



Graham Street

Shoalhaven Entertainment Centre

SCC Administration Building

Princes Highway

Highway

Shoalhaven Entertainment Centre
Emergency Assembly Point

Administration Building
Emergency Assembly Point

Staff Parking

Staff Parking other than SEC Special Events

Staff Parking other than SEC Special Events

Reserved Visitor Parking SEC

Emergency Vehicle Parking

Reserved Visitor Parking

Reserved Visitor Parking

Basement Reserved Parking

Reserved Staff Parking

Reserved Staff Parking

no parking on grassed areas

no parking on grassed areas

North

PETROLEUM (ONSHORE) ACT 1991

INSTRUMENT OF RENEWAL OF PETROLEUM EXPLORATION LICENCE NO 469

HELD BY LEICHHARDT RESOURCES PTY LTD ACN 125 844 448

I, **CHRIS HARTCHER, MP**, Minister for Resources and Energy for the State of New South Wales **HEREBY RENEW THE LICENCE** subject to the terms and conditions set out below:-

1. The licence is renewed for a further term until **30 April 2018**.
2. The licence is renewed over the land described in the **First Schedule** attached hereto.
3. The conditions of the licence are amended by deleting all the conditions contained in the licence prior to this renewal and by including the attached **Second Schedule - Conditions of Petroleum Exploration Licence 2012** numbered: 1-3 (inclusive) and 5-57 (inclusive) as amended.
4. The Licence is renewed on the basis of a fixed term program as set out in the **Third Schedule** attached hereto.

We, **LEICHHARDT RESOURCES PTY LTD ACN 125 844 448**, hereby accept the renewal of this Exploration Licence and agree to be bound by the conditions specified.


.....
LEICHHARDT RESOURCES PTY LTD
ACN 125 844 448


.....
WITNESS

Renewed this 8th day of February 2013.

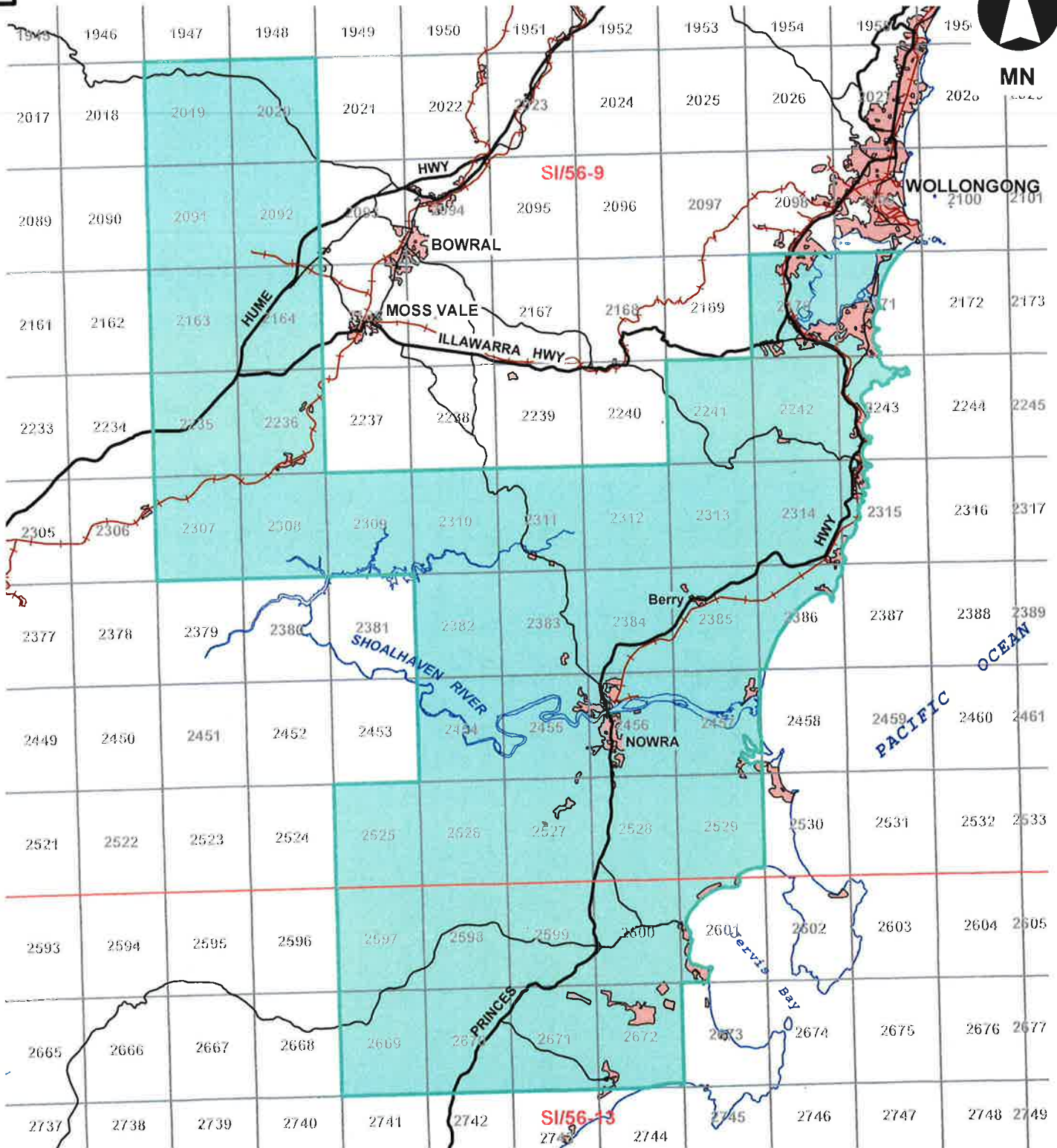

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MINISTER FOR RESOURCES AND ENERGY

DIAGRAM OF PETROLEUM EXPLORATION LICENCE No. 469
HOLDER: LEICHHARDT RESOURCES PTY LTD
1:250000 MAP SHEETS: SI/56-9 & SI/56-13
SCALE 1: 500000

(PELA No. 106)

SUBJECT TO SURVEY

PLAN No. P10075-02



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
HORIZONTAL DATUM: GDA94



AREA: abt. 45 Blocks

Prepared by: G Walker
Date: 03-04-2012
Approved by: F. Schiavo
Date: 13-04-2012
Maitland Regional Office

DISCLAIMER: The compilation of information shown on this diagram is derived from plans and data, some of which has been produced and provided by third parties. Title boundaries have been adjusted to maintain their relationship with the digital cadastral database in some circumstances, thereby creating certain inaccuracies in the data. The Department and the State of New South Wales make no statement, representation or warranty that the titles information shown on this diagram is complete, accurate or free from error. Users rely on the titles information supplied on this diagram at their own risk. The Department and the State of New South Wales accepts no responsibility for any person, acting on, or relying on, or upon any of the titles information shown on this diagram, and disclaim all liability for any loss, damage, cost, expense or injury (including death) incurred or arising by reason of any person using or relying on the titles information contained on this diagram by reason of any error, omission, defect or misstatement (whether such error, omission or misstatement is caused by or arises from negligence, lack of care or otherwise). Users should always verify historical material by making and relying upon their own separate inquiries prior to making any important decisions or taking any action on the basis of titles information.

