

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

Under the Minister for Planning's delegation of 4 March 2009, I approve the project referred to in schedule 1, subject to the conditions in Schedules 2 to 4.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the on-going environmental management of the project.

Red type represents the November 2011 modification (MOD 1)

Sam Haddad
Director-General

Sydney

2009

SCHEDULE 1

Application Number:	07_0103
Proponent:	Apex Energy NL
Approval Authority:	Minister for Planning
Land:	Land associated with 15 borehole locations as described in the Environmental Assessment (also see Appendix 1)
Project:	Apex Gas Exploration Project

SCHEDULE 2

DEFINITIONS

AEMR	Annual Environmental Management Report
Department	Department of Planning and Infrastructure
Director-General	Director-General of the Department, or delegate
DRE	Division of Resources and Energy, within the Department of Trade and Investment, Regional Infrastructure and Services
EA	Environmental Assessment, titled <i>Illawarra Coal Seam Gas Exploration Drilling and Gas Monitoring Program</i> , dated March 2009, including the <i>Response to Submissions</i> , dated June 2009.
EA – Mod 1	Environmental Assessment, titled <i>Illawarra Coal Seam Gas Exploration Drilling and Gas Monitoring Program – Proposed Additional Borehole Site AI19</i> , dated January 2011
Incident	A set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits/criteria in this approval
OEH	Office of Environment and Heritage
Project	The project described in the EA
Proponent	Apex Energy NL, or its successors in title
RTA	Roads and Traffic Authority
Site	Land as identified in Schedule 1 (also see Appendix 1)
SCA	Sydney Catchment Authority
WCC	Wollongong City Council

ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of the project.

TERMS OF APPROVAL

2. The Proponent shall carry out the project generally in accordance with the:
 - (a) EA;
 - (b) EA – Mod 1;
 - (c) statement of commitments; and
 - (d) conditions of this approval.

Notes:

 - The general layout of the project is shown in Appendix 1.
 - The statement of commitments is reproduced in Appendix 2.
3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
4. The Proponent shall comply with any reasonable and feasible requirement/s of the Director-General arising from the Department's assessment of:
 - (a) any reports, plans, programs, strategies or correspondence that are submitted in accordance with this approval; and
 - (b) the implementation of any actions or measures contained in these reports, plans, programs, strategies or correspondence.

LIMITS ON APPROVAL

5. The drilling and operation of petroleum wells may take place for 3 years from the date of this approval or until the expiry date of Petroleum Exploration Licence No. 442 or Petroleum Exploration Licence No. 444, whichever is the sooner, unless otherwise agreed by the Director-General.

Note: Under this approval, the Proponent is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Director-General and DRE. Consequently, this approval will continue to apply in all other respects other than the right to drill and operate petroleum wells until the site has been properly rehabilitated.

IDENTIFICATION OF BOREHOLE LOCATIONS

6. Prior to commencing construction at each individual borehole surface location, the Proponent shall submit a Site Layout Plan of the borehole surface location to WCC, SCA, OEH, DRE and the Department. The Site Layout Plan must be prepared in consultation with the landowner and include details of:

- (a) the Geographical Positioning System (GPS) co-ordinates for the borehole surface locations;
- (b) the site construction layout and construction footprint;
- (c) the drill rig, wellhead and monitoring compound layout;
- (d) the route of any access roads; and
- (e) initial rehabilitation works following construction.

The Proponent shall provide a copy of this information to the landowner(s) on request.

PROTECTION OF PUBLIC INFRASTRUCTURE

7. The Proponent shall:
- (a) repair, or pay all reasonable costs associated with repairing, public infrastructure (including roads and tracks on SCA and **OEH** land) that is damaged by the project; and
 - (b) relocate, or pay all reasonable costs associated with relocating, public infrastructure that needs to be relocated as a result of the project.

OPERATION OF PLANT AND EQUIPMENT

8. The Proponent shall ensure that all plant and equipment used at the site is:
- (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient condition.

SCHEDULE 3 SPECIFIC ENVIRONMENTAL CONDITIONS

NOISE

Construction and Operation Hours

- The Proponent shall construct and operate the project in accordance with the hours listed in Table 1, except for emergency purposes.

Table 1: Construction and operation hours of the project

Activity	Hours
Construction - vegetation clearing, site establishment and drill assembly/setup - drilling of boreholes AI05 and AI06	Monday – Friday 7:00am to 6:00pm, Saturday 8:00am to 1:00pm and at no time on Sunday and Public Holidays
Construction - drilling of boreholes other than AI05 and AI06	24 hours 7 days per week
Operation - monitoring and flaring	24 hours 7 days per week

However, the Proponent may undertake drilling for boreholes AI05 and AI06 outside the hours in Table 1, if the Proponent has written negotiated noise agreements to extend the hours with the landowners of:

- 304, 311 and 313 Darkes Forest Road for borehole AI05; and
 - 128 Darkes Forest Road for borehole AI06,
- and a copy of these agreements have been forwarded to the Department.

