environmental authority;
(m) procedures for accessing monitoring points during emergency environmental incidents; and
(n) procedures to notify any potentially impacted stakeholder who may be affected by an environmental emergency incident.

(A22) Conditions (A20) and (A21) relating to the contingency plan for emergency environmental incidents only apply to petroleum activities which commenced prior to (insert date of grant of this EA).

(A23) A contingency plan for emergency environmental incidents must be prepared by suitably qualified person prior to the carrying out of the petroleum activity(ies) commencing after (insert the date of grant of this environmental authority) and must include, but not necessarily be limited to:

(a) a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity(ies) authorised to be carried out under this environmental authority;

(b) identification of the types of environmental incidents that may occur, including but not limited to flooding impacts, relevant to the petroleum activity(ies) authorised to be carried out under this environmental authority;

(c) response procedures to minimise the extent and duration of environmental harm

Commented [MK11]: EHP would like to update the requirements for the Contingency Plan for Emergency Environmental Incidents to include those requirements for the Contingency Plan within the model conditions.

Please can Arrow advise whether they have addressed those additions to the Plan requirements stated in added condition (A22) here within previous Plans and so would be happy for EHP to simply update condition (A21) with the model conditions Plan requirements and remove added condition (A22)
OR
If Arrow have not addressed those additional requirements stated in condition (A22) within previous Plans and so would prefer added condition (A22) to remain in this amendment for activities post commissioning of Daandine brine dam 2.

Commented [LV12]: I would recommend formally requesting this plan and assessing the document against current condition A21 to check for compliance.

Commented [MK13]: Within Arrow's response to draft conditions sent 14/02/2013, Arrow requested the removal of conditions that are duplicated, stating that there is a duplication of conditions already required by condition (C14) and the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dam*, however have not specified the exact duplications.

Please can Arrow specify the specific sections to be it would like to be removed.

Commented [LV14]: This version of the condition does not have the dam procedures that is why C14 has them so currently there is no duplication. New A23 does have them and so design plan condition would also have to be updated to reflect this and avoid duplication.

Commented [LV15]: To cover all new infrastructure and have best practice and up to date requirements. I am aware it is adding on two more conditions, however it avoids the issue identified in current A20 where the plan "must be developed and implemented to respond to environmental emergency events and incidents where environmental harm is caused or threatened" and not prior to carrying out the petroleum activities like model conditions require.

Commented [LV16]: You can justify inserting this condition with the text stated in Ex notes: "The content required by condition (A23)(a) to (q) represents the minimum acceptable content standard for industry. The content requirement is based on the administering authority's experience in regulating environmentally relevant activities throughout emergency events – it is based on years of learning about what is needed for such plans to address the relevant issues. Accordingly, EHP has included the relevant risks in the condition that it considers as a minimum standard in developing a good environmental emergency response and contingency plan. In addition, the Qld Ombudsman supports the use of prescriptive conditions where consequences are significant. The condition has been included for consistency of regulation both within the CSG sector and across all EHP regulated industries and will provide guidance to the person drafting the plan (which must be prepared by suitably qualified person). The condition has been included for finality and certainty for companies so that, when companies submit a plan that meets this minimum requirement, and would avoid the situation of EHP seeking furthercomment or review.

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caused by environmental emergency incidents;

(d) the resources to be used in response to environmental emergency incidents;

(e) procedures for responding to incidents resulting from **stimulation** activities, including specific rectification measures in the event of non-routine stimulation events;

(f) plans for restoring loss of well mechanical integrity so as to prevent environmental harm;

(g) procedures to avoid / minimise discharges resulting from any overtopping or loss of structural integrity of a **dam**;

(h) proceedures to respond to a **regulated dam** reaching its **mandatory reporting level**;

(i) proceedures to respond to a regulated dam reaching its **design storage allowance**;

(j) procedures to investigate the cause of any incidents including releases or near misses, and where necessary, the remedial actions to be implemented to reduce the likelihood of recurrence of similar events;

(k) the practices and procedures to be employed to restore the environment or mitigate any environmental harm caused;

(l) procedures for accessing monitoring locations during emergency environmental incidents;

