

Environmental Impact Classification
Pursuant to Section 98 of the *Petroleum Act 2000*
Geophysical Operations in the Cooper Basin, South Australia
June 2006

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 low, medium or high impact.

The classification must be made on the basis of:

- Criteria established for classifying the level of environmental impact of regulated activities; a copy of which is found on the PIRSA Petroleum Group web page:

<http://www.pir.sa.gov.au/dhtml/ss/section.php?sectID=437&templD=8>

- The prepared Environmental Impact Report (EIR); and
- Comments received from the Department of Environment and Heritage (DEH) and the Department of Water, Land and Biodiversity Conservation (DWLBC) in accordance with established inter-Government Memorandum of Administrative Arrangements.

This document summarises the classification made by PIRSA on the activity of seismic operations undertaken in the Cooper Basin, in the north east of South Australia. This classification is based on the information provided in the June 2006 EIR prepared by Santos Ltd.

The EIR assessed here was prepared to satisfy the requirement for the preparation and approval of a Statement of Environmental Objectives (SEO) under Part 12 of the Act for the undertaking of geophysical operations in the Cooper Basin.

SUMMARY OF CLASSIFICATION

1. From an analysis of the environmental significance of the various potential impacts associated with this operation against the classification criteria (as summarised in attachment #1) the activity of seismic operations as described in the EIR has been assessed and classified as low impact.
2. DEH and DWLBC support the low impact classification. In addition, the comments and recommendations provided by these agencies have been embodied in the EIR and the South Australian Cooper Basin Operators Statement of Environmental Objectives: Geophysical Operations (Santos Ltd. 2006).
3. Therefore pursuant to delegated powers dated 25 September 2000 and gazetted 28 September 2001, I hereby classify this regulated activity as low impact.

B A GOLDSTEIN
Director Petroleum and Geothermal
Minerals and Energy Division
Primary Industries & Resources SA
Delegate of the Minister for Mineral Resources Development

16th June 2006

CLASSIFICATION OF THE LEVEL OF IMPACT OF THE ACTIVITY OF GEOPHYSICAL OPERATIONS IN THE COOPER BASIN, SOUTH AUSTRALIA

ASSESSED BY: Rob Langley; Angela Crimes; Xuanyu Yang; Allan Kan:
 COMPILED BY: Allan Kane

<i>Groundwater Impacts</i>																		
EIR p 34, 38, 39, 44, 46, 47, 48		Storage and transportation of domestic wastes	Localised contamination of groundwater	H	H	H	H	H	1	Yes	Low	Short	Small	Small	Low	1	Appropriate procedures and guidelines include: - minimise generation of waste; - providing of suitable covered bins; and - all loads of rubbish leaving camps covered to ensure no spillage;	Low
EIR p 34, 38, 39, 40, 41, 44, 46, 47, 48, 49 SEO App 2		Fuel, oil and other contaminant spills	Localised contamination of groundwater	H	H	H	H	H	1	Yes	Low	Medium	Small	Small	Low	1	Appropriate procedures and guidelines include: - fuel, oil and contaminant spills treated immediately with spill kits; - relevant grounds ripped; and - refuelling stations enclosed in designated areas, away from water courses. Incidents are likely to be of a small scale.	Low
EIR p 40, 48 SEO App 2		Uphole drilling through artesian aquifers	Uncontrolled discharge of groundwater	H	H	H	H	H	1	Yes	Low	Short	Small	Small	Low	1	All holes are to be plugged immediately. Continuous monitoring is required to ensure its effectiveness.	Low
	<i>Flora</i>																	
EIR p 37, 39, 40, 42, 44, 46, 47, 48, 49, 50		Movement of vehicles	Spread of weed species	H	H	H	H	M	2	Yes	Low	Long	Small	Small	Low	1	All vehicle and equipment are washed down prior to entering the Cooper Basin or in known infested locations. Weed management strategies are to be developed by operators and control measures put in place.	Low
EIR p 34, 38, 39, 40, 41, 44, 46, 47, 48, 49 SEO App 2		Fuel, oil and other contaminant spills	Vegetation damage	H	H	H	H	H	1	No	Low	Medium	Small	Small		1	Appropriate procedures and guidelines include: - fuel, oil and contaminant spills treated immediately with spill kits; - relevant grounds ripped; and - refuelling stations enclosed in designated areas, away from water courses. Incidents are likely to be of a small scale.	Low
EIR p 31, 35, 37, 39, 40, 42, 44		Seismic line and access track preparation and restoration	Vegetation damage	H	H	H	H	H	1	No	Med	Medium	Small	Small	Low	3	Appropriate procedures include: - avoiding significant vegetation; - trim (brush cut) rather than clear vegetation in sensitive areas (such as wetlands); - rolling of seismic lines in gibber areas rather than blading, leaving topsoil and seedbanks in place; - facilitate regrowth by respreading vegetation over site; - facilitate regrowth by ripping compacted areas; - windrows pushed onto lines and tracks and resmoothed; - wheel ruts in filled; - creek bank cuts reinstated; and - leaving rootstock in place to facilitate regrowth.	Low
EIR p 31, 35, 37, 39, 40, 42, 44		Movement of vehicles	Vegetation damage	H	H	H	H	H	1	No	Med	Medium	Small	Small	Low	3	Drive only on designated areas (i.e. lease access tracks and seismic lines). Areas of vegetation (for habitats) avoided as much as possible.	Low