Note: 'Emergency purposes' refers to instances where the cessation of construction activities would have the potential to generate serious harm to the environment or serious safety issues. Should these activities be conducted outside of the hours permitted, a report must be provided to the Department within 7 days of the event containing relevant information and/or data to demonstrate the specific emergency purposes and circumstances at the time.

Impact Assessment Criteria

- The Proponent shall ensure that the noise generated by the project (excluding drilling) does not exceed the noise impact assessment criteria set out in Table 2 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.

Table 2: Impact assessment criteria dB(A)

Location	Day L _{Aeq} (15 minute)	Evening L _{Aeq} (15 minute)	Night	
			L _{Aeq} (15 minute)	L _{A1} (1 minute)
AI05	40	40	36	46
AI06	43	39	34	44

However, the noise limits in Table 2 do not apply, if the Proponent has written negotiated noise agreements to extend the hours with the landowners of:

- 304, 311 and 313 Darkes Forest Road for borehole AI05; and
 - 128 Darkes Forest Road for borehole AI06,
- and a copy of these agreements have been forwarded to the Department.

Notes:

- To interpret the locations referred to in Table 2, see the figure in Appendix 1.
- Noise generated by the project is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

Noise Management Plan

- The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:
 - be prepared in consultation with **OEH** by a suitably qualified expert;

- (b) be submitted to the Director-General for approval prior to the commencement of construction activities at the first borehole site;
- (c) include specific management procedures relating to those boreholes which have the potential to impact on private residences (particularly AI05 and AI06); and
- (d) include a noise monitoring protocol for evaluating compliance with the noise limits in this approval, and for evaluating construction-related noise emissions.

SOIL AND WATER

Pollution of Waters

4. Except as may be expressly provided by an **OEH** Environment Protection Licence, the Proponent shall comply with section 120 of the *Protection of the Environment Operations Act 1997* during the carrying out of the Project.

Water Management Plan

5. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must:
 - (a) be prepared in consultation with **OEH** and SCA by a suitably qualified expert;
 - (b) be submitted to the Director-General for approval prior to the commencement of construction activities at the first borehole site;
 - (c) include measures to minimise impacts on surface water quality, including but not limited to:
 - using baffle tanks to contain all drilling fluids during drilling operations;
 - disposing of all drilling fluids and groundwater collected in the baffle tanks at an authorised wastewater treatment facility;
 - ensuring that adequate spill control equipment and materials will be available at drill sites; and
 - a contingency plan to address any groundwater brought to the surface that exceeds the capacity of onsite detention structures, that would avoid discharges from the site (otherwise than in accordance with an **OEH** environment protection licence);
 - (d) include measures to minimise impacts on groundwater quality, including the potential for cross-contamination of aquifers; and

Erosion and Sediment Control Plan

6. The Erosion and Sediment Control Plan must:
 - (a) be consistent with the requirements of *Managing Urban Stormwater: Soils and Construction* manual (Landcom 2004, or its latest version);
 - (b) identify activities that could cause soil erosion and generate sediment;
 - (c) describe measures to minimise soil erosion and the potential for transport of sediment to downstream waters;
 - (d) describe the location, function, and capacity of erosion and sediment control structures; and
 - (e) describe what measures would be implemented to monitor and maintain the structures over time.

Casing of Wells

- 6A. The Proponent must ensure that all exploration wells:
 - (a) are cased with steel to at least 10% of the total depth of the hole and across the full width of the Hawkesbury Sandstone geological layer;
 - (b) have all casing fully cemented from casing shoe to surface, leaving no open annuluses;
 - (c) have a blow-out prevention device on the wellhead secured to the steel casing; and
 - (d) are sealed with cement from the total depth to the surface when exploration is completed and the well is no longer required;
 in order to protect the integrity of any underground aquifers, prevent gas escape and maintain groundwater quality.
- 6B. The Proponent must ensure that, in the case of exploration well AI19, full sealing with cement takes place as soon as practicable after testing is completed and not longer than 8 weeks after completion of drilling; in order to protect the integrity of any underground aquifers, prevent gas escape and maintain groundwater quality.

BIODIVERSITY AND REHABILITATION

Performance Measures – Natural and Heritage Features

- 7A. The Proponent shall ensure that the project does not cause any exceedances of the performance measures in Table 2A, to the satisfaction of the Director-General.

