18 August 2022

Our reference: 21129_L03_v1

Steven Johnstone
Development Manager
Risland
Suite 7.02, Level 7, 207 Kent Street,
Sydney NSW 2000
email: steven.johnstone@risland.com.au

Your reference: DOC18/16918
Dated 6 July 2018

Surface Casing Decommissioning Report – Moonshine 7 and 7A, Residential Sub-Division Southeast Wilton Precinct

Dear Mr. Johnstone,

1. Introduction

Reditus Consulting Pty Ltd (Reditus) have been engaged by Country Garden Wilton East Pty Ltd (Risland) to complete consultancy works associated with three exploration bores formed as part of the former petroleum exploration licence 255 (PEL 255) at 1000 Picton Road, 15 Janderra Lane, 990 Picton Road and 701 Lot Torrens Title in Wilton NSW (the site).

Risland intend to redevelop the site located into a low density residential sub-division and have been granted regulatory approval from Wollondilly Shire Council (WSC) subject to conditions of DA/2018/339/1, noting the most recently approved modification DA/2018/339/4 dated 30 March 2021. As part of the integrated approval process the NSW Planning & Environment Resource Regulator (P&E-RR) provided a recommendation to WSC in a letter dated 6 July 2018. The recommendation is repeated as follows:

> *"The Resources Regulator recommends that Wollondilly Shire Council provides a condition for the development consent that requires the proponent to undertake further assessment by a suitably qualified consultant with experience in assessing decommissioned petroleum wells. This assessment is required to verify that the sealing has been undertaken in accordance with the records provided. The consultant will also be required to oversee the process of removing sections of the subsurface well casing to accommodate the design level for the proposed development. In accordance with standard practice, the casing is required to be removed to a depth of at least 1.5 m below the final design level and a marker plate attached to provide identification."*

Reditus Consulting Pty Ltd
Unit 1a, 29-33 Waratah Street
Kirrawee, NSW 2232

ABN 34 631 168 502

Subsequent to the advice, WSC adopted the following general condition of consent detailed within DA/2018/339/4, this is repeated as follows:

> 5. Condition imposed by NSW DP&E Resource Regulator, Reference Number DOC18/16918, 9 August 2018 – The proponent to undertake further assessment by a suitably qualified consultant with experience in assessing decommissioned petroleum wells. This assessment is required to verify that the sealing has been undertaken in accordance with the records provided. The consultant will also be required to oversee the process of removing sections of the subsurface well casing to accommodate the design level for the proposed development. In accordance with standard practice, the casing is required to be removed to a depth of at least 1.5m below the final design level and a marker plate attached to provide identification.

2. Background

Risland retained the specialist services of Reditus personnel to complete the review and supervision components of the above condition.

Reditus provided Risland with a procedure to remove the marker plate and surface casing (if present) to a depth below 1.5m of the final finished level.

Moonshine 7 and 7A were cement plugged and abandoned following exploration core extraction. Moonshine 7a was converted into a vibrating wire piezometer (VWP) monitoring point. Except for the sand filled interval below and around the VWP (448.3-459.9m) at 7A both exploration bores were cement plugged to the surface. The VWP cable was left protruding from the surface plug for subsequent monitoring. Review of the Well completion report, AGL Moonshine 7 and 7A, PEL 255, Sydney Basin (NSW DiGS R00017103) indicates the VWP was monitored for approximately 7 months following installation. It is likely that no further monitoring occurred after that period.

A recent site inspection performed by Ingauge in 2017 did not locate any surface features associated with Moonshine 7 or 7A, except for some minor surface depressions suspected to be the bore drilling locations.

3. Decommissioning Works

Decommissioning works were conducted on 3 August 2022 under the supervision of Reditus' Senior Environmental Scientist Natasha Pasley who is experienced in inspections of decommissioned petroleum wells.