FIRST SCHEDULE

EXPLORATION AREA

Defined by

GRATICULAR BLOCKS

SYDNEY 1:1,000,000 Sheet

2019-2020	2170-2171	2307-2315	2525-2529
2091-2092	2235-2236	2382-2386	2597-2601
2163-2164	2241-2243	2454-2457	2669-2672

TOTAL: 45 BLOCKS

Exclusive of:-

- The surface and lands below, within or overlying the external boundaries of mining leases for coal and associated mining leases for purposes and colliery holdings as recorded pursuant to Section 163 of the *Mining Act 1992*, as at the date of the grant of this licence and as at the date of any subsequent renewals of this licence.
- Land subject to any national park, regional park, historic site, nature reserve, karst conservation reserve or Aboriginal area, as at the date of grant of this licence.

Note: This exclusion includes national parks and Aboriginal areas contained within Community Conservation Area Zones 1 and 2 established under the *Brigalow and Nandewar Community Conservation Area Act 2005*.

- Land subject to any State forest or flora reserve excluded from the operations of the *Petroleum (Onshore) Act 1991*, under the provisions of the *Forestry Act 1916*, as at the date of grant of this licence and any such areas subsequently and mutually agreed to between the licence holder and the Department of Trade and Investment; Regional Infrastructure and Services
- Lands vested in the Commonwealth of Australia.

SCHEDULE 2

PETROLEUM EXPLORATION LICENCE CONDITIONS 2012

DEFINITIONS

Words used in this exploration licence have the same meaning as in the *Petroleum (Onshore) Act 1991* except where otherwise defined below:

Act means the *Petroleum (Onshore) Act 1991*.

Borehole means a hole made by drilling or boring, but excludes:

- a) sampling and coring using hand held equipment; and
- b) petroleum wells.

Category 1 prospecting operations means the development to which clauses 10(1) and 10(2) of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* apply.

Category 2 prospecting operations means:

- a) development to which clause 10(2) of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* applies that is not on land to which clause 10(1) applies;
- b) construction of an access way such as a track or road;
- c) construction and use of boreholes; and
- d) seismic surveys.

Category 3 prospecting operations means:

- a) construction and use of petroleum wells;
- b) prospecting operations and water management infrastructure required to be carried out in accordance with an approved Produced Water Management Plan under condition 14;
- c) fracture stimulation;
- d) installation of gas gathering and pipeline infrastructure;
- e) any prospecting operation resulting in a cumulative surface disturbance exceeding a total of five (5) hectares within the exploration licence area; and
- f) any other prospecting operations not listed in Category 1 prospecting operations or Category 2 prospecting operations.

Controlling body in relation to an exempted area means:

- a) in the case of land referred to in paragraph (a) or (c) of the definition of exempted area - the person having the control and management of the land;
- b) in the case of land referred to in paragraph (b) of that definition - the holder of the lease referred to in that paragraph; or
- c) in the case of land referred to in paragraph (d) of that definition - the person prescribed by the regulations as the controlling body for that land for the purposes of this definition.

Department means the Division of Resources & Energy within the Department of Trade and Investment, Regional Infrastructure and Services.

Director-General means the Director-General of the Department of Trade and Investment, Regional Infrastructure and Services.

Environment has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Exempted area has the same meaning as in section 70 of the Act.

Exploration licence area means the land and water which is subject to this exploration licence.

Fracture stimulation means the process by which a well is "stimulated" when fluids are forced at high pressure into hydrocarbon-bearing formations to create a conductive flow path into the target formation resulting in enhanced flow of hydrocarbons to the wellhead. Also known as "hydraulic fracturing", "fracing" or "fracking".

Harm to the environment includes any direct or indirect alteration of the environment that has the effect of degrading the environment and, without limiting the generality of the above, includes any act or omission that results in pollution, contributes to the extinction or degradation of any threatened species, populations or ecological communities and their habitats and causes impacts to places, objects and features of significance to Aboriginal people.

Landholder for the purposes of these conditions does not include a secondary landholder and includes, in the case of exempted areas, the controlling body for the exempted area.

Material harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Minister means the Minister administering the Act.

Petroleum well means a hole made by drilling or boring in connection with prospecting for petroleum or operations for the recovery of petroleum, but excludes:

- (a) sampling and coring using hand held equipment;
- (b) a hole constructed and operated for the following purposes:
 - (i) stratigraphic definition;
 - (ii) seismic or microseismic testing;
 - (iii) water monitoring; or
 - (iv) environmental assessment

where the operation of that hole does not involve fracture stimulation or the recovery of petroleum.

Petroleum wells include petroleum appraisal wells, pilot wells, test wells and gas injection wells.

Pollution incident has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Produced water means water that is taken in the course of a prospecting operation that is part of or incidental to that prospecting operation, including water that is encountered within and extracted from boreholes, petroleum wells or excavations.

River has the same meaning as in the *Water Management Act 2000*.

Standard working hours means:

- a) Monday to Friday 7am to 6pm;
- b) Saturday 8am to 1pm; and
- c) No work on Sundays or Public Holidays.

Waste has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Water land has the same meaning as in section 198A of the *Fisheries Management Act 1994*.

Wetland has the same meaning as in section 198A of the *Fisheries Management Act 1994*.

CONDITIONS

Conditions 1-3, 6-7, 9-23, 25-27, 29-37, 47-54 and 56 of this exploration licence are identified as conditions relating to environmental management.

Prospecting operations permitted under this exploration licence

1. The licence holder may conduct Category 1 prospecting operations on the exploration licence area subject to the conditions of this licence.

Note. The licence holder must comply with the requirements of the Act and other relevant legislation.

Category 1 prospecting operations:

(a) must be of minimal environmental impact;

(b) cannot be carried out in critical habitat of an endangered species, population or ecological community (identified under the Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994); and

(c) cannot be carried out in a wilderness area (identified under the Wilderness Act 1987).

Prospecting operations requiring further approval

2. The licence holder must obtain approval from the Minister prior to carrying out any of the following prospecting operations on the exploration licence area:
 - a) Category 2 prospecting operations; and
 - b) Category 3 prospecting operations.
3. The licence holder must comply with the conditions of an approval under condition 2 when carrying out those prospecting operations.

Note: In the case of prospecting operations identified in condition 2 as requiring approval by the Minister, the application for approval must be accompanied by a Surface Disturbance Notice (SDN). A Review of Environmental Factors and Agricultural Impact Statement may be required for Category 2 prospecting operations if the Minister is of the opinion that the prospecting operations may result in more than minimal environmental impact.

A Surface Disturbance Notice, Review of Environmental Factors and Agricultural Impact Statement are required for all Category 3 prospecting operations.

