

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

SACBJV Drilling and Well Operations – Cooper Basin, South Australia

25 August 2003

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:

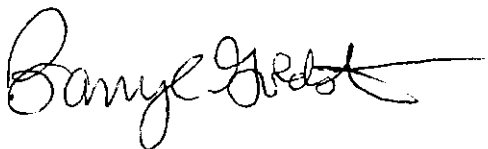
- The prepared Environmental Impact Report (EIR);
- Criteria established for classifying the level of environmental impact of regulated activities, a copy of which is found on the PIRSA Petroleum Group web page: (<http://www.pir.sa.gov.au/dhtml/ss/section.php?sectID=437&tempID=8>); and
- Comments received from Planning SA in accord with established administrative arrangements between Planning SA and PIRSA.

This document summarises the classification made by PIRSA on Santos' Drilling and Well Operation activities in the Cooper Basin. This classification is based on the information provided in the EIR and draft Statement of Environmental Objectives (SEO) dated February 2003 as submitted to PIRSA by Santos on 28 February 2003.

SUMMARY OF CLASSIFICATION

- 1) From an analysis of the environmental significance of the various potential impacts associated with these activities – summarised in attachment #1 against the classification criteria – and due to the scope of the activities being undertaken i.e. as the activities are basin wide, these regulated activities have been classified as **MEDIUM** impact.
- 2) Comments received from Planning SA on 14 August 2003 concur with this classification.

Therefore pursuant to delegated powers dated 28 March 2002 and Gazetted 11 April 2002, I hereby classify these drilling and well operation activities as medium impact.



Barry A. Goldstein
Director Petroleum
Minerals and Energy Division
Delegate of the Minister for Resources Development

