

Environmental Impact Classification
Pursuant to Section 98 of the *Petroleum Act 2000*

**Exploration Drilling and Initial Production Testing within PELs 117, 118, 119, 121, 122,
123 and 124 - Arckaringa Basin, South Australia**

6 November 2007

INTRODUCTION

Pursuant to section 98 of the *Petroleum Act 2000* (the Act) the Minister must classify the regulated activities covered by a prepared Environmental Impact Report (EIR) as either of low, medium or high environmental impact.

The classification must be made on the basis of:

- The prepared EIR;
- Criteria established for classifying the level of environmental impact of regulated activities, a copy of which is found on the PIRSA Petroleum and Geothermal Group (PIRSA) web page:
http://www.pir.sa.gov.au/_data/assets/pdf_file/0008/27728/sigactv6.pdf; and
- Comment received from relevant Government departments in accordance with established administrative arrangements between these departments and PIRSA.

This document summarises the classification made by PIRSA on the proposed exploration drilling (petroleum and coal seam gas) and initial production testing activities within PELs 117, 118, 119, 121, 122, 123 and 124 in the Arckaringa Basin. This classification is based on information provided in the original EIR prepared by RPS Ecos (June 2007).

SUMMARY OF CLASSIFICATION

- 1) From an analysis of the environmental significance of the events and potential impacts associated with the proposed activities against the classification criteria referred to above (assessment provided as Attachment 1), these regulated activities have been classified as **medium environmental impact**.
- 2) The majority of events associated with the proposed drilling and initial production testing activities were assessed to be of low environmental significance. This is due to the temporary duration of the proposed activities, and the fact that appropriate management measures will be implemented by SAPEX to avoid or mitigate any potential environmental consequences. However, PIRSA has classified these activities to be of medium environmental impact due to the large number of stakeholders covered by this proposal.
- 3) For a medium environmental impact classification, PIRSA is required to consult with Planning SA in accordance with the administrative arrangement dated 7 November 2000. Comments received from Planning SA on 30 July 2007 agreed with the medium environmental impact classification.

Pursuant to delegated powers, I hereby classify this regulated activity as **medium environmental impact**.



Barry Goldstein
Director Petroleum & Geothermal
Delegate of the Minister for Mineral Resources Development