If the impact of prospecting operations on the environment is determined as likely to be significant in terms of Part 5 of the Environmental Planning and Assessment Act 1979, then the Minister will require the licence holder to submit an Environmental Impact Statement (EIS).

Applications may also require a Groundwater Monitoring and Modelling Plan (see condition 13) and/or a Produced Water Management Plan (see condition 14).

Native Title

5. The licence holder must not prospect on any land or waters on which native title exists without the prior written consent of the Minister.

Exempted Areas

Note: a) Under section 70 of the Act, the licence holder must not commence prospecting operations in an exempted area without the prior written consent of the Minister. The Minister's consent may be granted subject to conditions. "Exempted areas" are lands set aside for public purposes. They include travelling stock reserves, road reserves, water supply reserves, State forests, public reserves and permanent commons. Under section 70 of the Act, the "exercise of rights" under an exploration licence is subject to the consent of the Minister. The "exercise of rights" includes the right to conduct prospecting operations.

b) Applications for the Minister's consent to exercise rights under this exploration licence in an exempted area must:

Petroleum Exploration Licence Conditions 2012	Version Date: November 2012
Petroleum Exploration Licence No.469 (Act 1991)	Page 4 of 16

- (i) include formal confirmation of any requirements of the controlling body for the exempted area; and
- (ii) be submitted to the Titles Unit.

Codes of Practice

6. Unless otherwise approved by the Minister, the licence holder must comply with the requirements set out in the following Codes, as amended or replaced from time to time:
- a) the *NSW Code of Practice for Coal Seam Gas Exploration* (NSW Trade & Investment, 2012);
 - b) the *NSW Code of Practice for Coal Seam Gas Well Integrity* (NSW Trade & Investment, 2012); and
 - c) the *NSW Code of Practice for Coal Seam Gas Fracture Stimulation* (NSW Trade & Investment, 2012).

Note: Copies of the Codes are available from www.resources.nsw.gov.au.

7. In the event of any inconsistency between the Codes identified in condition 6 and the conditions of this exploration licence, the Codes prevail except where an approval has been given by the Minister under condition 2 and the conditions of that approval are complied with.

Community consultation

8. The licence holder must engage with the community in relation to the planning for and conduct of prospecting operations authorised under this exploration licence.

The consultation must be undertaken in accordance with the *Guideline for community consultation requirements for the exploration of coal and petroleum, including coal seam gas* (NSW Trade & Investment, 2012) as amended or replaced from time to time.

An annual report on Community Consultation must be submitted to the Department within 28 days of the anniversary of this licence being granted, together with evidence that community consultation has been undertaken in accordance with the Guideline.

Note: Copies of the Guideline are available from www.resources.nsw.gov.au

Access to exploration licence and relevant documents

9. The licence holder must ensure that a copy of this exploration licence and any relevant documentation relating to the conduct of prospecting operations is:
- a) accessible on the site of active prospecting operations authorised by this exploration licence; and
 - b) made available to all supervisors or other persons concerned in the day to day management of prospecting operations authorised by this exploration licence.

Note: For the purposes of this condition, relevant documentation includes, but is not limited to:

- a) access arrangements required under Part 4A of the Act;*
- b) exempted area consents required under section 70 of the Act;*
- c) approvals under condition 2 of this exploration licence, and any document specified as forming part of that approval, such as a Review of Environmental Factors;*
- d) the approved Groundwater Monitoring and Modelling Plan under condition 13 of this exploration licence;*
- e) the approved Produced Water Management Plan under condition 14 of this exploration licence;*
- f) the approved Work Program under Schedule 3 of this exploration licence; and*

g) any approval, plan, program or similar document required to comply with the Codes of Practice under condition 6 of this exploration licence.

Environmental harm

10. The licence holder must implement all reasonably practicable measures to prevent and/or minimise harm to the environment that may result from the conduct of prospecting operations under this exploration licence.

Erosion and sediment control

11. The licence holder must prevent erosion and pollution of watercourses resulting from the conduct of prospecting operations by implementing effective erosion and sediment control measures.
12. The planning, design and construction of erosion and sediment control measures must be conducted in accordance with *Managing Urban Stormwater: Soils and Construction* (DECC 2007), as amended or replaced from time to time.

Groundwater Monitoring and Modelling Plan

13. Prior to conducting prospecting operations involving the construction and use of boreholes or petroleum wells, the licence holder must:
- a) Prepare a Groundwater Monitoring and Modelling Plan in consultation with the NSW Office of Water;
 - b) Ensure that the Groundwater Monitoring and Modelling Plan:
 - (i) describes methods for identifying aquifers, their depths, behaviour, containing layers and connectivity with surrounding aquifers or surface water systems;
 - (ii) describes methods for collection of data relevant to the type, quantity and quality of water contained within aquifer systems likely to be encountered during prospecting operations;
 - (iii) provides for the future development of a conceptual model of regional groundwater behaviour;
 - (iv) provides for the future development of a calibrated computer model of regional groundwater behaviour, to enable the impacts of any proposed production operations to be assessed;
 - (v) describes how records of all data collected will be maintained;
 - (vi) describes the staging process for implementation of the plan; and
 - (vii) is prepared in accordance with any additional requirements prescribed by the Director-General.
 - c) Have the Groundwater Monitoring and Modelling Plan approved by the Minister; and
 - d) Implement and comply with the approved Groundwater Monitoring and Modelling Plan.

Note. The Groundwater Monitoring and Modelling Plan is required to ensure:

- (a) there is sufficient groundwater data available to assess future operations against the Aquifer Interference Policy (NSW Office of Water, 2012), as amended or replaced from time to time; and*
- (b) 2 years of baseline data is available prior to submitting an application for any future production operations.*

The scope and level of detail required in the Groundwater Monitoring and Modelling Plan is intended to reflect the scale, timing and potential impact of proposed prospecting or any future production operations.

An application may be made to the Department at any time to vary an approved Groundwater Monitoring and Modelling Plan.

Produced Water Management Plan

14. Prior to conducting prospecting operations with the potential to generate more than 3 megalitres per year of produced water (as a result of cumulative prospecting operations within the exploration licence area), the licence holder must:

- a) Prepare a Produced Water Management Plan in consultation with the NSW Office of Water and the Environment Protection Authority;
- b) Ensure that the Produced Water Management Plan describes:
 - (i) the expected sources and estimated quantity of the produced water;
 - (ii) the proposed containment and treatment measures for the produced water;
 - (iii) the proposed beneficial reuse or disposal methods for the produced water;
 - (iv) the controls to be implemented to prevent and/or minimise pollution;
 - (v) how records of all relevant parameters for the quality, quantity, transport and disposal of all water will be maintained;
 - (vi) describes the staging process for implementation of the plan; and
 - (vii) is prepared in accordance with any additional requirements prescribed by the Director-General.
- c) Have the Produced Water Management Plan approved by the Minister; and
- d) Implement and comply with the approved Produced Water Management Plan.

Note: (a) Discharge to receiving waters may require licensing under the Protection of the Environment Operations Act 1997.