(m) a receiving environment monitoring program, to be specifically implemented in the event of a release to waters or land to examine / assess environmental impacts. For monitoring of waters, this program must include upstream, downstream and impact site monitoring procedures. For soils monitoring, three replicate samples must be taken at depth intervals of 0-10 cm, 20-30 cm and 50-60 cm at both a reference site and the impact site as a minimum;

(n) communication procedures and lines of communication within and beyond the organisation, including but not limited to Local Government, to be employed in responding to environmental emergency incidents;

(o) the provision and availability of documented procedures to staff attending any emergency environmental incident to enable them to effectively respond;

(p) training of staff that will be called upon to respond to emergency environmental incidents to enable them to effectively respond;

(q) timely and accurate reporting of the circumstance and nature of emergency environmental incidents to the administering authority and any affected landholder, occupier and / or their nominated representative in accordance with conditions of this environmental authority.

~~Prior to the commissioning of the Daandine brine dam 2, the contingency plan for emergency environmental incidents required by conditions (A20) and (A21) must be revised to include the following additional requirements:~~

~~(a) a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity(ies) authorised to be carried out under this environmental authority;~~
~~(b) procedures for responding to incidents resulting from stimulation activities, including specific rectification measures in the event of non-routine stimulation events;~~
~~(c) plans for restoring loss of well mechanical integrity so as to prevent environmental harm;~~
~~(d) procedures to avoid / minimise discharges resulting from any overtopping or loss of structural integrity of a dam;~~
~~(e) procedures to respond to a regulated dam reaching its mandatory reporting level;~~
~~(f) procedures to respond to a regulated dam reaching its design storage allowance;~~
~~(g) procedures to investigate the cause of any incidents including releases or near misses, and where necessary, the remedial actions to be implemented to reduce the likelihood of recurrence of similar events;~~

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Commented [LV17]: Why limit the condition to just one dam? Why not all infrastructure after the date of grant of this amended EA?

Commented [MK18]: As brine dams are high risk activities, added this condition to meet requirements of model conditions from the date of grant of the EA

Commented [MK19]: Edited to be consistent with current model conditions

Commented [MK20]: Added to be consistent with current model conditions

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~~(h) a receiving environment (surface waters/land) monitoring program, to be specifically implemented in the event of a release to waters/land to examine/assess environmental impacts. For waters this must include upstream and downstream monitoring and impact site monitoring procedures. For soils monitoring, three replicate samples must be taken at depth intervals of 0-10 cm, 20-30 cm and 50-60 cm at both a reference site and the impact site as a minimum; and~~

~~(i) timely and accurate reporting of the circumstance and nature of emergency environmental incidents to the administering authority and any affected landholder, occupier and / or their nominated representative in accordance with conditions of this environmental authority.~~

(A24) Notwithstanding Condition (A22), any existing contingency plan for emergency environmental incidents prior to XX March 2013, must comply with the requirements of condition (A23) by 8 June 2013.

Documentation and Records Management

(A2~~3~~5) All records and results required by the conditions of this environmental authority must be kept for a minimum of five (5) years.

(A2~~6~~4) All documentation required by this environmental authority (including but not limited to plans, systems, programs, procedures, results of audits, assessments, monitoring, inspections and complaint records) must be made available to the administering authority upon request.

Cultural Heritage

(A2~~7~~5) In the carrying out of the petroleum activity the holder of this environmental authority must not adversely impact on the cultural heritage values of any place registered on the Queensland Heritage Register.

Underground Gas Storage

(A2~~8~~6) Testing, evaluating, developing and using natural underground reservoirs for petroleum storage or to store **prescribed storage gases** is not authorised under this environmental authority.

Stimulation of Underground Reservoirs

(A2~~9~~7) The **stimulation** of underground reservoirs is prohibited under this environmental authority.

Encapsulation of Solid Salt in a Landfill Monocell

(A30~~28~~) The disposal of solid salt on site, including encapsulation of solid salt in a **landfill monocell**, is prohibited under this environmental authority.

Commented [MK21]: Added to be consistent with current model conditions

Commented [MK22]: Added to be consistent with current model conditions

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Commented [LV23]: Or another date agreed to by Arrow. This is a transitional condition so that their plan is updated for all their activities at a later date and the content represents the minimum acceptable content standard for industry.