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EIR p 30, 33, 40, 42, 47		Campsite preparation and site access	Vegetation damage	H	H	H	H	H	1	Yes	Low	Medium	Small	Small	Low	1	Campsites are selected in clear areas which are naturally devoid of vegetation. Site access impacts are reduced by locating camps adjacent to established tracks and using only these for access.	Low
	Fauna Impacts																	
EIR p 37, 39, 40, 41, 42, 44		Movement of heavy vehicles including camp moves	Disturbance, injury or loss of fauna	H	H	H	H	H	1	No	Low	Short	Small	Small	Low	1	Drive only on designated areas (i.e. lease access tracks and seismic lines). Areas of vegetation (for habitats) avoided as much as possible.	Low
EIR p 37, 39, 40, 42, 44		Movement of heavy vehicles (including campsite moves)	Loss of faunal habitat	H	H	H	H	H	1	No	Low	Short	Small	Small	Low	1	Drive only on designated areas (i.e. lease access tracks and seismic lines). Areas of vegetation (for habitats) avoided as much as possible.	Low
EIR p 33, 37, 38		Campsite preparation and site access	Disturbance, injury or loss of fauna	H	H	H	H	H	1	No	Low	Short	Small	Small	Low	1	Campsites are to be located at least 1 km from stock watering holes to minimise interaction/contact with stock. Camps must not be located near watercourses, creeks or other surface water bodies to minimise interaction/contact with associated fauna.	Low
EIR p 34, 50		Storage and transportation of domestic wastes	Scavenging by pest and native species	H	H	H	H	H	1	Yes	Low	Short	Small	Small	Low	1	Appropriate procedures and guidelines include: - minimise generation of waste; - providing of suitable covered bins; - all loads of rubbish leaving camps covered to ensure no spillage; and - all other wastes managed effectively.	Low
EIR p 34, 50		Storage and transportation of domestic wastes	Pest outbreaks	H	H	H	H	H	1	Yes	Low	Short	Small	Small	Low	1	Appropriate procedures and guidelines include: - minimise generation of waste; - providing of suitable covered bins; - all loads of rubbish leaving camps covered to ensure no spillage; and - all other wastes managed effectively.	Low
EIR p 34, 38, 39, 40, 41, 44, 46, 47, 48, 49 SEO App 2		Fuel, oil and other contaminant spills	Access to contaminants by fauna	H	H	H	H	H	1	Yes	Low	Short	Small	Small	Low	1	Appropriate procedures and guidelines include: - fuel, oil and contaminant spills treated immediately with spill kits; - relevant grounds ripped; and - refuelling stations enclosed in designated areas, away from water courses. Incidents are likely to be of a small scale.	Low
EIR p 35, 37, 40, 44, 48		Uphole drilling and logging	Injury or loss of fauna	H	H	H	H	H	1	Yes	Low	Short	Small	Small	Low	1	Upholes are backfilled and capped to seal to surface level.	Low
EIR p 35, 37, 40, 44, 48		Disposal of uphole cuttings and muds to ground surface	Access to contaminants by fauna	H	H	H	H	H	1	Yes	Low	Short	Small	Small	Low	1	Non-toxic muds used. Uphole cuttings are primarily returned to hole. Any excess cuttings are either collected and disposed of at an authorised facility or are pigmented to match the surrounding terrain.	Low