| Santos Cooper Basin Drilling and Well Operations SEO Environmental Significance Assessment | | | | | | | | | | | | | | | | | | | |
|--|------------------------------------|--|---|--|-------|----------|-----------|--------------|--------------|---------------|-------------|----------|----------------|--------------------|--------------|--------------|---|----------------------------|--|
| Assessors: Michael Malavazos and Angela Crimes | | | | ABBREVIATIONS: H = High certainty; M = | | | | | | | | | | | | | | | |
| 2003 | | | | PREDICTABILITY | | | | | | MANAGEABILITY | | | | | | | | | |
| REF | TYPE OF IMPACT | EVENT(S) | POTENTIAL CONSEQUENCES | SIZE | SCOPE | DURATION | FREQUENCY | STAKEHOLDERS | SIGNIFICANCE | AVOIDANCE | PROBABILITY | DURATION | SIZE AND SCOPE | CUMULATIVE EFFECTS | STAKEHOLDERS | SIGNIFICANCE | COMMENTS | Environmental significance | |
| | Natural Environment Impacts | | | | | | | | | | | | | | | | | | |
| | Soil Impacts | | | | | | | | | | | | | | | | | | |
| EIR AppE Tab E-1 | | Well site and access track construction and restoration | Soil erosion and/or compaction | H | H | H | H | H | 1 | No | Low | Short | Small | Small | Low | 2 | Management strategies include ripping, appropriate site selection, respreading top soil and stockpiled vegetation, restore natural contours | LOW | |
| SEO 2-7,EIR E-41 | | Well blowdown | Localised contamination of soils | M | H | H | H | H | 2 | No | Low | Short | Small | None | None | 2 | Activity conducted in accordance with accepted standards | LOW | |
| SEO 2-7,Table E-28 | | Spills to land associated with the transport of fuels and chemicals (via truck) | Localised contamination of soils | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | No spills occur outside designated areas, all storage areas bunded, any spills logged and cleaned up | LOW | |
| EIR Table E-44 | | Spills or leaks associated with the transportation of waters from source to well locations | Localised salination and or acidification of the soil | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | New polypropylene pipeline tested to design conditions, immediate cleanup and remediation | LOW | |
| EIR Table E-33 | | Sewerage treatment and disposal to earthen pits | Localised contamination of soils | H | H | H | H | H | 1 | Yes | | | | | | 1 | All sewerage wastes are contained within earthen pits. Pits backfilled upon completion of operations | LOW | |
| EIR Table E-33 | | Storage and transportation of domestic wastes | Localised contamination of soils | H | H | H | H | H | 1 | Yes | | | | | | 1 | All wastes collected in one area of campsite in suitably covered bins. Minimum amounts of waste planned to be generated | LOW | |
| EIR 7.3 p7-12,Table E-5 | | Sump Overflow (jet pump) | Localised contamination of soils | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Jet pumps installed in a containment bund | LOW | |
| EIR 7.3 p7-12,Table E-5 | | Snuffing box failure | Localised contamination of soils | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| SEO App 5,EIR Tables E-3,25 & 26 | | Vehicle movement (including rig moves) | Soil compaction | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Ripping of any compacted soils undertaken during restoration | LOW | |
| SEO App,EIR Table E-3,25 & 26 | | | Soil erosion | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Reforming of soil profile part of restoration process. | LOW | |
| SEO App 7. Table E-5 & E-6 | | Spill associated with service rig equipment (diesel fuel, oils) | Soil contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Ripping of any compacted soils undertaken during restoration | LOW | |
| EIR Table E-14 | | Lubricator failure (Well completion and work over operation) | Soil contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Emergency procedures in place, training, regular maintenance | LOW | |
| EIR Table E-20 | | Spill or leak associated with overflow of drilling, completion or workover fluids in pits on lease (produced formation water, hydrocarbon or chemical) | Soil contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Regular inspections of pits and sumps, adequate freeboard in pits maintained to prevent overflow. In event of spill of leak appropriate procedures are to be followed | LOW | |
| EIR Table E-9 | | Equipment failure | Soil contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR p 81, 99, Table E-27 | | Flooding of surrounding floodplain/watercourses | Soil contamination | H | H | H | H | H | 1 | No | High | Variable | Variable | None | Medium | 4 | Flood management control plan and general fluid containment procedures are in place | MEDIUM | |
| EIR Table E-25 | | Movement of heavy machinery and vehicles along access tracks and well sites | Soil erosion or compaction | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Procedures include ripping compacted areas and re-profiling contours to minimise erosion. | LOW | |
| EIR 4-3, Table E-1 | | Disturbance during construction of well site, well assess track and borrow pits | Soil erosion or compaction | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Ripping of any compacted soils undertaken during restoration, Sites selected to avoid areas with potential to erode (eg slopes in gibber and tableland areas. | LOW | |
| EIR Table E-18 | | Loss of containment of gas or oil while testing | Soil contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted | LOW | |
| EIR Table E-24 | | Disposal of hydrocarbon and formation waters to excavated flare pits during well testing and clean up | Localised soil contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Flare pits fenced if any carry over, Final restoration includes burial of pit with one metre of fill. Flare is kept alight to ensure all hydrocarbon carryover is burnt | LOW | |
| EIR Table E-6 | | Spill associated with the transport oil and condensate (via truck) | Localised contamination of soils | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW | |
| EIR 7.3, Table E-5 & E-6 | | Spills associated with onsite, drilling, completion or workover equipment (diesel fuel, oils) | Contamination of soils | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation | LOW | |
| EIR 7.3, Table E-5 & E-7 | | | Exposure of soils to wind and water erosion | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation | LOW | |