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SCHEDULE B – WATER

Contaminant Release

(B1) Contaminants that will or may cause environmental harm must not be directly or indirectly released to any **waters** except as permitted under this environmental authority.

Erosion and Sediment Control

(B2) The Erosion and Sediment Control Plan which has been certified by a suitably qualified person must be implemented to minimise erosion and the release of sediment and contaminated stormwater to waters for all stages of the petroleum activities.

Commented [MK24]: Edited to remove date as date has passed

Commented [LV25]: Did you check for compliance prior to deleting date, i.e. did they have to provide this plan to EHP? Have we checked Arrow's ESC Plan complies with the conditions of their EA?

(B3) The Erosion and Sediment Control Plan required by Condition (B2) must include but not be limited to:

(a) diverting uncontaminated stormwater run-off around areas disturbed by petroleum activities or where contaminants or wastes are stored or handled that may contribute to stormwater;
(b) contaminated stormwater runoff and incident rainfall is collected; and treated, reused, or released in accordance with the conditions of this environmental authority;
(c) roofing or minimising the size of areas where contaminants or wastes are stored or handled;
(d) revegetating disturbed areas as soon as practicable after the completion of works;
(e) using alternate materials and or processes (such as dry absorbents) to clean up spills that will minimise the generation of contaminated waters;
(f) erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;
(g) an inspection and maintenance program for the erosion and sediment control features;
(h) provision for adequate access to maintain all erosion and sediment control measures especially during the wet season months from November to April;
(i) additional erosion and sediment control measures for **construction** of wells and pipelines on slopes >10%;
(j) surface water monitoring program designed to detect erosion and sediment runoff into **watercourses**;
(k) identification of remedial actions that would be required to ensure compliance with the conditions of this environmental authority; and
(l) details of community consultation strategies and processes to be used in further developing and implementing the Erosion and Sediment Control Plan.

(B4) A copy of the Erosion and Sediment Control Plan must be submitted to any potentially affected landholders upon request.

Maintenance and Cleaning

(B5) The maintenance and cleaning of vehicles and any other equipment or plant must be carried out in areas from where the resultant contaminants cannot be released into any waters, roadside gutter or stormwater drainage system.

Watercourses, Wetlands and Springs

(B6) In the carrying out of the petroleum activity the holder of this environmental authority must not clear vegetation or place **fill**, in or within:

(a) 200 metres from any natural significant **wetland**;
(b) 100 metres from any natural wetland, **lakes** or **springs**; or
(c) 100 metres of the **high bank** of any other watercourse.

(B7) The holder of this environmental authority must not excavate or place fill in a way that interferes with the flow of water in a watercourse, wetland, or spring, including works that divert the course of flow of the water or works that impound the water.

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(B8) Despite Conditions (B6) and (B7), pipeline and road construction works may be undertaken in watercourses, wetlands or springs where there is no reasonable and practicable alternative (such as the use of horizontal directional drilling methods) for a maximum period of 10 days, provided that the works are conducted in accordance with the following order of preference:

(a) conducting work in times of no flow; and
(b) using all reasonable and practicable measures to reduce impacts in times of flow.

(B9) Offsets must be provided for impacts to watercourses, wetlands, lakes or springs with **mapped ~~S~~state significant biodiversity values** ~~that are mapped in State mapping~~ in accordance with the Queensland Biodiversity Offset Policy and a signed **deed of agreement**.

(B10) Activities or works resulting in **significant disturbance** to the bed or banks of a watercourse or wetland, or a spring must:

(a) only be undertaken where necessary for the construction and/or maintenance of roads, tracks and pipelines that are essential for carrying out the authorised petroleum activities and no reasonable or practicable alternative location exists;
(b) be no greater than the minimum area necessary for the purpose of the significant disturbance;
(c) be designed and undertaken by a suitably qualified person taking into account the matters listed in Section 5 - Planning Activities and Section 6 - Impact Management During Activities of the Department of Environment and Heritage Protection's "*Guideline – Activities in a watercourse, lake or spring associated with mining operations"* dated April 2008, or more recent editions as such become available; and
(d) upon cessation of the activities or works, commence rehabilitation immediately such that the final rehabilitation is to a condition that will ensure the ongoing physical integrity and the natural ecosystem values of the site.