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		Social Environment																
		Community Resource Impacts																
EIR p 38, 39, 40, 44		Seismic line, access track and camp site preparation and restoration	Damage to third party infrastructure	H	H	H	H	H	1	No	Low	Short	Small	None	None	1	Minimise any disturbance by careful site selection, including: - driving on designated access tracks only; - avoiding homesteads, associated buildings, stockyards, airstrips, dams and tanks.; and - prohibiting lines to be established within 30 m of well heads.	Low
EIR p 38, 39, 40, 44		Movement of vehicles (including camp site moves)	Damage to third party infrastructure	H	H	H	H	H	1	No	Low	Short	Small	None	Medium	1	Drive only on designated areas (ie lease access tracks and seismic lines). Lines and tracks are deviated to miss well heads by 30 m. Traffic is detoured around pipelines or are crossed at authorised points only.	Low
EIR p 38, 39, 40, 44		Line surveying and recording	Damage to third party infrastructure	H	H	H	H	H	1	No	Low	Short	Small	None	Medium	1	Drive only on designated areas (ie lease access tracks and seismic lines). Lines and tracks are deviated to miss well heads by 30 m. Traffic is detoured around pipelines or are crossed at authorised points only.	Low
EIR p 13, 30, 35, 37, 39, 40, 44, 46, 47, 48		Seismic line, access track and camp site preparation and restoration	Loss of visual amenity	H	H	H	H	M	2	No	Med	Short	Small	Medium	Medium	2	Appropriate procedures and guidelines include: - survey lines are prepared to a single blade width of only 4-5 m; - dozers are walked with the blade up to minimise removal of vegetation; - survey lines include weaves to break line of sight (using established vegetation when applicable); - line deviations placed at intersections with public access roads; - dunes adjacent to tourist access routes are not cut; and - other dune cuts are minimised (also to prevent losses of visual amenity to erosion.	Low
EIR p 35, 37, 40, 44, 48		Uphole drilling and logging	Loss of visual amenity	H	H	H	H	H	1	No	Low	Short	Small	Medium	Medium	1	Uphole cuttings are primarily returned to hole. Any excess cuttings are either collected and disposed at an authorised facility or are pigmented to match the surrounding terrain.	Low
EIR p. 34, 38		Litter/rubbish	Loss of visual amenity	H	H	H	H	H	1	Yes	Low	Short	Small	Medium	Medium	1	All litter is to be removed from field sites (especially camp sites).	Low
		Cultural & Heritage Impacts																
EIR p 29, 30, 38, 39, 40, 42, 44		Disturbance during seismic line and access track preparation and restoration	Damage sites of cultural significance	H	H	H	H	M	2	No	Low	Long	Small	None	Medium	1	Cultural heritage surveys are conducted, using experienced anthropologists and people representing the traditional landholders, to identify sites of significance and duly mark them off to prevent disturbance. Most post-settlement cultural sites are in the whole previously established and noted. Crews preparing lines and sites are trained to locate any other possible cultural heritage sites. If any trees are of cultural significance, they are not cleared as Priority 1 plants.	Low
EIR p 33		Campsite preparation	Damage sites of cultural significance	H	H	H	H	M	2	No	Low	Long	Small	None	Medium	1	Campsites are located adjacent to previous tracks which were likely to be encompassed in previous cultural heritage surveys.	Low

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EIR p 30, 38, 39, 40, 42, 44		Movement of vehicles (including camp site moves)	Damage sites of cultural significance	H	H	H	H	M	2	No	Low	Long	Small	None	Medium	1	Access is along prepared lines only which have been altered to avoid cultural heritage sites. At sites of some cultural significance, vehicles are excluded and receiver lines are laid out on foot.	Low
	Community Health & Safety																	
		Movement of vehicles (including camp site moves)	Collisions with other road uses	H	H	H	H	H	1	No	Low	Short	Small	None	None	1	Appropriate procedures and guidelines include: - driver training; - road signage; - 80kmh maximum speed limit for all drivers; and - driving with headlights on compulsory.	Low
EIR p 37			Dust from vehicles decreases visibility and increases risk of vehicle collisions	H	H	H	H	H	1	No	Low	Short	Small	None	Medium	1	Susceptible tracks are avoided. Driving into dust is a dismissible offence for all employees in the Cooper Basin. Any stakeholder concerns are addressed.	Low
EIR p 38, 39, 40, 44, 46		Seismic line, access track and camp site preparation and restoration	Increased public access to remote areas with increased risk of road accidents	H	H	H	H	H	1	No	Low	Short	Small	None	None	1	Appropriate procedures and guidelines include: - seismic lines intersecting public access roads are disguised by use of line deviations or vegetation communities are used as screens; - no line preparation on dunes adjacent to public roads; - windrows and shoulders are reinstated after work has been completed; and - lines adjacent to public roads blocked off with timber obstructions.	Low
EIR p 38, 39, 40, 44, 46		Seismic line, access track and camp site preparation	Increased public access to remote areas with increased risk of becoming lost	H	H	H	H	H	1	No	Low	Short	Small	None	None	1	Appropriate procedures and guidelines include: - seismic lines intersecting public access roads are disguised by use of line deviations or vegetation communities are used as screens; - no line preparation on dunes adjacent to public roads; - windrows and shoulders are reinstated after work has been completed; and - lines adjacent to public roads blocked off with timber obstructions.	Low
		Fuel and oil spills from tankers carrying fuel to campsites	Danger to health and safety of employees and public	H	H	H	H	H	1	No	Low	Long	Variable	None	Medium	1	Correct transportation procedures are followed. Usually only one tanker used once or twice per survey.	Low
EIR p 34, 37, 38, 39, 44, 47, 48		Movement of vehicles around homesteads	Airborne dust and noise generation	H	H	H	H	H	1	No	Low	Short	Small	Low	Low	1	Vehicles travel at slow speed in the vicinity of homesteads.	Low