Table 2A: Performance Measures

Biodiversity	
Forest Gully Upland Swamp	Negligible environmental consequences
Threatened species, threatened populations, or endangered ecological communities	Negligible environmental consequences, except under an approved Vegetation Clearing and Rehabilitation Management Plan

Vegetation Clearing and Rehabilitation Management Plan

- 7B. The Proponent shall prepare and implement a Vegetation Clearing and Rehabilitation Management Plan for the project to the satisfaction of the Director-General. The plan must:
- be prepared in consultation with the relevant stakeholders/landowners, by a suitably qualified expert;
 - be submitted to the Director-General for approval prior to the commencement of construction activities at the first borehole site;
 - delineate the exact location of each borehole and areas of vegetation to be cleared, specifically focusing on those boreholes where notable vegetation clearing would be required;
 - provide for the submission of Surface Disturbance Notice/s to the DRE prior to site disturbance;
 - indicate measures that would be followed to ensure all works on land within Dhawaral State Conservation Area would be carried out in accordance with the *Dharawal Nature Reserve and State Conservation Area Plan of Management* (2006), the *National Parks and Wildlife Act 1974*, the *National Parks and Wildlife Regulation 2009* and the *Threatened Species Conservation Act 1995*;
 - describe the procedures that would be implemented for;
 - protection of *Coastal Sandstone Ridgetop Woodland*, *Coastal Sandstone Gully Forest* and *Coastal Upland Swamp*, as far as is practicable;
 - conserving, stockpiling, and reusing disturbed material;
 - protecting vegetation and soil outside the disturbance areas; and
 - undertaking pre-clearance surveys;
 - (f1) describe measures to be implemented to protect the threatened species *Pultenaea aristata* during construction, operation and rehabilitation of drillhole AI19, including, but not limited to:
 - avoiding and minimising impacts on individuals of the species;
 - providing for a suitably qualified expert to be present during the construction of the access track and preparation of the drillhole site; and
 - retaining a stubble and the rootstock of any individuals located on the access track or borehole site;
 - describe the procedures for revegetating and rehabilitating the areas of disturbance; and
 - provide completion criteria, including a monitoring timetable, and measures that would be implemented to ensure the criteria are achieved.
- 7C. Biodiversity Offset Strategy
- The Proponent shall prepare and implement a biodiversity offset strategy to compensate for the impact of the project on *Pultenaea aristata* and its habitat. The offset strategy must:
 - be prepared in consultation with OEH and to the satisfaction of the Director-General within five (5) years from the date of the completion of drilling of AI19 and must be implemented according to its terms;
 - have regard to the principles for the use of biodiversity offsets in NSW (*Principles for the use of biodiversity offsets in NSW*, OEH June 2011), or any document which has replaced it at the relevant time;
 - make suitable arrangements to protect and manage the offset area in perpetuity; and
 - include appropriate measures for the funding and management of offsets.

An independent ecologist must be present during work and record numbers of individuals damaged.
 - A biodiversity offset strategy prepared in accordance with subclause (a) in respect of this site may be part of a broader biodiversity offset strategy covering the site and land outside the site. (*For example, if a broader biodiversity offset strategy is required as a result of any approval granted for a gas production facility resulting from the drilling of the exploratory wells.*)

7. Unless otherwise agreed by the Director-General, the Proponent shall progressively rehabilitate all surface borehole locations and any other parts of the site impacted by the project to the satisfaction of the Director-General and **DRE**.
8. The Proponent shall fully seal and rehabilitate all boreholes, to the satisfaction of the Director-General and **DRE**, no longer than 5 years after drilling of the final (16th) borehole is completed, unless a project application related to gas production is submitted to the Department by that date.
- 8A. The Proponent must ensure that, in the case of exploration well AI19, rehabilitation of the drill site and associated access road is completed within 8 weeks after completion of borehole sealing, to the satisfaction of the Director-General.

AIR QUALITY

Impact Assessment Criteria

9. The Proponent shall ensure that the dust and particulate emissions generated by the project do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 3, 4 and 5 at any residence on, or on more than 25 percent of, any privately owned land.

Table 3: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³

Table 4: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³

Table 5: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS 3580.10.1-1991: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

Air Quality & Greenhouse Gas Management Plan

10. The Proponent shall prepare and implement an Air Quality & Greenhouse Gas Management Plan for the project to the satisfaction of the Director-General. This plan must:
 - (a) be prepared in consultation with **OEH**;
 - (b) be submitted to the Director-General for approval prior to the commencement of construction activities at the first borehole site;
 - (c) include a Borehole Testing and Flaring Management Plan; and
 - (d) describe how the Proponent will implement all feasible and reasonable measures to minimise energy use onsite and greenhouse gas emissions produced onsite.