(B11) Sediment control measures must be implemented to minimise any increase in water turbidity due to carrying out petroleum activities in the bed or banks of a watercourse or wetland, or a spring.

(B12) Routine, regular and frequent visual monitoring must be undertaken while carrying out construction work and/or any maintenance of completed works in a watercourse, wetland or spring.

(B13) If, due to the petroleum activities, water turbidity increases in the watercourse, wetland or spring outside contained areas, works must cease and the sediment control measures must be rectified to limit turbidity before activities recommence.

(B14) All measures must be taken to minimise adverse impacts to or reversal of any river improvement works carried out in River Improvement Areas by Queensland's River Improvement Trusts.

Note: Locations and details of River Improvement Areas and River Improvement Trusts are provided in the Schedule to the River Improvement Trust Regulation 1998.

Floodplains

(B15) Where petroleum activities are carried out on floodplain areas, the holder of this environmental authority must ensure that petroleum and incidental activities do not:

(a) concentrate flood flows that cause or threaten an adverse environmental impact;
(b) divert flood flows from natural drainage paths and alter flow distribution;
(c) increase the local duration of floods;
(d) increase the risk of detaining flood flows;
(e) pose an **unacceptable risk** to the safety of persons from flooding; or
(f) pose an unacceptable risk of damage to property from flooding.

Commented [MK26]: Added 'that are mapped in State mapping' to condition for clarity on Energy Assessment's position, as per accepted condition (B9) in EA PEN100901910 for ATP683.

Arrow to confirm acceptance

Commented [LV27]: The way you are putting it here reads like the state mapping is in accordance with the QBOP, see tracked changes

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Commented [GN28]: The construction of works in watercourses with SSBVs post date of grant of this EA will trigger an offset requirement.

To be reworded based on the rewording to be finalised for Schedule D.

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Groundwater

(B16) The extraction of groundwater as part of the petroleum activity from underground aquifers must not directly or indirectly cause environmental harm to any spring, wetland or other surface waters.

Wild Rivers

(B17) In a declared Wild River Area, petroleum activities must be consistent with the conditions stated in the relevant **Wild River Declaration**.

(B18) Where the conditions of this environmental authority conflict with the conditions of the Wild River Declaration, the conditions of the Wild River will Declaration prevail.

Release to Waters of Treated CSG Water

(B19) The release of contaminants to waters must only occur from the release points specified in *Schedule B, Table 1 – Contaminant Release Points, Sources and Receiving Waters* and depicted in Figure 1 attached to this environmental authority.

Schedule B, Table 1 – Contaminant Release Points, Sources and Receiving Waters

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Release Point	Latitude or Northing (GDA94)	Longitude or Easting (GDA94)	Contaminant Source and Location	Monitoring Point	Receiving Waters Description
U1, defined as the outlet of discharge pipe to unnamed tributary of Wilkie Creek	-27° 5' 35"	150° 58' 9"	Treated CSG water from the RO plant located on PL230	U1	Unnamed tributary of Wilkie Creek

(B20) The release of contaminants to waters must comply with the release limits and limit types as stated in *Schedule B, Table 2 – Contaminated Release Limits for Release Point U1* when measured at the monitoring points specified in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* for each quality characteristic.

Schedule B, Table 2 – Contaminant Release Limits for Release Point U1

Quality Characteristic	Release Limits	Limit Type	Monitoring Frequency
Electrical conductivity (µS/cm)	580	Maximum	Daily during discharge
pH (pH Unit)	6.5 - 9	Range	
Suspended Solids (mg/L)	180	Maximum	
Cations and anions (mg/L)	Calcium (cation) 34 Magnesium (cation) 26 Sulphate (anion) 9.6	Maximum	

(B21) The release of contaminants to waters from the release points must be monitored at the monitoring point specified in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* for each quality characteristic and at the frequency specified in *Schedule B, Table 2 – Contaminated Release Limits for Release Point U1* .