Environmental Significance Assessment																	
ACTIVITY:	Drilling, Completion & Initial Production Testing within																
PROJECT:	SAPEX																
ASSESSOR:	Belinda Close																
DATE:	June 2007																
EIR REF	TYPE OF IMPACT	EVENT(S)	POTENTIAL CONSEQUENCES	PREDICTABILITY						MANAGEABILITY						COMMENTS	Environmental Significance
				SIZE	SCOPE	DURATION	FREQUENCY	STAKEHOLDERS	SIGNIFICANCE	AVOIDANCE	PROBABILITY	DURATION	SIZE AND SCOPE	CUMULATIVE EFFECT	STAKEHOLDERS		
	Natural Environment Impacts																
	Soil Impacts																
3.2, 5.1, 5.3.1, Tables 6, 7 & 11, 6.1, 6.6		Earthmoving activities during preparation of drill pad, sump and flare pit, access tracks, camp sites, borrow pits; Heavy vehicle trafficking	Soil erosion; Soil inversion; Soil compaction; Disturbance to soil structure	M	H	M	H	L	4	No	Low			1	Wellsites will be constructed to the minimum size required. Cleared topsoil will be stockpiled separately from fill removed from sumps or pits. Existing roads and tracks will be utilised as far as is practicable. Track width will be restricted to the minimum necessary (less than 6m generally). Location of access tracks will be chosen to avoid steep cuts or fills. Borrow will be sourced preferably from existing borrow pits. If new borrow pits are necessary, they will preferably be located in areas which have been previously disturbed. Stockpiled topsoil will be respread over disturbed area during wellsite reinstatement. Where appropriate, compacted areas will be ripped during reinstatement. Disturbed areas will be reinstated to attain the highest achievable GAS rating as per PIRSA's Field Guide. Consequences unlikely.	LOW	
3.2, 5.3.1, 6.1, Tables 6, 7 & 11		Earthmoving activities; Heavy vehicle trafficking	Disturbance of gibber surface; Erosion of steep slopes and escarpments in Breakaway and Stony Hill land systems.	M	M	M	H	L	4	No	Low			1	Heavy vehicle trafficking and ground disturbing activity is avoided on steep slopes and escarpments in Breakaway and Stony Hill land systems to avoid erosion. Gibber surface within Stony Plains land system. Access tracks on gibber will be rolled in preference to grading to reduce the risk of erosion. In gibber plain areas stockpiled gibber mantle will be respread and rolled (not ripped). In areas with a stony mantle (eg. gibber plain) borrow pits will be located in areas which are relatively flat and low to avoid future erosion.	LOW	
5.3.1, Table 7		Vegetation clearance for wellsite and access tracks	Erosion of dunefields and sand plains	M	M	M	H	L	4	No	Low			1	Dunefields are generally resilient and less likely to suffer long term impacts from soil disturbance. Study of seismic lines in the Cooper Basin concluded that natural rates of erosion on dunes were not accelerated as a result of disturbance to the soil surface (Santos 2003).	LOW	
5.1, 5.3.2, Tables 6, 7 & 11, 6.4		Vehicle movement during construction, drilling and monitoring activities	Soil erosion; Soil inversion; Soil compaction; Wheel tracks	M	H	M	H	L	4	No	Low			1	All vehicles will be required to remain on designated roads and access tracks or parking areas. Where practical, materials will be transported to and from wellsites in bulk, to reduce vehicle movement.	LOW	
5.1, Tables 6 & 11, 5.3.4, 6.4		Blowout or kick during drilling; Equipment or tubular failure; Casing or cement failure	Soil contamination	M	H	H	H	L	4	No	Low			1	Blowout would result in loss of containment of oil, gas, condensate, produced water and drilling fluids. Blowouts are not common. There are considerable safety measures to avoid drilling blowout including guidelines, procedures, m safety practices, design consideration and certification of trained individuals in drilling. The chance of a blowout in completion activities is considerable less because the well is case and the well bore is in a stable condition and down hole pressures are fairly well known.	LOW	
3.3.1, 5.1, 5.3.6, Tables 6 & 11, 6.5, 6.7		Spills and leaks associated with drilling, production testing, oil, fuel and chemical storage, oil transportation, refuelling, use of high pressure hydraulic systems, storage and disposal of drilling and completion fluids	Soil contamination	M	H	H	H	L	4	No	Low			1	Spills can result from human error or equipment failure. All fuel, oil and chemicals will be stored in banded areas in accordance with appropriate standards, including AS1940 and EPA guidelines. Hazardous materials will be transported and disposed of in accordance with appropriate standards and legislative requirements. Appropriate spill response equipment will be available on site. Fuel and oil spills will be reported, chemically treated or bio-remediated and the ground ripped during wellsite reinstatement. Any soil contamination that occurs will be short term as appropriate clean up will be implemented. Emergency response procedures exist and will be tested regularly. Environmental incidents, near misses and hazards will be recorded and analysed.	LOW	
3.3, 5.1, Tables 6 & 11, 5.3.5, 6.3		Disposal of drilling and completion fluids (PFW, oil, condensate) to flare pits during well testing and clean-up; Disposal of drill cuttings and muds	Soil contamination	M	H	M	H	L	4	No	Low			1	Risk of disposal of drilling fluids, cuttings and other fluids associated with completion activities to the unlined earthen drilling sump is considered low. This is due to the low toxicity of additives and the presence of fine bentonite clays which form a relatively impervious mud cake at the base of drilling sumps. These techniques are generally industry standard practice for disposal of non-oil based drilling mud system cuttings. Sumps will be of sufficient size to contain mud discharges. All drill cuttings, muds and drill fluids will be contained within designated mud sumps with adequate freeboard at the completion of operations to allow for at least 1m cover of clean fill.	LOW	