(b) A water access licence under the Water Management Act 2000 may be required for petroleum prospecting operations taking more than 3 megalitres of water from groundwater sources per year. A licence may be required under the Water Act 1912 where that Act applies.

15. Except where approved under condition 2 or a Produced Water Management Plan under condition 14, produced water must not be discharged to land.

Use of chemicals and fuel

16. The licence holder must comply with *Policy TI-O-120 - Ban on use of BTEX compounds in CSG activities policy* (NSW Trade & Investment, 2012), as amended or replaced from time to time.

Note. Additional conditions regulating chemical additives may be imposed on prospecting operations under approvals issued under condition 2 of this exploration licence. The NSW Code of Practice for Coal Seam Gas Fracture Stimulation also contains relevant requirements.

17. The licence holder must ensure that all chemicals, fuels and oils, excluding those contained within plant and equipment and those for personal use, are:

- a) stored and handled in accordance with the relevant Material Safety Data Sheet and Australian Standards for the material;
- b) stored in appropriate containers that are in good condition and labelled to clearly identify the stored product; and
- c) kept in a facility or area which is capable of containing at least 100% of the largest container capacity stored within that area;

unless otherwise approved by the Minister.

18. The licence holder must ensure that adequate spill prevention and oil absorbent materials required to manage spills and leaks for all chemicals, fuels and oils on site are readily available at all times where prospecting operations are being carried out. Equipment and/or

materials to capture drips and spills must be used during transfer of chemicals, fuels and oils, and when maintaining oil or fuel filled components.

Noise

19. The licence holder must carry out operations in accordance with the requirements of the *Interim Construction Noise Guidelines* (DECC, 2009), as amended or replaced from time to time. Unless otherwise approved by the Minister, the licence holder must ensure that:
- a) noise levels during standard working hours do not exceed the Rating Background Level (RBL) +10dB at any residence or other sensitive receiver (as defined in the *Interim Construction Noise Guidelines*).
 - b) noise levels outside of standard working hours do not exceed the RBL +5dB.
20. The noise limits identified in condition 19 will not apply where the licence holder has negotiated a written agreement with:
- a) the relevant landholder; or
 - b) in the case of a prospecting operation that will result in an exceedance of the criteria at a dwelling or other sensitive receiver, the resident of that dwelling or occupier of the sensitive receiver;
- to allow different limits and the licence holder complies with those limits.

Vegetation clearing

21. The licence holder must not cut, destroy, ringbark or remove any timber or other vegetative cover on the exploration licence area except as authorised under condition 1 or approved under condition 2 of this exploration licence. Such clearing must be to the minimum extent necessary to facilitate the conduct of those prospecting operations.

Note: The Native Vegetation Act 2003 does not apply to clearing of native vegetation authorised under the Petroleum (Onshore) Act 1991.

Additional approvals may be required before using timber from Crown land.

Fire prevention

22. The licence holder must take all reasonably practicable precautions against causing an outbreak of fire.
23. The licence holder must not burn off any grass, foliage or herbage without the consent of the landholder and the local fire authority.

Infrastructure

24. The licence holder must ensure that prospecting operations do not interfere with or impair the stability or efficiency of any transmission line, communication line, pipeline or any other utility without the prior written approval of the infrastructure owner and subject to any conditions that may be stipulated by the infrastructure owner.

Passage of stock

25. The licence holder must permit the passage of stock through the exploration licence area and must conduct operations in a manner so as not to cause danger to travelling stock.
26. The licence holder must not interfere with or prevent the access of stock to any watering places or approaches to such watering places without the approval of the landholder.

Roads and tracks

27. Prospecting operations must not interfere with the use of any public road or prevent access along any other road or track without the prior written approval of the relevant roads authority (as defined under the *Roads Act 1993*) or, in the case of any other road or track, the landholders and/or residents relying on that road or track for access.

Note: A consent under section 138 of the Roads Act 1993 may be required for works on public roads.

28. The licence holder must pay to the relevant roads authority, the reasonable costs incurred in fixing any damage to any public roads resulting from prospecting operations carried out under the exploration licence. If no agreement on reasonable costs can be negotiated by the parties, the matter must be referred to the Director-General for resolution.
29. Except where approved under condition 2, the licence holder must ensure that:
- Existing roads and tracks must be used in preference to constructing new roads and tracks;
 - The planning, design, construction and maintenance of roads must be conducted in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (DECC 2007), as amended or replaced from time to time;
 - The planning, design, construction and maintenance of tracks must be conducted in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (DECC 2007), as amended or replaced from time to time;
 - All river crossings must be constructed in accordance with requirements of the *Policy and Guidelines for Aquatic Habitat Management and Fish Conservation* (DPI 1999), as amended or replaced from time to time; and
 - All crossings of permanent and intermittent water lands and wetlands must be constructed in accordance with requirements of the *Policy and Guidelines for Aquatic Habitat Management and Fish Conservation* (DPI 1999), as amended or replaced from time to time, and *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003).
30. The licence holder must restrict the use of any road or track during wet weather to prevent damage to that road or track unless the road or track has been designed and constructed for use in wet weather.

Topsoil management

31. The licence holder must ensure that all topsoil removed in the course of prospecting operations is stockpiled for later use in rehabilitating those operations.

Drilling

32. The licence holder must:

- Notify the NSW Office of Water at least 28 days prior to commencement of drilling operations;

Note. Refer to the Department's website for the NSW Office of Water Drilling Notification form.

The notification can be made contemporaneously with the lodgement of an application for approval under condition 2 of this exploration licence.

- Construct, maintain and decommission all boreholes and petroleum wells in accordance with standards equivalent to or exceeding the *Minimum Construction Requirements for Water Bores in Australia* (NUDLC 2012), as amended or replaced from time to time.
- Ensure that the construction, operation, maintenance and decommissioning of boreholes and petroleum wells does not significantly cause or enhance:

- (i) hydraulic connection between aquifers;
 - (ii) contamination or cross-contamination of aquifers;
 - (iii) the escape of natural or noxious gases;
 - (iv) the uncontrolled surface discharge of groundwater;
 - (v) collapse of the surrounding surface; or
 - (vi) hazards to persons, stock and wildlife;
- d) Install blowout prevention equipment in accordance with the *Schedule of Onshore Petroleum Exploration and Production Safety Requirements* (DMR 1992), as amended or replaced from time to time;
- e) Implement controls to manage any risks associated with natural or noxious gases, both during and after drilling;
- f) Contain all drill cuttings, fluids and groundwater returned to the surface as part of the drilling process in above-ground tanks or in-ground sumps pending re-circulation or disposal. In-ground sumps must be lined with an impermeable barrier where there is a potential risk of contamination from drill cuttings or fluids;
- g) Survey all cored boreholes and petroleum wells to 0.5 metre accuracy, with the survey to be carried out by a surveyor registered with the Board of Surveying and Spatial Information under the *Surveying and Spatial Information Act 2002*;
- h) Remove equipment and logging tools from the borehole or petroleum well prior to plugging and abandonment of the borehole or petroleum well, unless otherwise approved by the Minister; and
- i) Once a borehole or petroleum well ceases to be used, the borehole or petroleum well must be completely filled with cement grout during drill rod withdrawal and plugged, unless otherwise approved by the Minister.