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Contaminant Release

(B22) In the event of a release of treated CSG water to Wilkie Creek, and before the commencement of the release, the holder of this environmental authority must install, operate and maintain a stream flow gauging station as specified in *Schedule B, Table 3 – Contaminated Release During Flow Events* to determine and record stream flows at a location 50 to 100 metres upstream from each release point as shown in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* .

(B23) Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in *Schedule B, Table 3 – Contaminated Release During Flow Events* to for the contaminant release point(s) specified in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* .

Schedule B, Table 3 – Contaminant Release During Flow Events

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Receiving water description	Gauging station description	Latitude or northing (GDA94)	Longitude or easting (GDA94)	Minimum Flow in Receiving Water Required for a Release Event	Flow recording Frequency
Unnamed tributary of Wilkie Creek	Gauging station 1 (GP1)	50-100 metres upstream of Release Point U1	50-100 metres upstream of Release Point U1	0.8 m^3/s (equivalent to 0.5 metres on Gauging station 1)	at 6 hour intervals during discharge (minimum twice daily)

(B24) The volume released through the release point(s) must not exceed 0.8 m^3/s and 20 ML/day.

(B25) Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build up of sediment in such waters.

Characterisation of Other Contaminants

(B26) If water has been released from authorised release points listed in *Schedule B, Table 1 – Contaminated Release Points, Sources and Receiving Waters* , the holder of this environmental authority must undertake an annual assessment of the contaminants of treated CSG water to determine the risk of environmental harm from release of treated CSG water to surface waters. This should consider the contaminants mentioned in the ANZECC & ARMCANZ 2000 guidelines. This annual assessment must be included in the Annual Return.

Event Based Surface Water Monitoring

(B27) Each monitoring and release point as specified in *Schedule B, Table 2 – Contaminated Release Limits for Release Point U1* must be marked and readily identifiable from the banks of the unnamed tributary of Wilkie Creek prior to commencing any release of treated CSG water authorised under this environmental authority.

(B28) The water quality of the receiving waters must be monitored daily during discharge at a monitoring point 50-100 metres upstream and 200 metres downstream of release point U1 for the following water quality parameters:

(a) Electrical conductivity (µS/cm)
(b) pH (pH Unit)
(c) Turbidity (NTU)
(d) Suspended Solids (mg/L)
(e) Calcium (mg/L)
(f) Magnesium (mg/L)
(g) Fluoride

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(B29) The holder of this environmental authority must keep written records of all discharge events to the unnamed tributary of Wilkie Creek. The records must include, but not be limited to:

(a) the volume of water released through the release point(s);
(b) the release rate;
(c) date and time of discharge;
(d) water levels at Gauging Station GP1 during the discharge event;
(e) water quality characteristics monitoring results; and
(f) details of any observed impacts.

Water Release Reduction Strategy

(B30) As part of the Coal Seam Gas Water Management Plan the holder of the environmental authority must develop and implement an on-going Release Reduction Strategy to maximise CSG water reuse and minimise any release to waters and the storage of CSG water in holding dams. The strategy must address the following matters:

(a) implementation of schemes to achieve maximum use of the water;
(b) specific targets for achieving increased use of CSG water both treated and untreated;
(c) a market analysis at least every three (3) years to identify existing and future opportunities for water use;
(d) on-going review of emerging technologies and/or re-use options that could achieve significant reductions in mass loads of contaminants released to the environment;
(e) investigation of the feasibility of alternative options, practices and procedures to further minimise the volume and concentration of contaminants released to waters; and
(f) programs to implement feasible options to achieve increased water use and reduction in contaminant loads, including actions and timeframes for completion.

(B31) A progress report on the Release Reduction Strategy must be submitted to the administering authority with each annual return. The report(s) must address at least the following matters:

(a) details of the specific options, practices and procedures investigated;
(b) details of new practices, procedures and programs implemented since the last reporting period and targets met;
(c) where alternative options, practices and procedures are not considered feasible, the provision of justification to support that determination; and
(d) details of the option(s) yet to be implemented, including the timeframes for implementation, and justification for the chosen option(s).