5.1, Tables 6 & 11, 6.4		Fire or explosion during drilling operations	Soil contamination	M	M	H	H	L	4	No	Low			1	The loss and subsequent ignition of a hazardous substance may lead to an explosion or fire. Where required, flare pits will have a suitable fire break around the perimeter.	LOW	
3.7.2, 5.1, 5.3.5, Tables 6 & 11, 6.7		Disposal of domestic and chemical waste; Sewage treatment	Soil contamination	M	H	H	H	L	4	No	Low			1	Putrescible domestic waters (eg. food, paper) created at campsites will be buried on-site or stored on site prior to transportation to a licensed waste disposal facility. Rubbish (including plastics, cans, glass etc) will be transported to a licensed waste disposal facility. Campsite wastewater will be disposed of in accordance with the Public and Environmental Health (Waste Control) Regulations 1995. The wastewater disposal system will either comply with the appropriate SA Standard or be operated to the satisfaction of the Department of Health. All wastewater disposal systems shall be approved by the Department of Health. Litter will not be left in the work area after completion.	LOW	
	Surface Water Impacts																
5.3.3		Clearance of vegetation during wellsite and access track preparation	Siltation of natural drainage lines and watercourses; destabilisation of creek crossings or watercourses	M	M	M	H	L	4	No	Low			1	Consideration will be given to the location of wellsites and access tracks. During preparation of wellsites and access tracks, particular care will be taken to minimise the clearance of vegetation in heavily wooded areas, eg. Coolibah woodlands that are associated with drainage lines.	LOW	
5.3.1: 6.3		Earthmoving and construction of access roads across watercourses or floodplain crossings	Interruption to surface water flows	L	H	M	H	L	4	No	Low			1	Watercourse or floodplain crossings will be constructed so as to maintain water flows, i.e. culverts may be installed. Sensitive areas will be avoided, eg. GAB Springs.	LOW	
Tables 6 & 11, 6.3		Earthmoving activities during preparation of drill pad, sump and flare pit, access tracks, camp sites, borrow pits; Heavy vehicle trafficking	Disturbance to natural drainage patterns	M	H	M	H	L	2	No	Low			1	Wellsites will be located and orientated to take into account natural drainage patterns (creeks, flood plains, salt lakes). Sumps shall be located so as not to impede or pollute surface drainage. Surface levelling shall be avoided wherever possible or minimised.	LOW	
3.3.1, 5.1, 5.3.6, Tables 6 & 11, 6.7		Spills and leaks associated with drilling, production testing, oil, fuel and chemical storage, oil transportation, refuelling, use of high pressure hydraulic systems, storage and disposal of drilling and completion fluids	Surface water contamination	L	L	H	H	L	4	No	Low			1	Spills can result from human error or equipment failure. All fuel, oil and chemicals will be stored in banded areas in accordance with appropriate standards, including AS1940 and EPA guidelines. Hazardous materials will be transported and disposed of in accordance with appropriate standards and legislative requirements. Appropriate spill response equipment will be available on site. Fuel and oil spills will be reported, chemically treated or bio-remediated and the ground ripped during wellsite reinstatement. Any soil contamination that occurs will be short term as appropriate clean up will be implemented. Emergency response procedures exist and will be tested regularly. Environmental incidents, near misses and hazards will be recorded and analysed. Surface water in region is generally ephemeral and only present following localised rainfall. Some semi-permanent and permanent waterholes. Permanent surface water can be found at points where artesian water flows to the surface, such as pastoral bores of the GAB Springs.	LOW	
5.3.5		Disposal of drilling and completion fluids (PFW, oil, condensate) to flare pits during well testing and clean-up; Disposal of drill cuttings and muds	Surface water contamination	M	L	M	H	L	4	No	Low			1	Risk of disposal of drilling fluids, cuttings and other fluids associated with completion activities to the unlined earthen drilling sump is considered low. This is due to the low toxicity of additives and the presence of fine bentonite clays which form a relatively impervious mud cake at the base of drilling sumps. These techniques are generally industry standard practice for disposal of non-oil based drilling mud system cuttings. Sumps will be of sufficient size to contain mud discharges. All drill cuttings, muds and drill fluids will be contained within designated mud sumps with adequate freeboard at the completion of operations to allow for at least 1m cover of clean fill. Sumps will be located so as not to pollute surface drainage.	LOW	
5.1, Tables 6 & 11, 6.3		Fire or explosion during drilling operations causing uncontrolled release of water and hydrocarbon to surface	Surface water contamination	H	L	H	H	L	4	No	Low			1	The loss and subsequent ignition of a hazardous substance may lead to an explosion or fire. Surface water in region is generally ephemeral and only present following localised rainfall. Some semi-permanent and permanent waterholes. Permanent surface water can be found at points where artesian water flows to the surface, such as pastoral bores of the GAB Springs.	LOW	
5.1, 5.3.5, Table 6, 6.7		Disposal of domestic and chemical waste; Sewage treatment	Surface water contamination	M	H	H	H	L	4	No	Low			1	Putrescible domestic waters (eg. food, paper) created at campsites will be buried on-site or stored on site prior to transportation to a licensed waste disposal facility. Rubbish (including plastics, cans, glass etc) will be transported to a licensed waste disposal facility. Campsite wastewater will be disposed of in accordance with the Public and Environmental Health (Waste Control) Regulations 1995. The wastewater disposal system will either comply with the appropriate SA Standard or be operated to the satisfaction of the Department of Health. All wastewater disposal systems shall be approved by the Department of Health. Litter will not be left in the work area after completion.	LOW	