Note: The Code of Practice for Coal Seam Gas Well Integrity also contains relevant drilling requirements for coal seam gas exploration wells.

If there is any inconsistency between these conditions and the Code, the Code will prevail.

33. At the completion of testing and prior to plug and abandonment of a borehole or petroleum well, the licence holder must ensure that steel casing is removed from the vertical interval(s) encompassing all coal seam(s) unless otherwise approved by the Minister. Downhole geophysical tools and/or cameras must be used to confirm the removal or absence of steel casing throughout the prescribed interval. All logs and information pertinent to the steel casing must be provided to the Department.

Note: Under the Code, a well cannot be abandoned or suspended without prior Departmental approval).

34. Within 3 months of the abandonment of any borehole or petroleum well, the licence holder must provide the Department with details of:
- a) the location details identified in condition 32(g);
 - b) the date grouting of the borehole or petroleum well was completed, the material used in the grouting process and the method of grouting used;
 - c) evidence of gas leak testing and results;
 - d) rehabilitation actions proposed to be undertaken on the site; and
 - e) details of any metallic equipment or material abandoned in the borehole or petroleum well.

Note. The Code of Practice for Coal Seam Gas Well Integrity also contains relevant drilling requirements for coal seam gas wells.

35. The licence holder must report any blowout associated with prospecting operations to the Department:

- a) immediately; and
- b) provide a written report within 24 hours.

Note. a) The licence holder should have regard to any Departmental guidelines related to the drilling, operation and abandonment of boreholes and petroleum wells.

b) The Code of Practice for Coal Seam Gas Well Integrity applies to the drilling of coal seam gas wells. Where there is a conflict between the requirements set out in the Code of Practice for Coal Seam Gas Well Integrity and these conditions, the Code has precedence.

Waste management

36. The licence holder must ensure that:

- a) the sites of prospecting operations are maintained in a clean and tidy condition at all times;
- b) all waste, including contaminated residues, must be collected, segregated and securely deposited in properly constructed containers and disposed lawfully;
- c) drilling by-products contaminated by chemicals, oils or fuels must be collected and remediated or disposed lawfully; and
- d) all drill cuttings and drilling fluids not being reused in drilling operations are disposed lawfully.

Note. Alternative reuse of drill cuttings and treated fluids may be approved by the Minister under condition 2 of this exploration licence.

37. The licence holder must maintain records of:

- a) all waste generated as a result of prospecting operations under this exploration licence; and
- b) the means of disposal of all waste.

Note. Waste is regulated under the Protection of the Environment Operations Act 1997 and the NSW Waste Regulations. Contact the Local Council or the Environment Protection Authority for details of those requirements.

Safety

38. The licence holder must notify the Department at least 28 days prior to the proposed commencement of any prospecting operation involving any drilling, blasting or other potentially hazardous operation. This notification must be made in the form approved by the Director-General.

39. The licence holder must carry out and supervise operations in a manner that ensures the safety of all employees and contractors.

40. The licence holder must carry out operations in a manner that ensures the safety of landholders and members of the public, stock and wildlife in the vicinity of the operations.

Note. Under section 128 of the Petroleum (Onshore) Act 1991, the licence holder must carry out all petroleum prospecting operations and operations for the recovery of petroleum in the title area in accordance with the provisions of the Work Health and Safety Act 2011.

For coal seam gas wells, the licence holder must also put in place measures to control hazards which comply with the Code of Practice for Coal Seam Gas Well Integrity. These measures include, but are not limited to, the development of a Safety Management Plan and the installation of specific well head infrastructure.

Technical Manager

41. The licence holder must ensure that prospecting operations are conducted, or directly supervised, by a Technical Manager, being:
- a) a person with tertiary qualifications in geoscience, petroleum or mining engineering; or
 - b) a person having other qualifications or exploration experience approved by the Minister.
42. The licence holder must advise the Minister of the name and contact details of the Technical Manager(s) prior to the commencement of any prospecting operations and within ten (10) working days of any changes to the nominated Technical Manager or their contact details.

Work Program

43. Unless otherwise approved by the Minister, the licence holder must implement and complete the work program specified in Schedule 3 of this exploration licence.

Note. Clause 9 of the Petroleum (Onshore) Regulation 2007 states that it is a condition of every petroleum title that the holder of the exploration licence will carry out the operations, and only the operations, described in the work program specified in Schedule 3 of this exploration licence. Under Clause 10 of the Petroleum (Onshore) Regulation 2007, the work program may be varied upon application to and approval of the Minister.

Cooperation with other title holders

44. The licence holder must make every reasonable attempt, and be able to demonstrate their attempts, to enter into a cooperation agreement with the holder(s) of any overlapping authorisations for Group 8 or 9 minerals under the *Mining Act 1992*. The cooperation agreement should address but not be limited to:
- a) access arrangements;
 - b) operational interaction arrangements;
 - c) dispute resolution;
 - d) information exchange;
 - e) location of prospecting operations;
 - f) timing of drilling;
 - g) potential resource extraction conflicts; and
 - h) integrated rehabilitation activities.

*Note. Group 8 minerals are geothermal energy.
Group 9 minerals are coal and oil shale.*

Minister's approval of change in control

45. The Minister's prior written approval is required prior to:
- a) any change in the effective control of the licence holder; or,
 - b) any foreign acquisition of substantial control in the licence holder.
46. For the purposes of condition 45:
- a) There is a "change in effective control" where, after the imposition of this condition, any person:
 - (i) acquires the capacity to appoint or control at least 50% of the number of directors of the licence holder's board;
 - (ii) becomes entitled to exercise (directly or indirectly) greater than 50% of the votes entitled to be cast at any general meeting of the licence holder; or,

- (iii) holds more than 50% of the issued share capital (other than shares issued with no rights other than to receive a specified amount in distribution) of the licence holder.
- b) There is a "foreign acquisition of substantial control" where, after the imposition of this condition, a person:
- (i) acquires the capacity to appoint or control at least 15% of the number of directors of the licence holder's board;
 - (ii) becomes entitled to exercise (directly or indirectly) greater than 15% of the votes entitled to be cast at any general meeting of the licence holder;
 - (iii) holds more than 15% of the issued share capital (other than shares issued with no rights other than to receive a specified amount in distribution) of the licence holder;

AND the person is:

- (i) a natural person not ordinarily resident in Australia;
- (ii) a corporation in which a natural person not ordinarily resident in Australia or a "foreign corporation" (meaning one that is incorporated outside Australia) holds a total interest of 15% or more;
- (iii) a corporation in which 2 or more persons, each of whom is either a natural person not ordinarily resident in Australia or a foreign corporation, hold a total interest of 40% or more;
- (iv) the trustee of a trust estate, in which a natural person not ordinarily resident in Australia or a foreign corporation, holds a total interest of 15% or more; or,
- (v) the trustee of a trust estate in which 2 or more persons, each of whom is either a natural person not ordinarily resident in Australia or a foreign corporation, holds a total interest of 40% or more.