Water General

(B32) The release of contaminants directly or indirectly to waters:

(a) must not produce any visible plume within receiving waters; nor
(b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

Metering of treated CSG water releases

(B33) A measuring device/ meter must be installed prior to commencement of release of treated CSG water and its installation must comply with the '*Draft standards and specifications for measuring /metering disposal of treated CSG water'*.

(B34) Upon practical completion of the meter installation, the holder of this environmental authority must provide a completed 'meter installation form' signed by the installer and the environmental authority holder confirming that the installation complies with the manufacturer's specifications and/or national standards and/or the Department of Environment and Heritage Protection's metering standards (whichever is applicable).

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Note: The Draft standards and specifications for measuring/metering disposal of treated CSG water is available from the administering authority upon request.

(B35) The holder of this environmental authority must measure and record daily:

(a) the volume released to surface waters from each release point at the monitoring point(s) in *Schedule B, Table 1 - Contaminant Release Points, Sources and Receiving Waters;*
(b) the release rate;
(c) for any change in the release rate:
(i). the date and time of the change; and
(ii). the new release rate.

(B36) The holder of this environmental authority must provide the administrative authority with safe access to facilitate inspections, and must comply with any instructions issued by the administrative authority relevant to the operation of the pump and meter installation.

(B37) The holder of this environmental authority must notify the administering authority within five (5) business days of any meter malfunction or maintenance of the measuring device (meter).

(B38) The holder of this environmental authority must arrange for the repair or replacement of a malfunctioning meter within five business days of becoming aware of the malfunction and provide a repair and/or maintenance completion report within ten business days of the repair or maintenance.

Sewage Treatment Works (21 – 450 EP)

Release of Treated Sewage Effluent Contaminants to Land

(B39) Sewage pump stations must be fitted with a stand-by pump and a visible or audible high level alarm.

(B40) Treated effluent may only be released to land at the designated, fenced and delineated contaminant release area(s).

(B41) The contaminant release area(s) must be maintained in a proper and efficient condition so as to provide adequate assimilation, percolation, evaporation and transpiration of the released contaminants.

(B42) Treated effluent must not be applied by spray irrigation and must be applied in a manner that does not cause ponding or runoff of effluent beyond the contaminant release area(s).

(B43) When weather conditions or soil conditions preclude the release of contaminants, the contaminants must be directed to on-site storage or lawfully disposed of off-site.

Quality of Contaminants Released from the Sewage Treatment Works

(B44) Treated effluent must comply, at the sampling and in-situ measurement point(s), with each of the release limits specified in *Schedule B, Table 4 - Treated Sewage Effluent Standards* for each quality characteristic.

(B45) The release of contaminants to land must be monitored at the frequency and at the sampling and in-situ measurement point specified in *Schedule B, Table 4 - Treated Sewage Effluent Standards* and records of the monitoring results kept for at least five (5) years and made available to the administering authority on request.

(B46) The influent annual average daily dry weather flow of sewage must not exceed 60 kilolitres per day for each authorised sewage treatment plant under this environmental authority.

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Schedule B, Table 4 - Treated Sewage Effluent Standards

Quality Characteristic	Sampling and in-situ measurement Point Location	Limit Type	Release Limit	Frequency
5-day Biochemical Oxygen Demand (inhibited)	Release pipe from sewage treatment plant located on PL198; Release pipe from sewage treatment plant located on PL230	Maximum	20 mg/L	Monthly
Suspended Solids		Maximum	30 mg/L	
pH		Range	6.0 to 9.0	
E-Coli		80th percentile based on at least 5 samples with not less than 30 minutes between samples.	1000 cfu per 100 mL	
		Maximum	10000 cfu per 100 ml	

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SCHEDULE C – REGULATED DAMS

(C1) The name of each **regulated dam** must be clearly sign posted at the dam location at all times.

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(C2) Construction of any dam or modifications to an existing dam determined to be in the high **hazard** or significant **hazard category** in accordance with the most recent version of *"Manual for Assessing Hazard Categories and* ***Hydraulic Performance*** *of Dams"* is prohibited unless the required **design plan** details have been entered into the regulated dam Register and certified by the chief executive officer for the holder of the environmental authority, or their delegate, as being accurate and correct.