TRAFFIC AND TRANSPORT

Traffic Management

11. The Proponent shall ensure that:
 - (a) safe access to the sites is provided from public roads;
 - (b) traffic movements are restricted to existing or specifically constructed tracks;
 - (c) specific traffic arrangements as identified in the Traffic Impact Summary in the EA and the Traffic section of the EA – Mod 1 are implemented; and
 - (d) if road closure is required an approval is obtained from WCC.
 to the satisfaction of the Director-General.

WASTE MINIMISATION

12. The Proponent shall:
 - (a) ensure no waste is disposed of on site;
 - (b) implement reasonable and feasible measures to minimise waste generated by the project; and
 - (c) ensure disposal of wastes occurs at appropriately approved waste disposal facilities.

BUSHFIRE MANAGEMENT

13. The Proponent shall take all reasonable measures to prevent the ignition and/or spread of bushfires, in accordance with the *Schedule of Onshore Petroleum Operations and Production Safety Requirements* (1992).

SCHEDULE 4

ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
 - (a) be submitted to the Director-General for approval prior to the commencement of construction activities at the first borehole;
 - (b) provide the strategic framework for environmental management of the project;
 - (c) identify the statutory requirements that apply to the project;
 - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
 - (e) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the project;
 - respond to any non-compliance;
 - respond to emergencies; and
 - (f) include:
 - copies of the various strategies, plans and programs that are required under the conditions of this approval once they have been approved; and
 - a clear plan depicting all monitoring currently being carried out within the project area.

Annual Reporting

2. Within 12 months of the date of this approval, and annually thereafter, the Proponent shall submit an AEMR to the Director-General, **DRE**, **OEH**, SCA and any other relevant agency. This review must:
 - (a) identify the standards and performance measures that apply to the project;
 - (b) describe the works carried out in the last 12 months, and the works that are proposed to be carried out in the next 12 months;
 - (c) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
 - (d) include a comprehensive review of the monitoring results for the project during the past year;
 - (e) include an analysis of these monitoring results against the relevant:
 - statutory requirements, impact assessment criteria/limits or performance measures;
 - monitoring results from previous years; and
 - predictions in the EA **and the EA – Mod 1**;
 - (f) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
 - (g) identify any trends in the monitoring data over the life of the project;
 - (h) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
 - (i) describe what measure will be implemented over the next year to improve the environmental performance of the project.

REPORTING

Incident Reporting

3. The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

SCA Reporting

4. The Proponent shall provide SCA with weekly updates of operations of boreholes on SCA land (AI10, AI14, AI16 and **AI19**) and report to SCA on compliance with safeguards and mitigation measures for these boreholes within 3 months of completion of each borehole.
- 4A. The Proponent must notify SCA of incidents occurring within the Special Areas (as defined by the Sydney Water Catchment Management Act 1998, causing or threatening material harm to personnel, the environment or SCA operations as soon as practicable after the Proponent becomes aware of the incident.**