Rehabilitation

47. All disturbance resulting from prospecting operations carried out under this exploration licence must be rehabilitated by the licence holder to the satisfaction of the Minister.
48. In rehabilitating the disturbance, the licence holder must ensure that:
- a) all machinery, buildings and other infrastructure are removed from the area;
 - b) the area is left in a clean, tidy and stable condition;
 - c) there is no adverse environmental effect outside the disturbed area;
 - d) the land is properly drained and protected from soil erosion;
 - e) the land is not a potential source of pollution;
 - f) the land is compatible with the surrounding land and land use requirements;
 - g) the landforms, soils, hydrology and flora require no greater maintenance than that in, or on, the surrounding land;
 - h) the land does not pose a threat to public safety; and
 - i) in cases where vegetation has been removed or damaged:
 - (i) where the previous vegetation was native, species used for revegetation are endemic to the area; or
 - (ii) where the previous vegetation was not native, species used for revegetation are appropriate to the area; and
 - (iii) any revegetation is of an appropriate density and diversity.

49. The licence holder must ensure that all river crossings are rehabilitated such that the natural flow of water is unimpeded and stream bank stability is maintained to prevent erosion.
50. The licence holder must comply with any relevant guidelines issued by the Director-General in the rehabilitation of disturbance resulting from prospecting operations under this exploration licence.
51. All rehabilitation of disturbance resulting from prospecting operations under this exploration licence must be completed before the expiry of this exploration licence or as soon as practicable following cancellation of this exploration licence.
52. Boreholes or petroleum wells that have been abandoned as a result of previous mining or prospecting operations, and which have been opened up or used by the licence holder are subject to the conditions of this exploration licence as if the boreholes or petroleum wells were constructed by the holder of this exploration licence.

Environmental Management Report

53. The licence holder must submit an Environmental Management Report to the Department:
 - a) The report must be prepared according any relevant Director-General's requirements for environmental and rehabilitation reporting.
 - b) The report must be lodged:
 - (i) prior to expiry where a renewal of this licence is sought; or
 - (ii) immediately following the expiry or earlier cancellation of the exploration licence.
 - c) The report must be prepared to the satisfaction of the Director-General and include information on all disturbance resulting from prospecting operations and rehabilitation carried out within the exploration licence area.

Environmental incident and complaint reporting

54. The licence holder must, in addition to the requirements under section 148 of the *Protection of the Environment Operations Act 1997*:
 - a) Notify the Department of all:
 - (i) pollution incidents causing or threatening material harm to the environment;
 - (ii) breaches of the conditions of this exploration licence; and
 - (iii) breaches of environmental protection legislation (as defined in the *Protection of the Environment Administration Act 1991*),
arising in connection with prospecting operations under this exploration licence.
 - b) The notification must be given immediately, i.e. promptly and without delay, after the licence holder becomes aware of the incident, breach or complaint.
Note. Refer to www.resources.nsw.gov.au/environment for notification contact details.
 - c) Submit an Environmental Incident and Complaints Report to the Department within seven (7) days of all:
 - (i) pollution incidents causing or threatening material harm to the environment;
 - (ii) breaches of the conditions of this exploration licence;
 - (iii) breaches of environmental protection legislation (as defined in the *Protection of the Environment Administration Act 1991*); and

- (iv) complaints from landholders or the public alleging environmental harm or a breach of conditions of this exploration licence or of environmental protection legislation,

arising in connection with prospecting operations under this exploration licence.

d) The Environmental Incident and Complaints Report must include:

- (i) the details of the exploration licence;
- (ii) contact details for the licence holder, complainant and landholder;
- (iii) a map showing the area of concern;
- (iv) a description of the nature of the incident or complaint, likely causes and consequences;
- (v) a timetable showing actions taken or planned to address the incident or complaint; and
- (vi) a summary of all previous incidents or complaints relating to prospecting operations under this exploration licence.

Note. The licence holder should have regard to any relevant Director-General's guidelines in the preparation of an Environmental Incident and Complaints Report. Refer to www.resources.nsw.gov.au/environment for further details.

Exploration (geological) reports

55. Reports required under section 131 of the *Petroleum (Onshore) Act 1991* and Part 3 of the *Petroleum (Onshore) Regulation 2007* must be prepared in accordance with the *New Guidelines for Digital Data Submission and Reporting of Onshore Petroleum Exploration in New South Wales* (NSW Trade & Investment – Division of Resources & Energy, February 2012), as amended or replaced from time to time.

Security

56. The licence holder must provide and maintain a security deposit of **\$10,000** to secure funding for the fulfilment of obligations of all or any kind under the Act in respect of the licence, including obligations that may arise in the future. The security deposit must be maintained until the obligations are fulfilled.

57. The security deposit is to be provided by way of a cash deposit (with no entitlement to any interest thereon) or in such other form as may be approved by the Minister.

SCHEDULE 3

WORK PROGRAM

Year 1 -

20km Seismic acquisition

Indicative expenditure of \$300,000

Year 2 –

Drill one core hole

Permeability and Hydro testing

Geophysical logging

Prepare for pilot wells subject to successful well

Indicative expenditure of \$750,000

Any variation to the above program may only occur with the prior approval of the Minister in accordance with the *Petroleum (Onshore) Regulation 2007*.

REPORT OF GENERAL MANAGER

ORDINARY MEETING

TUESDAY, 20 DECEMBER 2011

STRATEGIC PLANNING AND INFRASTRUCTURE

1. **Coal Seam Gas Mining - Request for united front on this issue from Wollongong City Council** **File 43091E**
-

PURPOSE OF THE REPORT

To assist Council to adopt a position on Coal Seam Gas mining in water supply catchments in response to a request from Wollongong City Council.

RECOMMENDED that:

- a) **Council acknowledges the widespread community concern about Coal Seam Gas activities;**
- b) **Council expresses its concern that the short-term environmental impacts of Coal Seam Gas activities are not well understood, at either a State-wide or regional level;**
- c) **Council commit to opposing Coal Seam Gas exploration in water supply catchments and respond to the Lord Mayor of Wollongong, Councillor Gordon Bradbery OAM, affirming support for this approach; and**
- d) **Council write to the NSW Legislative Council Standing Committee Inquiry into Coal Seam Gas and oppose exploration in water supply catchments, pending better science and understanding of the impacts.**

COMMUNITY STRATEGIC PLAN

- Objective:** 2.1 A City that protects, values and cares for the Shoalhaven environment.
- Strategy:** 2.1.1 Ensure that the ecological and biological environments of the Shoalhaven are protected and valued through careful management.

DELIVERY PROGRAM

- Activity:** 2.1.1.9 Continue to update Council's environmental knowledge base and reflect this in strategic planning.