Regulated Dam Register

(C3) The holder of this environmental authority must maintain a Register of regulated dams that must include, as a minimum, the following information for each regulated dam:

(a) dam name, the coordinates for its location and date of entry in the register;
(b) dam purpose and its proposed/actual contents;
(c) hazard category assessed using the most recent version of *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"* ;
(d) details of the composition and construction of any liner;
(e) dimensions (metres) and surface area (hectares) measured at the footprint of the dam;
(f) maximum operational volume (megalitres);
(g) design storage allowance at 1 November each year (megalitres);
(h) mandatory reporting level (metres);
(i) date construction was certified as compliant with the design plan;
(j) name and qualifications of certifier;
(k) dates on which the dam was inspected for structural and operational adequacy;
(l) date on which the report of the annual structural and operational adequacy inspection was provided to the administering authority;
(m) dates on which the dam was inspected for the detection of leakage through any liner; and
(n) dates on which the dam was inspected for the purpose of annually ascertaining the available storage capacity on the 1 November each year.

Note: The dam register in the approved departmental format is available for download at: http://www.ehp.qld.gov.au/management/coal-seam-gas/pdf/regulated_dam_register.xls

(C4) The holder of this environmental authority must provisionally enter the required information in the Register of regulated dams when a design plan for a regulated dam is submitted to the administering authority.

(C5) The holder of this environmental authority must make a final entry of the required information in the Register of Regulated Dams once compliance with condition C16 has been achieved.

(C6) The holder of this environmental authority must ensure that the information contained in the Register of regulated dams is complete and current on any given day.

(C7) All entries in the Register of regulated dams must be certified by the chief executive officer for the environmental authority holder, or their delegate, as being accurate and correct.

(C8) The holder of this environmental authority must submit the Register of regulated dams or information contained in the Register available to the administering authority at each annual return and when requested to do so in the form requested by the administering authority.

Construction and Operational Requirements for New Dams

(C9) All **aggregation dams** must:

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(a) be designed with a floor and sides of material that will contain the wetting front and any entrained contaminants within the bounds of the containment system during its operational life including any period of decommissioning and rehabilitation; and
(b) have a system that will detect any passage of the wetting front or entrained contaminants through the floor or sides of the dam and enable the repair of the containment system or its decommissioning and rehabilitation.

(C10) All **brine** dams must:

(a) be designed with a floor and sides of material that will contain the wetting front and any entrained contaminants within the bounds of the containment system during its operational life including any period of decommissioning and rehabilitation;
(b) have a system that will detect any passage of the wetting front or entrained contaminants through the floor or sides of the dam, enable the repair of the containment system or its decommissioning and rehabilitation; and
(c) the collection and proper disposal of any contaminants that move beyond the bounds of the containment system.

(C11) The holder of this environmental authority must ensure that regulated dams constructed after 15 March 2011:

(a) are constructed to provide flood immunity such that the dam is adequately protected against overtopping and will be provided with erosion protection from external flooding events, at or above the Annual Exceedence Probability (AEP) specified for determining Spillway capacity; and
(b) are not to be constructed in areas that are estimated to be submerged by a flooding event from a recognised watercourse, at or above an Annual Exceedence Probability (AEP) of 0.02 (1 in 50).

(C12) All regulated dams must be designed in accordance with the requirements of the most recent version of *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"* by and constructed under the supervision of a **suitably qualified and experienced person**.

Regulated Dam Design Plan and 'As Constructed' Certification

(C13) The construction and operation of regulated dams is prohibited unless the holder of this environmental authority has submitted to the administering authority a copy of the design plan, together with the **certification** of a **suitably qualified and experienced person** that the regulated dam:

(a) will deliver the performance stated in the design plan;
(b) has had its hazard category assessed and been designed in accordance with the requirements of the most recent version of *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"*; and
(c) when constructed and operated, will be compliant in all respects with the relevant conditions of this environmental authority.