Prior to works commencing, a calibrated Huberg Laser One Portable Methane Leak Detector was used around the location of the well to confirm if any gas leakage was occurring. The methane results ranged between 1.1 and 4.5 ppm, which is considered within background ranges for shallow soils with an agricultural/pastoral land setting. Refer to **Appendix B** for a copy of the methane leak detector calibration certificate.

The steel casing was cut 1.5 m below the final design level by Civil Contractor (TRN Civil) with the marker plate attached to the top of the well casing. The photographic log of the decommissioning works is provided in **Appendix A**.

The georeferenced location and relative level (RL) with the marker plate re-attached compared to the finished design level is presented in Table 1 below.

Table 1: Relative Level Information

Well ID	Easting (GDA94)	Northing (GDA94)	RL (AHD)	Future FSL (AHD)	Future Cover (m)
Moonshine 7	285889.903	6208704.497	231.195	234.243*	3.048
Moonshine 7A	285895.774	6208712.914	231.507	234.838*	3.331

* Future FSL is indicative only and subject to detailed design.

Comparison of the relative level of the re-attached marker plate and the future final design level indicates there is a least 3.048 m of cover at Moonshine 7 and at least 3.331 m of over at Moonshine 7A.

Reditus considers that the casing removal and plate re-attachment of Moonshine 7 and 7A has been fulfilled in accordance with the requirements of Condition 5, DA/2018/339/4.

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In the meantime, should you have any queries or wish to discuss any points further, please do not hesitate to contact the undersigned.

Yours sincerely,

David Jackson
Principal Hydrogeologist
EIANZ CEnVP Site Contamination Specialist (SC40898)

Natasha Pasley
Senior Environmental Scientist

Appendices:
Appendix A – Photo Board
Appendix B – Calibration Certificate

Attachment A - Photolog

REDITUS	SITE PHOTOGRAPHS

Client Name	Site Location	Project No.
Country Garden Wilton East	1000 Picton Road, 15 Janderra Lane, 990 Picton Road and 701 Lot Torrens Title in Wilton NSW	21129

Photo No.	Date
1	3 August 2022

Description

Moonshine 7 cut 1.5 m below the finished design level.

Photo No.	Date
2	3 August 2022

Description

Moonshine 7 cut 1.5 m below finished design level with marker plate attached.

REDITUS	SITE PHOTOGRAPHS	
Client Name **Country Garden Wilton East**	**Site Location** **1000 Picton Road, 15 Janderra Lane, 990 Picton Road and 701 Lot Torrens Title in Wilton NSW**	**Project No.** **21129**

Photo No.	**Date**
3	3 August 2022

Description

Moonshine 7A cut 1.5 m below finished design level.

Photo No.	**Date**
4	3 August 2022

Description

Moonshine 7A cut 1.5 m below finished design level with marker plate attached.

Attachment B – Calibration Certificate

CERTIFICATION OF CALIBRATION

Issued by: QED Environmental Systems Ltd.

Calibration certificate number 41299 H-07310

Instrument Laser One **Serial Number** 41299

Description of the calibration procedure:

The calibration is verified with certified gas bottle. The maximum error of the instrument as specified in the datasheet.

Gas verification from 0-1000ppm CH4

Full scale (ppm)	Gas concentration (ppm)	Response 1 (ppm)	Response 2 (ppm)	Response 3 (ppm)	Average response (ppm)	Maximum error (ppm)	Maximum error (% F.s.)	Maximum error %
1000	0.0	0	0	0	0.00	0.00	0.00	0.00
1000	3	3	3	3	3.00	0.00	0.00	0.00
1000	10.3	10.3	10.3	10.3	10.30	0.00	0.00	0.00
1000	102.0	102	102	102	102.00	0.00	0.00	0.00
1000	1001	1000	1000	1000	1000.00	1.00	0.10	0.10