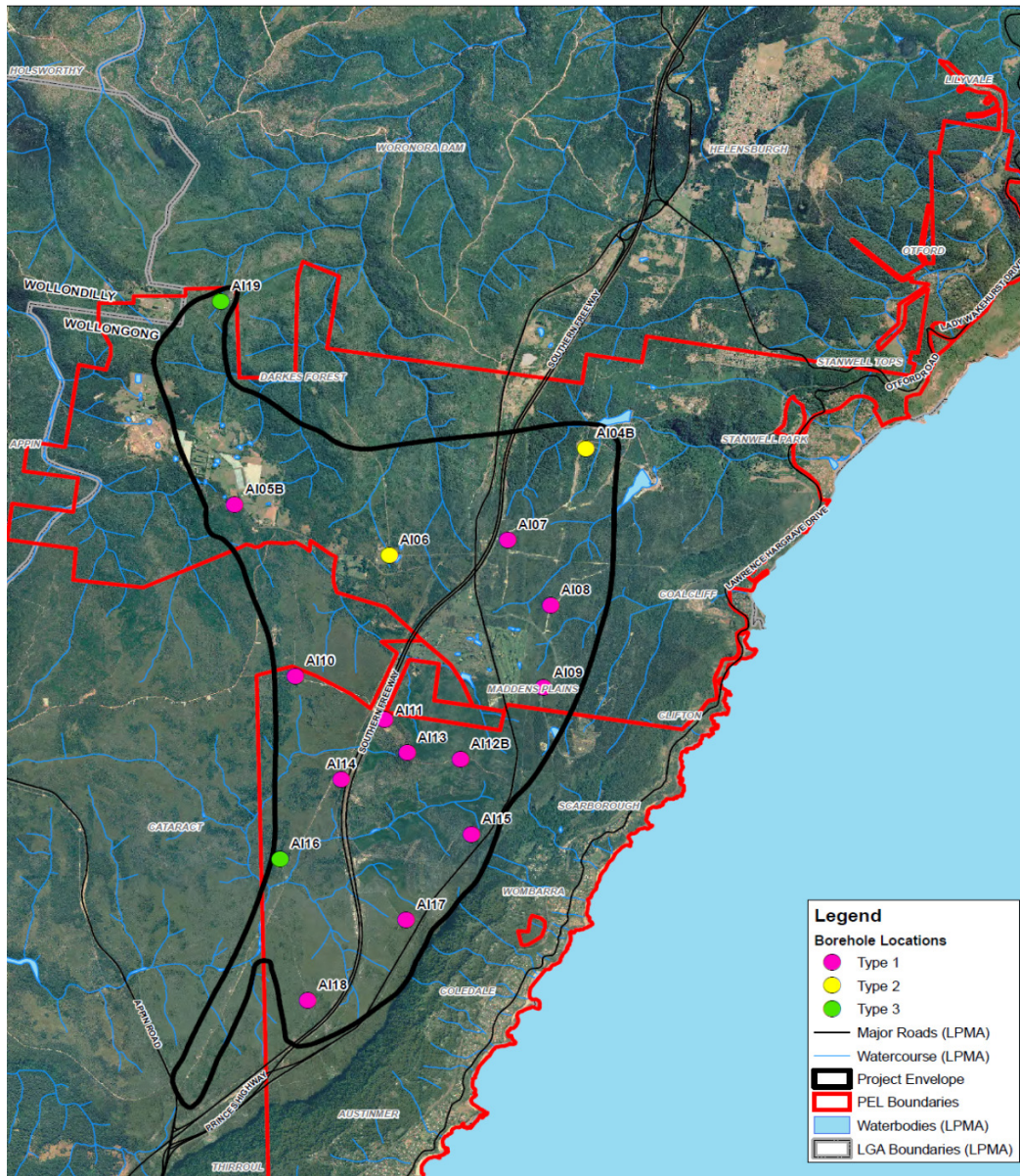
- 4B. The Proponent must meet with SCA prior to the completion of the work period at each site on SCA land to ensure that the site is decommissioned to the satisfaction of SCA and to determine site specific rehabilitation requirements and offset requirements.
- 4C. The Proponent must provide a record of the total volume of groundwater collected from each well to the SCA.

ACCESS TO INFORMATION

5. Within 1 month of the approval of any strategies/plans required under this approval (or any subsequent revision of these strategies/plans) the Proponent shall make the following information publicly available on its website:
- (a) a copy of all current statutory approvals;
 - (b) a copy of the current environmental management strategy and associated plans;
 - (c) a summary of the monitoring results of the project, which have been reported in accordance with the various plans approved under the conditions of this approval;
 - (d) a complaints register, which is to be updated on a monthly basis;
 - (e) a copy of any AEMR; and
 - (f) any other matter required by the Director-General.

APPENDIX 1

MAP OF PROJECT SITE



APPENDIX 2 STATEMENT OF COMMITMENTS

The Statement of Commitments contains all measures Apex has made and will undertake to minimise impacts on the environment, and has been sourced from the Environmental Assessment and Response to Submissions.