(C14) The design plan must include, but not be limited to:

(a) a statement of the relevant legislation, regulatory documents and engineering practice relied upon in the design plan;
(b) a statement of the facts and data being used in the design plan and the limitations to the application and interpretation of that material;
(c) an assessment of the hazard category of the proposed dam based on the identification of potential impacts on any relevant sensitive places for any applicable dam failure scenarios, including the cumulative impact should all dams fail at once;
(d) detailed specifications for the design, operation, maintenance and decommissioning of the dam(s);
(e) an operational plan that includes:

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(i) contingency / emergency response procedures designed to avoid / minimise discharges resulting from any overtopping or loss of structural integrity of the dam; and

~~(e)~~(ii) normal operating procedures and rules;

(f) design, specification and operational rules for any related structures and systems used to prevent the overtopping of the proposed dam;

(g) a detailed plan for the decommissioning and rehabilitation of the dam at the **end** of its operational life;

(h) any other matter required by the certifying suitably qualified and experienced person; and

(i) evidence supporting the claims of the certifier that they are a suitably qualified and experienced person.

(C15) Condition (C14)(e)(i) does not apply for petroleum activity(ies) commencing after XX March 2013 (insert date of grant of this EA).

(C1~~5~~6) If, within the 20 business days following the lodgement of a certified design plan the administering authority notifies the holder of this environmental authority, in writing, that the design plan is not compliant with either:

(b) the conditions of this environmental authority; or

(c) the requirements set out in the most recent version of "*Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*"

then the construction and operation of the regulated dam is prohibited until the administering authority provides written advice that its construction may proceed.

(~~C16~~C17) When construction of any regulated dam is complete, the holder of this environmental authority must submit to the administering authority one hard copy and one electronic copy of a set of 'as constructed' drawings, together with the certification of a suitably qualified and experienced person that the dam 'as constructed' will deliver the performance stated in the design plan and at the time of certification it is compliant in all respects with Conditions (C9) to (C14) of this environmental authority.

(~~C17~~C18) Each regulated dam must be maintained and operated in a manner that is consistent with the design plan and the certified 'as constructed' drawings for the duration of its operational life and until decommissioned and rehabilitated.

(~~C18~~C19) Upon any change in its purpose or stored contents of a regulated dam, the hazard category of the dam must be determined by a suitably qualified and experienced person prior to any such change.

Mandatory Reporting Level

(~~C19~~C20) The Mandatory Reporting Level must be marked on each regulated dam in such a way that it is clearly observable during routine inspections of each dam.

(~~C20~~C21) The holder of this environmental authority must notify the administering authority immediately when the level of the contents of any regulated dam reaches the Mandatory Reporting Level, and immediately act to prevent or, if unable to prevent, to minimise any actual or potential environmental harm.

Annual Inspection and Report

(C2~~1~~2) Each regulated dam must be inspected annually by a suitably qualified and experienced person.

(C2~~2~~3) At each annual inspection, each regulated dam must be assessed for:

(a) its hazard category in accordance with the most recent version of *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"*; and

(b) condition and adequacy for dam safety; and

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(c) its structural, geotechnical and hydraulic performance against the criteria contained in the certified design plan.

(C2~~3~~4) An assessment of the adequacy of the available storage in each regulated dam is to be made, based on an actual dam level observed in the month of October in each year, and the resultant estimate of the level in that dam as at 1 November in each year must be equal or less than the design storage allowance for the dam.

(C2~~5~~4) Where the assessment of the adequacy of the available storage in any regulated dam indicates that the design storage allowance will be exceeded, or at any other time the holder of this environmental authority becomes aware that the design storage allowance has been or will be exceeded, the holder of this environmental authority must immediately notify the administering authority, and immediately act to prevent or, if unable to prevent, to minimise any actual or potential environmental harm.

(C2~~6~~5) For each annual inspection, a copy of a report on the condition and adequacy of each regulated dam, certified by the suitably qualified and experienced person and including any recommended actions to be taken to ensure the integrity of each regulated dam, must be provided to the administering authority upon request.

(C2~~7~~6) The holder of this environmental authority must, upon receipt of the annual inspection report, consider the report and its recommendations, take action to ensure that each regulated dam will safely perform its intended function, and within one month of receiving the report, notify the administering authority in writing of the recommendations of the inspection report and the actions taken to ensure the integrity of each regulated dam.

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