Uncertainty	0.10	%
Max % error	0.10	% FS

Gas verification from 0-100% vol CH4

Full scale (%vol)	Gas concentration (%vol)	Response 1 (%vol)	Response 2 (%vol)	Response 3 (%vol)	Average response (%vol)	Maximum error (%vol)	Maximum error (% F.s.)	Maximum error %
100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	2.20	2.20	2.20	2.20	2.20	0.00	0.00	0.00
100.00	5.00	5.00	5.00	5.00	5.00	0.00	0.00	0.00
100.00	15.00	14.90	14.90	14.90	14.90	0.10	0.10	0.10
100.00	50.00	50.00	50.00	50.00	50.00	0.00	0.00	0.00
100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00

Uncertainty	0.10	%
Max % error	0.10	% FS

Gas verification from 0-100% CH4 LEL (0-4.4% VOL)

Full scale (%vol)	Gas concentration (LEL%)	Response 1 (LEL%)	Response 2 (LEL%)	Response 3 (LEL%)	Average response (%vol)	Maximum error (LEL%)	Maximum error (% F.s.)	Maximum error %
100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	2.00	0.00	2.00	2.00	1.33	2.00	2.00	2.00
100.00	50.00	0.00	0.00	0.00	0.00	50.00	50.00	50.00

Uncertainty	50.00	%
Max % error	50.00	% FS

CERTIFICATION OF CALIBRATION

Issued by: QED Environmental Systems Ltd.

Environmental conditions during calibration

Temp.	20.5	C
Pressure	1009	mBar

Gas bottles used for calibration

Gas	Cylinder number	Expiry date	Gas
N2	S1261680T	16/05/2024	N2
3 ppm	131394SG	21/11/2025	CH4
10 ppm	119779SG	11/04/2024	CH4
100 ppm	S1385429W	18/01/2026	CH4
1000 ppm	1490137	23/08/2026	CH4
1.0% Vol	S1198415S	10/04/2024	CH4
2.2% vol	S1700813	07/11/2026	CH4
5.0% vol	217147	03/12/2024	CH4
15% vol	269223	07/11/2023	CH4
50% vol	189051SG	23/02/2024	CH4
100% vol	S1182097S	15/11/2025	CH4

Calibration results: Pass

Next scheduled calibration: 14/04/2023

Calibration date: 14/04/2022

Issued by: Laura McBride

18 August 2022

Our reference: 21129_L02_v1

Your reference: DOC18/16918
Dated 6 July 2018

Steven Johnstone
Development Manager
Risland
Suite 7.02, Level 7, 207 Kent Street,
Sydney NSW 2000

email: steven.johnstone@risland.com.au

Surface Casing Decommissioning Report – Moonshine 11, Residential Sub-Division Southeast Wilton Precinct

Dear Mr Rudens,

1. Introduction

Reditus Consulting Pty Ltd (Reditus) have been engaged by Country Garden Wilton East Pty Ltd (Risland) to complete consultancy works associated with three exploration bores formed as part of the former petroleum exploration licence 255 (PEL 255) at 1000 Picton Road, 15 Janderra Lane, 990 Picton Road and 701 Lot Torrens Title in Wilton NSW (the site).

Risland intend to redevelop the site located into a low density residential sub-division and have been granted regulatory approval from Wollondilly Shire Council (WSC) subject to conditions of DA/2018/339/1, noting the most recently approved modification DA/2018/339/4 dated 30 March 2021. As part of the integrated approval process the NSW Planning & Environment Resource Regulator (P&E-RR) provided a recommendation to WSC in a letter dated 6 July 2018. The recommendation is repeated as follows:

> *"The Resources Regulator recommends that Wollondilly Shire Council provides a condition for the development consent that requires the proponent to undertake further assessment by a suitably qualified consultant with experience in assessing decommissioned petroleum wells. This assessment is required to verify that the sealing has been undertaken in accordance with the records provided. The consultant will also be required to oversee the process of removing sections of the subsurface well casing to accommodate the design level for the proposed development. In accordance with standard practice, the casing is required to be removed to a depth of at least 1.5 m below the final design level and a marker plate attached to provide identification."*