| Santos Cooper Basin Drilling and Well Operations SEO Environmental Significance Assessment | | | | | | | | | | | | | | | | | | |
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| Assessors: Michael Malavazos and Angela Crimes | | | ABBREVIATIONS: H = High certainty; M = | | | | | | | | | | | | | | | |
| 2003 | | | | PREDICTABILITY | | | | | | MANAGEABILITY | | | | | | | | |
| REF | TYPE OF IMPACT | EVENT(S) | POTENTIAL CONSEQUENCES | SIZE | SCOPE | DURATION | FREQUENCY | STAKEHOLDERS | SIGNIFICANCE | AVOIDANCE | PROBABILITY | DURATION | SIZE AND SCOPE | CUMULATIVE EFFECTS | STAKEHOLDERS | SIGNIFICANCE | COMMENTS | Environmental significance |
| EIR 7-7, Table E-8 | | Blowout or kick during drilling | Contamination of soils | H | H | H | H | H | 1 | No | Very Low | Short | Small | None | High | 2 | Never been a blowout in CB. Predictable pressure gradient, considerable guidelines, safety practices and certified training for drillers | LOW |
| EIR 7.4.3. Table E-5 & 6 | | Spill or leak of drilling, production, completion or workover fluids and chemicals (transportation handling and storage) | Contamination of soils | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW |
| EIR 7.4.5. Table E-5 & 6 | | Spill or leak associated with overflow of drilling, completion or workover fluids in pits on lease (produced formation water, hydrocarbon or chemical) | Contamination of soils | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW |
| EIR 7.4.5 Table E-4 & 6 | | Spill or leak associated with service rig fluids and chemicals (via truck and storage and handling at lease) | Contamination of soils | M | H | H | H | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW |
| EIR 7.4 p7-13. Table E-35 | | Disposal and storage of waste (drilling muds etc) | Contamination of soils | H | H | H | H | H | 1 | Yes | | | | | | 1 | Low toxic muds preferred. Wastes covered with one metre of fill | LOW |
| EIR Table 7-4 | | Surface equipment failure | Contamination of soils | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW |
| EIR Table E-6 | | Spills or leaks associated with storage and disposal of oil and gas liquids and other produced fluids | Contamination of soils | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation | LOW |
| EIR Table E-39 | | Spills to creeks associated with the transport of fuels and chemicals (via truck) | Localised contamination of soils | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Strategies such as immediate clean up and remediation, fence of affected areas and following emergency response procedures | LOW |
| EIR Table E-6 | | Disposal of hydrocarbon and formation waters to excavated flare pits during well testing and clean up | Contamination of soils | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Flare pits fenced if any carry over, Final restoration includes burial of pit with one metre of fill. Flare is kept alight to ensure all hydrocarbon carryover is burnt | LOW |
| | Surface Water Impacts | | | | | | | | | | | | | | | | | |
| EIR App E, Table E-1 | | Well site and access track construction and restoration | Siltation of watercourses | H | H | H | H | H | 1 | Yes | | | | | | 1 | Restore natural contours to minimise impacts to natural drainage patterns | LOW |
| EIR App E, Table E-2 | | Well site and access track construction and restoration | Drainage systems blocked | H | H | H | H | H | 1 | Yes | | | | | | 1 | Restore natural contours to minimise impacts to natural drainage patterns | LOW |
| EIR Table 39 P19, E-5 & E-6 | | Spills to land associated with the transport of fuels and chemicals (via truck) | Contamination of watercourses | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW |
| EIR Table 39 P19. Table e-5 & e-6 | | Spills to water associated with the transport of fuels and chemicals (via truck) | Contamination of watercourses | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW |
| EIR Table E-5 | | Sump Overflow (jet pump) | Contamination of watercourses | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Fuel and chemical storage procedures in place, Immediate clean up and remediation implemented | LOW |
| EIR Table 7-4 | | Surface equipment failure | Contamination of watercourses | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW |
| EIR Table E-18 | | Loss of containment of gas or oil while testing | Contamination of watercourses | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted | LOW |
| EIR Table E-39 | | Spills to creeks associated with the transport of fuels and chemicals (via truck) | Contamination of watercourses | H | H | H | H | H | 1 | No | Low | Short | Small | None | High | 4 | Immediate clean up and remediation to minimise contamination. | LOW |
| EIR Table E-8 | | Blowout or kick during drilling | Contamination of watercourses | H | H | H | H | H | 1 | No | Low | Variable | Small | None | High | 4 | Considerable design considerations in place and procedures in place | MEDIUM |
| EIR Table E-12 | | Explosion or fire on lease (during drilling operations) | Contamination of watercourses | H | H | H | H | H | 1 | No | Low | Variable | Variable | None | High | 4 | Many procedures in place to ensure this event is extremely unlikely to occur | MEDIUM |
| EIR Table E-20 | | Spill or leak associated with overflow of drilling, completion or workover fluids in pits on lease (produced formation water, hydrocarbon or chemical) | Contamination of watercourses | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 2 | Procedures include regular inspections of pits and sumps, adequate freeboard maintained in pits and sumps during operations to prevent overflow. | LOW |