Action	Timing
1. During drilling operations actions will be undertaken to protect aquifers from any operational impacts.	During borehole establishment and drilling.
2. Use of any of the boreholes for future gas production is dependent on exploration outcome and appropriate subsequent approvals.	Potential future activity.
3. Holes will require a blow-out prevention (BOP) device on the wellhead which is secured to steel casing cemented in to a depth of at least 10% of the estimated final hole depth and across the Hawkesbury Sandstone Layer, or as required under the Petroleum Act 1991 .	During borehole drilling.
4. Each drill site will be designed in accordance with the specific site requirements. The design will incorporate risk management techniques and will involve input from relevant stakeholders in order to ensure their requirements are met. The pre-establishment liaison and planning will result in a site specific Management Plan that will ensure the site is managed appropriately.	Prior to drilling.
5. Gas flows will occur in accordance with a Well-testing and Flaring Management Plan that will be created using a standard risk management approach including consultation with Government and industry experts. The Well-testing and Flaring Management Plan will be authorised by DPI-Mineral Resources prior to any release of gas.	During gas monitoring.
6. Flaring will be undertaken in a purpose built mobile gas flaring chamber.	During gas monitoring.
7. Apex proposes to undertake additional exploration and gas data acquisition at some time in the near future. This future activity will be dependent on the initial results and involves two main technologies. The first involves zero radius drilling through coal seams from existing core boreholes. The second promotes methanogenic bacteriological activity. These will be subject to further approval in a separate application and assessment process.	Potential future activity.
8. The final location of each borehole will be confirmed after consideration of detailed environmental assessment of each site.	Prior to drilling
9. Apex would liaise with SCA to obtain agreement with a series of requirements to enable the activities to proceed.	Prior to drilling.
10. Boreholes have been sited to minimise vegetation clearing and soil disturbance and compaction.	Completed.
11. Any cleared vegetation and topsoil will be stockpiled and re-spread over the site on completion of operations.	During site clearing.
12. Vehicles will be restricted to defined parking and unloading areas.	During drilling.
13. Exploration hole drilling will require excavation of a sump to collect cuttings and expelled water. Following completion of drilling, the sump will be allowed to settle. The sump would be backfilled with material originally excavated from it and the disturbed area covered with topsoil and any remnant vegetation.	During and immediately following drilling.
14. Following completion of operations all excavations will be backfilled and the site rehabilitated.	Following completion of all operations at each site.

Action	Timing
15. All bores will be cased to protect any higher yielding or higher quality aquifer than the gas producing strata. Apex believes the only aquifer of a critical nature is the Hawkesbury Sandstone which hosts upland swamps.	As required during drilling.
16. Silt fences will be erected where appropriate and maintained until a suitable level of rehabilitation has been achieved. All silt fencing will be removed when no longer required.	Prior to and during drilling.
17. On-site storage of fuel and lubricants will be kept to a minimum and safely stored on site in banded pallets. Hydrocarbon spill kits will be available on site.	During drilling.
18. Drilling equipment will be required to be clean of soil and free of oil leaks prior to entering the site.	Prior to drilling.
19. Any oil leaks that develop will require immediate repair and drilling contractors will be required to have a supply of oil absorbent material on hand.	During drilling.
20. Apex will comply with all legislative requirements in respect of licensing any encountered groundwater resources. In the event of encountering any significant groundwaters/aquifers an application for licensing of a water well would be made.	Prior to and during drilling.
21. Apex will ensure that the drilling fluids are removed from site at the completion of drilling and the water containing KCl disposed of in an appropriate manner.	At the completion of drilling.
22. All packaging, damaged or surplus equipment and drilling supplies will be removed from site prior to or at the completion of operations. Food wastes and similar will be deposited in secure capped bins and removed on a daily basis to maintain hygiene and minimise scavenging by wildlife.	During and immediately following drilling.
23. Fire precautions will include spark arrestors on the drilling rig, and no smoking or sources of ignition within 30m of the wellhead. There will be fire extinguishers on the drilling rig. Apex will provide cleared areas for hot work (grinding, cutting and welding) and a "butt bin" for smoking. All hot work will be done with an observer standing by and fire extinguishers on hand.	During all site activities.
24. A "portaloo" will be installed on site and maintained on a regular basis.	During drilling.
25. Where possible, the drilling activity will occur every day over 24 hours per day.	During drilling
26. Within SCA areas, the site boundary will be marked by coloured tape suspended between steel droppers with warning signs. In open areas Apex will provide temporary security fencing and warning signs around the boundary of each site.	During drilling and gas monitoring.
27. Exploration well testing may produce groundwater from the seams. It is proposed that such water be stored in the ground sumps or in above ground tanks and removed off-site by tanker or temporary above ground poly-pipe. Ultimate disposal will comply with DECC requirements.	During gas testing.
28. All safety and environmental requirements set out in the SCA Access Agreement will be adhered to.	During all site activity.
29. The exploration program will provide details of water quality and quantity to assist planning of any future activities.	Data collection to assist potential future activity.
30. A sedimentation fence will be constructed immediately down slope of the drill sites. The sedimentation fences will be installed in accordance with requirements as described in "Soils and Construction", hip pocket handbook, 1 st Edition, dated March 2004.	Prior to drilling commencing and first stage of site set up.