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	Economic Environment																			
	<i>Existing Land Use Impacts</i>																		Appropriate procedures and guidelines include: - fuel, oil and contaminant spills treated immediately with spill kits; - relevant grounds ripped; and - refuelling stations enclosed in designated areas on well drained grounds. Incidents are likely to be of a small scale.	Low
EIR p 24, 39, 40, 44, 47, 48		Fuel, oil and other contaminant spills	Loss of Organic Beef Certification	H	H	H	H	H	1	Yes	Low	Short	Small	None	None	1			Appropriate procedures and guidelines include: - fuel, oil and contaminant spills treated immediately with spill kits (if permitted to do so under NASAA OBE guidelines); - relevant grounds ripped; - refuelling stations enclosed in designated areas on well drained grounds; and - communication of process to landowners. Incidents are likely to be of a small scale.	Low
EIR p 34, 38, 39, 40, 41, 44, 46, 47, 48, 49 SEO App 2		Fuel, oil and other contaminant spills	Access to livestock to contaminants	H	H	H	H	H	1	Yes	Low	Short	Small	None	None	1			Appropriate procedures and guidelines include: - fuel, oil and contaminant spills treated immediately with spill kits; - relevant grounds ripped; and - refuelling stations enclosed in designated areas on well drained grounds. Incidents are likely to be of a small scale.	Low
EIR p 34, 38, 39, 40, 41, 44, 46, 47, 48, 49 SEO App 2		Fuel, oil and other contaminant spills	Disruption to land use (eg grazing)	H	H	H	H	H	1	No	Low	Variable	Variable	None	Medium	2			Appropriate procedures and guidelines include: - fuel, oil and contaminant spills treated immediately with spill kits; - relevant grounds ripped; and - refuelling stations enclosed in designated areas on well drained grounds. Incidents are likely to be of a small scale.	Low
EIR p 38, 40, 44, 46, 47, 48		Movement of vehicles (including campsite moves)	Injury or loss of livestock	H	H	H	H	H	1	No	Low	Short	Small	None	None	1			Drive only on designated areas (i.e. lease access tracks and seismic lines). Campsites are to be located at least 1 km from stock watering holes to minimise interaction/contact with stock.	Low
EIR p 37, 39, 40, 42, 44, 46, 47, 48, 49, 50		Movement of vehicles (including campsite moves)	Introduction & spread of weeds	H	H	H	H	H	1	No	Low	Long	Small	None	None	3			All vehicle and equipment are washed down prior to entering the Cooper and Eromanga Basins or in known infested locations. Weed management strategies are to be developed by operators and control measures put in place.	Low
EIR p 38, 40, 44, 46, 47, 48		Movement of vehicles (including campsite moves)	Disruption to land use (eg grazing and tourism)	H	H	H	H	M	2	No	Low	Short	Small	None	None	1			Drive only on designated areas (i.e. lease access tracks and seismic lines). Work is scheduled to fit in with stock locations and mustering movements	Low

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EIR p 38, 39, 40, 44		Movement of vehicles (including campsite moves)	Damage to third party infrastructure	H	H	H	H	H	1	No	Low	Short	Small	None	None	1	Drive only on designated areas (i.e. lease access tracks and seismic lines). Lines and tracks are deviated to miss well heads by 30 m. Traffic is detoured around pipelines or are crossed at authorised points only.	Low
EIR p 24, 39, 40, 44, 47, 48		Disposal of uphole drill cuttings and muds to ground surface	Loss of Organic Beef Certification	H	H	H	H	H	1	Yes	Variable	Variable	Variable	None	Medium	2	Non-toxic muds used. Uphole cuttings are primarily returned to hole. Any excess cuttings are either collected and disposed of at an authorised facility or are pigmented to match the surrounding terrain.	Low
EIR p 24, 39, 40, 44, 47, 48		Disposal of uphole drill cuttings and muds to ground surface	Access to livestock to contaminants	H	H	H	H	H	1	No	Low	Short	Small	None	None	1	Non-toxic muds used. Uphole cuttings are primarily returned to hole. Any excess cuttings are either collected and disposed of at an authorised facility or are pigmented to match the surrounding terrain.	Low