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| EIR Table E-5 & E-6 | | Spills associated with onsite, drilling, completion or workover equipment (diesel fuel, oils) | Contamination of watercourses | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 2 | Immediate clean up and remediation | LOW | |
| EIR Table E-9 | | Equipment failure | Contamination of watercourses | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-5 & 6 | | Accidental fuel and oil spills | Localised contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 2 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-10 | | Down hole problems (Lost circulation, sloughing hole, stuck pipe, over pressured) | Localised contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-6 | | Spill associated with the transport oil and condensate (via truck) | Contamination of watercourses | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-5 & 6 | | Spill or leak of drilling, completion or workover fluids and chemicals (transportation handling and storage) | Localised contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Appendix D, 7-5,7-6, Table E-27 | | Flooding of surrounding floodplains/watercourses | Contamination of watercourses | H | H | H | H | H | 1 | No | Medium | S | Wide | None | Medium | 4 | Flood management control plan and general fluid containment procedures are in place. No transportation during flood periods. | MEDIUM | |
| EIR Table E-5 & 6 | | Spill or leak associated with service rig fluids and chemicals (via truck and storage and handling at lease) | Contamination of watercourses | M | H | H | M | H | 1 | No | Low | S | Small | None | Medium | 2 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-5 & 6 | | Spill associated with service rig equipment (diesel fuel, oils) | Contamination of watercourses | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-5 & 6 | | Spills to water associated with the transport of fuels and chemicals (via truck) | Contamination of watercourses | M | H | H | H | H | 2 | No | Low | Short | Small | None | None | 2 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-5 & 6 | | Spills or leaks associated with storage and disposal of oil and gas liquids and other produced fluids | Contamination of watercourses | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 2 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-5 | | Snuffing box failure | Contamination of watercourses | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| | Groundwater Impacts | | | | | | | | | | | | | | | | | LOW | |
| EIR Table E-36 | | Extraction of water from the artesian and sub-artesian reservoirs | Depletion of the GAB and sub-artesian water supplies | M | H | H | H | H | 2 | Yes | | | | | | 1 | Appropriate procedures and guidelines include minimisation of water use and lining of water storage pits to prevent eater loss by infiltration | LOW | |
| EIR Table E-5 & 6 | | Spills to land associated with the transport of fuels and chemicals (via truck) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | Medium | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-35 | | Disposal of drill cuttings and muds to excavated sumps | Localised aquifer contamination | M | H | H | M | H | 2 | Yes | | | | | | 1 | Fencing & lining of sumps, Low toxicity muds and chemicals used. | LOW | |
| EIR Table E-34 | | Sewerage treatment and disposal to earthen pits | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | All sewerage wastes are contained within earthen pits. Pits backfilled upon completion of operations | LOW | |
| EIR Table | | Well blowdown | Aquifer contamination | M | M | M | M | M | 3 | No | Low | Short | Small | None | Low | 2 | Activity conducted in accordance with accepted standards | MEDIUM | |
| EIR Table E-5 | | Sump Overflow (jet pump) | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Appropriate clean up and remediation procedures implemented | LOW | |
| EIR Table E-5 & E6 | | Spill associated with service rig equipment (diesel fuel, oils) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR p 81,99, Table E-27 | | Flooding of surrounding floodplains/watercourses | Aquifer contamination | H | H | H | H | H | 1 | No | High | Variable | Variable | Medium | Medium | 3 | Flood management control plan and general fluid containment procedures are in place. No transportation during flood periods. | MEDIUM | |
| EIR 4.3.1,table E-13 | | Cement Failure | Aquifer contamination | M | M | M | M | M | 3 | No | Low | Short | Small | None | None | 2 | Each well is evaluated separately to determine specific abandonment procedure | MEDIUM | |
| EIR 4.3.1,table E-13 | | | Aquifer pressure reduction | M | H | H | H | H | 1 | No | Low | Short | Small | None | Medium | 3 | Continual development of cementing practices to improve the effectiveness of the cementing process is SOP | MEDIUM | |
| EIR Table E-11 | | Casing Failure | Aquifer contamination | M | M | M | M | M | 3 | No | Low | Short | Small | None | None | 3 | Continuous well maintenance integrity program in place to detect any problems | MEDIUM | |