Subsequent to the advice, WSC adopted the following general condition of consent detailed within DA/2018/339/4, this is repeated as follows:

> 5. Condition imposed by NSW DP&E Resource Regulator, Reference Number DOC18/16918, 9 August 2018 – The proponent to undertake further assessment by a suitably qualified consultant with experience in assessing decommissioned petroleum wells. This assessment is required to verify that the sealing has been undertaken in accordance with the records provided. The consultant will also be required to oversee the process of removing sections of the subsurface well casing to accommodate the design level for the proposed development. In accordance with standard practice, the casing is required to be removed to a depth of at least 1.5m below the final design level and a marker plate attached to provide identification.

2. Background

Risland retained the specialist services of Reditus personnel to complete the review and supervision components of the above condition.

Reditus have performed the following investigation works relating to Moonshine 11:

- Review *Well completion report, AGL Moonshine 11, PEL 255, Sydney Basin* (NSW DiGS R00017107). The report indicated the bore was for methane drainage exploration purposes and was cement plugged to the surface, marked and abandoned.
- Perform a detailed site walkover and confirmed the location of the former exploration bore. Noting the steel stickup marker plate was still visible.
- Perform a surface gas methane study on a 100m x 100m grid around Moonshine 11 to determine if there were any indications of methane above background conditions.

Following the works described above Reditus provided Risland with a procedure to remove the marker plate and surface casing (if present) to a depth below 1.5m of the final finished level.

3. Decommissioning Works

Decommissioning works were conducted on 3 August 2022 under the supervision of Reditus' Senior Environmental Scientist Natasha Pasley who is experienced in inspections of decommissioned petroleum wells.

Prior to works commencing, a calibrated Huberg Laser One Portable Methane Leak Detector was used around the location of the well to confirm if any gas leakage was occurring. The methane results ranged between 1.4 and 2.1 ppm, which is considered within background ranges for shallow soils with an agricultural/pastoral land setting. Refer to **Appendix B** for a copy of the methane leak detector calibration certificate.

The steel casing was cut 1.5 m below the final design level by Civil Contractor (TRN Civil) and the existing marker plate was re-attached to the top of the well casing. The photographic log of the decommissioning works is provided in **Appendix A**.

The georeferenced location and relative level (RL) with the re-attached marker plate compared to the finished design level is presented in Table 1 below.

Table 1: Relative Level Information

Well ID	Easting (GDA94)	Northing (GDA94)	RL (AHD)	Future FSL (AHD)	Future Cover (m)
Moonshine 11	286883.207	6208956.031	217.222	221.974*	4.752

* Future FSL is indicative only and subject to detailed design.

Comparison of the relative level of the re-attached marker plate and the future final design level indicates there is a least 4.75m of cover.

Reditus considers that the casing removal and plate re-attachment of Moonshine 11 has been fulfilled in accordance with the requirements of Condition 5, DA/2018/339/4.

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In the meantime, should you have any queries or wish to discuss any points further, please do not hesitate to contact the undersigned.

Yours sincerely,

David Jackson
Principal Hydrogeologist
EIANZ CEnVP Site Contamination Specialist (SC40898)

Natasha Pasley
Senior Environmental Scientist

Appendices:
Appendix A – Photo Board
Appendix B – Calibration Certificate

Attachment A - Photolog

REDITUS	SITE PHOTOGRAPHS	
Client Name Country Garden Wilton East	**Site Location** 1000 Picton Road, 15 Janderra Lane, 990 Picton Road and 701 Lot Torrens Title in Wilton NSW	**Project No.** 21129

Photo No.	Date
1	3 August 2022

Description

Moonshine 11 prior to steel casing being cut and marker plate removed.