Action	Timing
31. Should any surface drains and/or sedimentation basins be required during construction, they will be constructed in accordance with the Landcom publication, “Soils and Construction” Volume 1, Fourth Edition, March 2004 ” and the DECC (2008) publication, Managing Urban Stormwater; Soils and Construction - Volume 2A: Installation of Services, Volume 2C: Unsealed Roads and Volume 2E Mines and Quarries.	During site establishment and during drilling and gas monitoring.
32. The construction contractor will prepare a Site Environmental Management Plan that will address site water management details.	Prior to site access.
33. On-site storage of fuel, lubricants, potassium chloride and any other chemicals would be kept to a minimum and these items would be stored in bunded pallets.	During drilling.
34. In the event of a spill of produced groundwater onsite which is not contained within site sumps or above ground tanks, a water quality sampling and testing service would be employed to ensure that any 'normal' stormwater runoff retained by the bund wall has not been contaminated and, if it has, that prompt removal by tanker would occur.	During drilling and gas monitoring.
35. For core drilling sites, where excavated sumps are used for the circulation of drilling fluid, if possible drilling fluid would be confined within the mud pits and temporarily covered with say a tarpaulin so that mixing with stormwater is prevented.	During core drilling.
36. Significant amounts of produced groundwaters which can be confined within on-site tanks or pits would have pH and EC monitored prior to tinkering away off site. All wastewater generated from the borehole drilling activities (apart from that recycled during drilling) must be removed from the drill site and transported for disposal outside of the Special Area.	During drilling and gas monitoring.
37. To assess requirements for management of excessive volumes of produced groundwaters i.e. volumes which have not been successfully confined within on site tanks or pits and are contained behind the site bund wall, water samples would be collected to determine water quality in the event of possible loss of containment. This would be done by measuring pH and EC onsite, and collection by an appropriately trained person of samples to be sent to a NATA-accredited laboratory for determination of key chemical analytes as identified in Table 4.2 of the March 2009 EA.	During drilling and gas monitoring.
38. On demand, water quality sampling and analysis would be conducted in the unlikely event that there is any uncontrolled release from the site water containment system.	During drilling and gas monitoring.
39. There will be no discharge of polluted waters to either surface waters or groundwaters from the site activities.	During site activities.
40. The plant species <i>Darwinia grandiflora</i> was recorded at borehole AI10 within Coastal Upland Swamp. The exact location of this species will be flagged, so it can be adequately protected and avoided by the proposal during and after construction of the borehole. A suitably qualified ecologist will be on site during the initial borehole site set up, to ensure this species is not impacted by the proposal.	Prior to drilling commencing.
41. Apex will adjust the location of boreholes and access tracks to avoid native trees and significant habitat features such as sandstone outcropping, where required.	Prior to drilling commencing.
42. Trees with hollows would be retained and protected, with no drilling within the critical root zone (extending to 2m beyond the drip line) of the trees.	Determined prior to drilling commencing.

Action	Timing
43. Access to boreholes AI10, AI16, and AI18 may require trimming of branches along existing fire trails. Such branch trimming would be limited and restricted to smaller branches that do not support hollows. Should large branches with hollows be required to be removed, a suitably qualified ecologist would be on site during clearing to ensure no resident fauna are harmed. Cleared branches would be placed in adjoining vegetation, as they will provide fauna habitat.	Prior to drilling commencing.
44. Access to boreholes AI10, AI16 and AI18 will involve two creek crossings. These crossings will use established crossings along the established Fire Road 10Q and will not divert into other areas of the creeklines. Caution would be taken to prevent sedimentation run off and minimise disturbance along the creek.	Prior to drilling commencing and during all site activities.
45. Apex shall provide updates (by email or fax) to SCA on the progress of the drilling program on SCA land once per week.	During drilling on SCA land.
46. Where possible, proposed boreholes and access tracks would be located within existing cleared areas.	Prior to drilling commencing.
47. Sediment and erosion control measures would be implemented on all sites to prevent erosion during and after construction.	Prior to and during site activities.
48. Disturbance to native vegetation would be minimised, or, where disturbance is unavoidable, borehole sites would be rehabilitated using locally sourced tubestock and brush-matting. Rehabilitation would be undertaken by suitably qualified bush regenerators.	Prior to, during and after site activities.
49. Where clearing of native vegetation is unavoidable, native shrubs, logs and bush-rock would be stockpiled on the side of the proposed boreholes and access routes and replaced following completion of the works.	Prior to any site clearing.
50. If required, bush regeneration and weed control would be undertaken to ensure the flora and fauna of the locality are protected throughout the construction and operation phases of the proposal. This is particularly important for boreholes where intact native vegetation will be disturbed. Any bush regeneration and weed control would be undertaken by suitably qualified bush regenerators.	Prior to, during and after site activities.
51. Apex will repair any damage NPWS access roads and tracks.	As and if required.
52. Any chemicals used on site would be taken off site after use and disposed of appropriately.	During drilling and gas monitoring.
53. Machinery and vehicles would be washed down prior to use on site to avoid the transmission of weed seed or disease into areas of intact native vegetation.	Prior to machinery and vehicles being used on site.
54. A suitably qualified ecologist would be on site during the initial site set up for each borehole, to ensure significant habitat features and species are not impacted by the proposal.	Prior to drilling commencing and during site confirmation.
55. During construction Apex will ensure that all diesel motors are noise attenuated to minimise noise impacts during construction. Testing operation will be largely inaudible and will not require mitigation.	During drilling and gas monitoring.
56. Within 3 months of the completion of each borehole on SCA land or within any other time agreed to by SCA, Apex will provide a report to SCA detailing compliance with the safeguards and mitigation measures detailed in the EA, EMP and as specified in any conditions of approval.	Within 3 months of the completion of a borehole on SCA land.
57. Apex will install screening of the site compounds to mask visual intrusion into the landscape. This may include measures such as fixing green shade cloth to the compound site fence to merge the bulk of the fence into surrounding vegetation or planting of local native plant species as a screen around the fence where sufficient depth of soil exists.	During site establishment.