OPTIONS AND IMPLICATIONS

Option 1: Preferred Option

Recommendations as stated.

Implication

Support Wollongong City Council and voice community concern and hopefully stimulate better dialogue with the Department of Primary Industries.

Option 2:

Do not present a united approach with surrounding Councils on this issue.

Implication

- # The Southern Councils Group have already given in principle support to Wollongong's position and have written to Council seeking endorsement of a Joint Statement (see **Attachment 'A'**). A decision to withdraw support could cause public criticism as this appears to be an issue of concern to Shoalhaven residents.

REPORT DETAILS

Background:

The Department of Primary Industries (the Department) issued an expansive petroleum exploration licence (No. 469) over the northern part of Shoalhaven in 2008. Council did not find out about this licence until mid 2011 when a Notice of Motion was brought forward by Councillor Findlay. As a result, a briefing from the Department was requested and delivered. This raised significant concerns regarding the lack of consultation between the Department and Council and the potential impacts that this activity could have on Shoalhaven's tourism industry and the environment generally.

- # Thousands of residents in the Illawarra have been actively protesting against Coal Seam Gas Mining. There is public concern regarding this issue, especially where it is within a water supply catchment area. Wollongong City Council has received a substantial petition from the community which has been forwarded to the Premier. On 23 November 2011, Wollongong City Council wrote to all Southern Council Group members requesting a united front on this issue - see **Attachment 'B'**.

Key Issues:

- # The following are some of the issues associated with coal seam gas activities:
- the lack of consultation that occurs with Council prior to an exploration licence being granted;

- the potential adverse impacts that this industry could have on the natural environment (in particular water supply catchment areas) within Shoalhaven (further details provided in **Attachment 'C'**);
- the potential adverse impacts on Shoalhaven's tourism industry; and
- the short-term environmental impacts of Coal Seam Gas activities are not well understood, at either a State-wide or regional level.

Resourcing Implications - Financial, Assets, Workforce:

No direct resource implications at present.

Community, Environment (ESD), Economic and Governance Impact:

Coal Seam Gas exploration has the potential to adversely impact on the natural environment of Shoalhaven and important water supply catchment areas. For the sake of intergenerational equity Council needs to form a considered position on this issue and should consider supporting Wollongong City Council's request for a united Southern Councils Group response position.

Southern Councils Group Joint Statement on Coal Seam Gas Exploration

The Southern Councils Group (SCG) is the peak organisation representing Local Government in the Illawarra and South Coast regions. Member Councils include Bega Valley Shire, Eurobodalla Shire, Kiama Municipal, Shellharbour City, Shoalhaven City, Wingecarribee Shire and Wollongong City Councils.

At its meeting held 30 November 2011 SCG resolved:

“That a joint statement by SCG of support for Wollongong City Council’s position on exploration in water catchment areas be referred to member Councils for endorsement”

Statement

“SCG expresses its concerns that the short-term and long-term environmental impacts of Coal Seam Gas (CSG) activities are not well understood, at either a State-wide or regional level.

SCG acknowledges there is widespread local community concern about and opposition to CSG in the Illawarra and South Coast.

SCG urges the State Government to rule out CSG activities in water catchment areas.”

Note:

SCG will monitor outcomes of the NSW Legislative Council Standing Committee Inquiry into Coal Seam Gas and particularly those that relate to its Terms of Reference point 2e. *{Terms of Reference excerpt.....The economic and social implication of CSG activities, including those which effect.....e) Local Government including provisions of local/regional infrastructure and local planning control mechanisms}*



WOLLONGONG CITY COUNCIL


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The Honourable Mayor Paul Green
 Shoalhaven City Council
 Assistant: Rachel Marshall
marshallr@shoalhaven.nsw.gov.au

Our Ref	ESP:RC
File	ESP-070-02.003
Date	23 November 2011


 Dear ~~Mayor Green~~

At the Council meeting of 31 October 2011, Wollongong City Council resolved:

In view of Council's well-received commitment to ruling out Coal Seam Gas (CSG) mining in the Sydney and Illawarra water supply catchments, and concerns about the impacts of CSG mining, Council approach other councils within the Schedules 1 and 2 Special Areas, the greater water supply catchment, and the Southern Councils Group, to:

- a *advise of our commitments as stated in the minutes of the meeting of 10 October 2011, Item 3;*
- b *provide a copy of Council's submission to the Planning Assessment commission meeting of 17 October on Apex's proposal for an additional exploratory bore in Darkes Forest;*
- c *request the other councils within the water supply catchment, and the Southern Councils Group, to consider similar commitments, and*
- d *seek a broad Local Government commitment, in line with Wollongong City Council's commitment, through a joint statement by the other councils within the Schedules 1 and 2 Special Areas, in the greater water supply catchment, and the Southern Councils Group*

Accordingly, I write to advise you that Wollongong City Council has undertaken a number of initiatives in relation to its concerns about the potential impacts of Coal Seam Gas activities and request your consideration of similar commitments from your own Council. On the 10 October 2011, Wollongong City Council resolved:

- 1 *Council expresses its concerns that the short-term and long-term environmental impacts of Coal Seam Gas (CSG) activities are not well understood, at either a State-wide or regional level*
- 2 *Council acknowledges there is widespread local community concern about and opposition to CSG in the Illawarra*
- 3 *Council urges the State Government to rule out CSG activities in water catchment areas in the City of Wollongong*
- 4 *The above points be included into a submission by Wollongong Council to NSW Legislative Council Standing Committee Inquiry into Coal Seam Gas and that the final submission be endorsed by Councillors when prepared.*
- 5 *Council officers provide information updates to Councillors on submissions to the NSW Legislative Council Standing Committee Inquiry into Coal Seam Gas that relate to its Terms of Reference point 2e (Terms of Reference excerpt The economic and social implications of CSG activities, including those which effect: e) Local Government including provision of local/regional infrastructure and local planning control mechanisms)*
- 6 *Council appear at the Bowral Hearing on 8 December and other Hearings, where appropriate*

Councillors and Council officers made presentations to the NSW Planning Assessment Commission in October 2011 regarding the *Apex Exploration Drilling Project, Additional Borehole Modification*. I attach a copy of the presentation made by Council officers for your information. The presentation outlined Council's serious concerns in relation to Coal Seam Gas activities and outlined Council's opposition to these activities in sensitive water catchment areas. Wollongong City Council is also currently preparing a submission to the NSW Legislative Council Standing Committee Inquiry into Coal Seam Gas and will be appearing at the Public Hearing in Bowral on 9 December 2011.

I have written separately to the Southern Councils Group Executive Assistant seeking their assistance in the development of a joint statement from member councils to rule out coal seam gas activities in water catchment areas and outline concerns about the potential impacts of these activities. It is hoped that all members of the Southern Councils Group will endorse this statement to send a clear and unified message to the NSW Government and the Parliamentary Inquiry about this issue

Thank you in advance for your consideration of this request. I look forward to hearing of any future resolutions made by your Council outlining concerns in relation to Coal Seam Gas activities

Yours sincerely



Lord Mayor
Councillor Gordon Bradbery OAM
Wollongong City Council

**Planning Assessment Commission
Apex Exploration Drilling Project, Additional Borehole Modification**

1. Council thanks the Planning Assessment Commission for the opportunity to present our views on the Department of Planning and Infrastructure's recommendations regarding the Apex Exploration Drilling Project.