Photo No.	Date
2	3 August 2022

Description

Moonshine 11 cut 1.5 m below the finished design level.

REDITUS	SITE PHOTOGRAPHS	
Client Name **Country Garden Wilton East**	**Site Location** **1000 Picton Road, 15 Janderra Lane, 990 Picton Road and 701 Lot Torrens Title in Wilton NSW**	**Project No.** **21129**

Photo No.	**Date**
3	3 August 2022

Description

Moonshine 11 cut 1.5 m below finished design level with marker plate attached.

Attachment B – Calibration Certificate

CERTIFICATION OF CALIBRATION

Issued by: QED Environmental Systems Ltd.

Calibration certificate number 41299 H-07310

Instrument Laser One **Serial Number** 41299

Description of the calibration procedure:

The calibration is verified with certified gas bottle. The maximum error of the instrument as specified in the datasheet.

Gas verification from 0-1000ppm CH4

Full scale (ppm)	Gas concentration (ppm)	Response 1 (ppm)	Response 2 (ppm)	Response 3 (ppm)	Average response (ppm)	Maximum error (ppm)	Maximum error (% F.s.)	Maximum error %
1000	0.0	0	0	0	0.00	0.00	0.00	0.00
1000	3	3	3	3	3.00	0.00	0.00	0.00
1000	10.3	10.3	10.3	10.3	10.30	0.00	0.00	0.00
1000	102.0	102	102	102	102.00	0.00	0.00	0.00
1000	1001	1000	1000	1000	1000.00	1.00	0.10	0.10

Uncertainty	0.10	%
Max % error	0.10	% FS

Gas verification from 0-100% vol CH4

Full scale (%vol)	Gas concentration (%vol)	Response 1 (%vol)	Response 2 (%vol)	Response 3 (%vol)	Average response (%vol)	Maximum error (%vol)	Maximum error (% F.s.)	Maximum error %
100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	2.20	2.20	2.20	2.20	2.20	0.00	0.00	0.00
100.00	5.00	5.00	5.00	5.00	5.00	0.00	0.00	0.00
100.00	15.00	14.90	14.90	14.90	14.90	0.10	0.10	0.10
100.00	50.00	50.00	50.00	50.00	50.00	0.00	0.00	0.00
100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00

Uncertainty	0.10	%
Max % error	0.10	% FS

Gas verification from 0-100% CH4 LEL (0-4.4% VOL)

Full scale (%vol)	Gas concentration (LEL%)	Response 1 (LEL%)	Response 2 (LEL%)	Response 3 (LEL%)	Average response (%vol)	Maximum error (LEL%)	Maximum error (% F.s.)	Maximum error %
100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	2.00	0.00	2.00	2.00	1.33	2.00	2.00	2.00
100.00	50.00	0.00	0.00	0.00	0.00	50.00	50.00	50.00

Uncertainty	50.00	%
Max % error	50.00	% FS

CERTIFICATION OF CALIBRATION

Issued by: QED Environmental Systems Ltd.

Environmental conditions during calibration

Temp.	20.5	C
Pressure	1009	mBar

Gas bottles used for calibration

Gas	Cylinder number	Expiry date	Gas
N2	S1261680T	16/05/2024	N2
3 ppm	131394SG	21/11/2025	CH4
10 ppm	119779SG	11/04/2024	CH4
100 ppm	S1385429W	18/01/2026	CH4
1000 ppm	1490137	23/08/2026	CH4
1.0% Vol	S1198415S	10/04/2024	CH4
2.2% vol	S1700813	07/11/2026	CH4
5.0% vol	217147	03/12/2024	CH4
15% vol	269223	07/11/2023	CH4
50% vol	189051SG	23/02/2024	CH4
100% vol	S1182097S	15/11/2025	CH4

Calibration results: Pass

Next scheduled calibration: 14/04/2023

Calibration date: 14/04/2022

Issued by: Laura McBride