Action	Timing
58. No archaeological constraints have been identified within the project study area. Should unanticipated Aboriginal objects be identified during project works, all works should cease in the vicinity of the find and an archaeologist should be called to assess the find.	During all site activities.
59. No historic heritage constraints have been identified within the project study area. Should unanticipated historic relics be identified during project works, all works would cease in the vicinity of the find and an archaeologist would be commissioned to assess the find.	During all site activities.
60. Where necessary, a water cart will be used on site to reduce dust generation.	During site establishment and drilling.
61. Apex will implement appropriate BMP and BATEA practices. They will provide noise barriers at AI05 and AI06 to reduce noise levels experienced at the nearest residences. In addition, they will attempt to negotiate agreements with the affected residents should the barriers not enable the noise criteria to be met.	During site establishment and drilling
62. Appropriate monitoring would be undertaken during drilling operations to confirm that the criteria are being achieved. Should this monitoring demonstrate non-compliance, Apex would undertake investigations and plan actions to ameliorate the non-compliance.	During drilling.
63. Should the approaches described in commitments 61 and 62 not resolve the noise issues, drilling would be limited to those times of day when criteria are met.	During drilling at AI05 and AI06.
64. All construction work (ie. prior to drilling) will be conducted between 7am and 6pm Monday to Friday and between 7am and 1pm Saturdays and at no time Sundays and public holidays, unless inaudible at any residential properties.".	During site construction.
65. Packaging wastes will be separated into metal, wood and other recyclable streams. These separated waste materials will be recycled in an approved manner.	During all site activities.
66. Non-recyclable materials will be collected separately and will be disposed off-site in an approved waste facility.	During all site activities.
67. Wastewater from the temporary site buildings will be collected on-site prior to transport off-site for disposal at an appropriately authorised disposal facility.	During all site activities.
68. Vehicle-servicing wastes will consist of oils and greases together with assorted hydrocarbon containers. Mobile vehicles will not be serviced on site. This will be undertaken at appropriate off-site workshops. Any oils, greases and containers will be collected for recycling.	During all site activities.
69. Adequate spill control equipment/materials shall be available at drill sites.	During drilling and whenever liquids are stored on site.
70. Topsoil from the area surrounding the borehole will be stripped and stockpiled prior to the commencement of drilling. This topsoil will be used to resurface disturbed areas prior to revegetation.	During site establishment.
71. The site will be seeded with native flora species consistent with those currently surrounding the site.	During site rehabilitation at the completion of site activities.
72. Flaring of coal seam gas is proposed for implementation at each of the boreholes. While it is expected that between 90% and 100% of coal seam gas flow will be flared, the potential for some venting directly to the atmosphere exists.	During gas monitoring.
73. Rehabilitation of the borehole sites is required by the PEL. Boreholes that are not required for future gas production would be rehabilitated.	At the completion of site activities.

Action	Timing
74. Apex will instruct all contractors and employees in the procedures for passing through the gates safely.	Prior to accessing each borehole site.
75. Apex shall detail and implement an evacuation and response plan for fire preparedness.	Before and during drilling.
76. Apex or its contractors will notify SCA of incidents causing or threatening material harm to personnel, the environment or SCA operations as soon as practicable after the person becomes aware of the incident.	During drilling operations.
77. Apex will meet with SCA prior to the completion of the work period at each site on SCA land to ensure that the site is decommissioned to the satisfaction of SCA and to determine site specific rehabilitation requirements and offset requirements. General rehabilitation measures are listed in the SCA submission.	After drilling on SCA land.
78. Traffic safety rules and procedures would be developed to ensure public and employee safety during all operational stages of the program.	Prior to accessing each borehole site.