2. I acknowledge this public meeting is specifically in relation to the Additional Borehole Modification for the Apex Exploration Drilling Project, however believe it is important to advise of Council's recent resolution in relation to Coal Seam Gas activities.

3. Council resolution of 10 October 2011 (in part):

"Council expresses its concerns that the short-term and long-term environmental impacts of Coal Seam Gas activities are not well understood, at either the state-wide or regional level;

Council acknowledges there is widespread local community concern about and opposition to Coal Seam Gas in the Illawarra;

Council urges the State Government to rule out Coal Seam Gas activities in water catchment areas in the City of Wollongong"

4. The wide-spread community concern acknowledged in this resolution is evidenced by the large number of submissions in relation to the Department of Planning's draft scoping paper on NSW Coal and Gas Strategy, the Parliamentary Inquiry into Coal Seam Gas and this additional modification application. Locally, on 29 May 2011 at Austinmer Beach over 3,000 people protested in relation to Coal Seam Gas and yesterday around 3,000 people participated in a demonstration by walking across sea-cliff bridge in protest of coal seam gas activities.

5. Council has also received a petition from the local community opposing coal seam gas activity in the Wollongong Local Government Area, which Council forwarded to the NSW Premier.

6. Council will be making a submission and presentation regarding its serious concerns in relation to Coal Seam Gas activities to the NSW Legislative Council Standing Committee Inquiry in December this year.

7. With regards to the Apex Exploration Drilling Project Additional Borehole Modification, Council provides the following comments on the Department of Planning and Infrastructure's assessment report and recommendations:

a. The proposed exploration borehole is located within the Sydney Drinking Water Catchment Area, and under the Wollongong LEP 2009, the land is

zoned E2 Environmental Conservation. This zone is Council's highest conservation zone outside of National Parks. The zone recognises high conservation value lands and only permits a limited number of land uses. One of the objectives of the zone is to *"maintain the quality of the water supply for Sydney and the Illawarra by protecting land forming part of the Sydney drinking water catchment..."*. Clearly this application is in conflict with the objectives of the zone.

In addition, the E2 zone does not permit mining or exploration activities. Mining and exploration in this area are only permissible by virtue of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

- b. The Department's recommendations do not appear to have resolved the concerns raised by various other state government departments, including the Office of Environment and Heritage, The Sydney Catchment Authority and the NSW Office of Water.
- c. Council notes that Apex Energy have stated that hydraulic fracturing will not be used as any part of its coal seam gas activities. The Department's report to the Planning Assessment Commission notes that the method of drilling and casing of the borehole has been modified to minimise environmental impacts to the aquifers in the Hawkesbury sandstone layer and groundwater.
- d. We also note the Department's recommendations that this method of borehole construction and maintenance will minimise the potential for cross-contamination of groundwater resources and gas escape.
- e. Council however expresses its concern in relation to any environmental impact and potential for groundwater contamination, regardless of how minimal that impact may be, particularly in a sensitive water catchment area which is relied on by greater Sydney's 4 million plus residents.
- f. It is difficult for Council to make an assessment on the alternative drilling method proposed as details on this method of drilling was not provided. Further information should be made available on the alternative drilling method and in particular any chemicals and the potential impact of those chemicals to be used in the drilling process prior to any determination being made.
- g. With regards to the statement on page 8 of the Departments recommendations, under the heading *Other Vegetation*, I quote "There is a variety of vegetation communities present within the proposed borehole site and access track, including Exposed Sandstone Scribbly Gum Woodland, Upland Swamp Fringing Eucalypt Woodland, Upland Sedgeland Heath Complex and Upland Swamp Banksia Thicket. None of these vegetation communities are currently listed under the Threatened Species Conservation

Act 1995 (TSC Act) or the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)”

Council is of the opinion that this statement should be challenged. There is a strong argument to suggest that structurally and floristically the upland swamp vegetation on the site approximates the description of Montane Peatlands and Swamps, an Endangered Ecological Community under the EPBC Act. Moreover a preliminary determination under the TSC Act describes Coastal Upland Swamp and proposes its listing as an EEC in April of this year. This application should therefore have been referred to the Federal Minister for the Environment and as this has not occurred, any decision on this application should be deferred.

- h. If, despite the information provided above, the Planning Assessment Commission recommends approval of this modification, the following conditions should be amended:
 - i. An Environmental Management Plan should be prepared and approved by the Department, prior to any site commencement works being undertaken.
 - ii. Auditing should be conducted on a quarterly basis and these should be conducted by an independent auditor selected by the Department.
 - iii. Audit reports should be made available for public viewing on the Department’s website as soon as they are available.
8. Overall, as the exploration site identified in the modification application is located within the Sydney Drinking Water Catchment Area, Council is not supportive of any coal seam gas activities in this location, as evidenced by Council’s recent resolution.
9. In conclusion, Council believes there is significant evidence to support the deferment of any decision on the Apex Exploration Drilling Project until such time as the outcomes of the Parliamentary Inquiry into Coal Seam Gas are finalised.

Thank you for the opportunity to present this information.

Potential impacts and concerns regarding Coal Seam Gas exploration

The common methods used to extract the gas have the potential to adversely impact ground water supplies.

Hydrofracturing is where an injection of water with sand and chemicals under high pressure is made to increase coal permeability.

Attachment C – Matrix for calculating the additional project complexity cost

Cavitation is where using compressed air the coal seam is repeatedly pressurised and depressurised developing cavities around the well.

Sydney Catchment Authority has listed the following as potential impacts from this process:

- Pollution of surface water and groundwater
- Causes aquifer compaction and subsurface subsidence leading to surface subsidence
- Produces cone of depression
- Changes groundwater flow direction
- Reduces base flow discharge
- Enhances vertical movement of groundwater
- Reduces hydrostatic pressure in the coal seam
- Changes vertical hydraulic gradients and pressure differences
- Causes flow of water from overlying and/or underlying aquifers towards coal seam through fracture networks.

Sydney Catchment Authority has outlined the following concerns relating to the impacts listed above. These concerns are based on the Queensland exploration experiences.

- In order to provide a high quality water product it's necessary to protect surface water and groundwater dependent ecosystems and water resources.
- There is a risk of saline water, salts and pollutants causing environmental harm to surface waters and groundwater.
- Management of coal seam gas water on the ground surface is complex.
- Disruption to natural flow regimes in surface waters is of concern.
- Coal seam gas infrastructure – impacts on overland flows.
- Impacts on environmentally sensitive areas.
- Cumulative impacts of multiple coal seam gas projects – negative groundwater and surface water impacts.