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| EIR Table E-10 | | Down hole problems (Lost circulation, sloughing hole, stuck pipe, over pressured) | Aquifer pressure reduction | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 2 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-10 | | | Aquifer contamination | M | M | M | M | M | 3 | No | High | Short | Small | None | None | 2 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | MEDIUM | |
| EIR Table E5 & E6 | | Accidental fuel, chemical and oil spills | Aquifer pressure reduction | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-8 | | Blowout or kick during drilling | Localised contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 4 | Appropriate cleanup procedures followed in the event of a spill | MEDIUM | |
| EIR Table E-8 | | | Aquifer contamination | H | H | H | H | H | 2 | No | Low | Short | Small | None | None | 3 | Considerable design considerations in place and procedures in place | MEDIUM | |
| EIR Table E-9 | | Equipment failure | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-9 | | | Uncontrolled release of water and hydrocarbon (liquid and gas) to surface | M | H | H | H | H | 2 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-28 | | Loss of radioactive source | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | Medium, | 3 | Relevant procedures and guidelines include continuous safety monitoring and hole and log is conditioned prior to running any logs and very careful running procedures are followed | LOW | |
| EIR Table E-18 | | Loss of containment of gas or oil while testing | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted | LOW | |
| EIR Table E-18 | | | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted | LOW | |
| EIR Table E-12 | | Explosion or fire on lease (during drilling operations) | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | Medium | 2 | Safety, testing, maintenance and inspection procedures in place. | LOW | |
| EIR Table E-12 | | | Aquifer pressure reduction | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Safety, testing, maintenance and inspection procedures in place. | LOW | |
| EIR Table E5 & 6 | | Spill or leak of drilling, completion or workover fluids and chemicals (transportation handling and storage) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E5 & 6 | | Spill associated with service rig equipment (diesel fuel, oils) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E5 & E6 | | Spills associated with onsite, drilling, completion or workover equipment (diesel fuel, oils) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-20, E-5 & E-6 | | Spill or leak associated with overflow of drilling, completion or workover fluids in pits on lease (produced formation water, hydrocarbon or chemical) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-6 | | Spill associated with the transport oil and condensate (via truck) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-24 | | Disposal of hydrocarbon and formation waters to excavated flare pits during well testing and clean up | Localised aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Flare pits fenced if any carry over, Final restoration includes burial of pit with one metre of fill. Flare is kept alight to ensure all hydrocarbon carryover is burnt | LOW | |
| EIR-42.Table E-15 | | Packer failure (workover and well completion) | Formation crossover (aquifer contamination) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Well integrity every two years. Appropriate procedures for spills | LOW | |
| EIR Table E-16 | | Tubing failure (workover and well completion) | Formation crossover (aquifer contamination) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Relevant procedures and guidelines include regular inspections and drills. Well integrity testing every two years. Production tubulars are 13% chromium to resist corrosion | LOW | |
| EIR Table 7-4 | | Surface equipment failure | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-5 & E-6 | | Spill or leak associated with service rig fluids and chemicals (via truck and storage and handling at lease) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |

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| 2003 | | | PREDICTABILITY | | | | | | | MANAGEABILITY | | | | | | | | | |
| REF | TYPE OF IMPACT | EVENT(S) | POTENTIAL CONSEQUENCES | SIZE | SCOPE | DURATION | FREQUENCY | STAKEHOLDERS | SIGNIFICANCE | AVOIDANCE | PROBABILITY | DURATION | SIZE AND SCOPE | CUMULATIVE EFFECTS | STAKEHOLDERS | SIGNIFICANCE | COMMENTS | Environmental significance | |
| EIR Table E-5 & E-6 | | Spills or leaks associated with storage and disposal of oil and gas liquids and other produced fluids | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR 7.4.1, Table E-33 | | Storage and transportation of domestic wastes | Localised contamination of groundwater | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Appropriate procedures and guidelines include minimise generation of waste, provide suitable covered bins. Cover all loads of rubbish leaving camps to ensure no spillage | LOW | |
| EIR Table E-5 & E-6 | | Spills to water associated with the transport of fuels and chemicals (via truck) | Aquifer contamination | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-37 & E-44 | | Spills or leaks associated with the transportation of waters from source to well locations | Wastage of water | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Polypropylene pipeline minimise loss and tanker, valve and loan out pipe tested to ensure leaks are prevented during transit and transfer | LOW | |
| EIR Table E-5 | | Snuffing box failure | Aquifer contamination | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| | Vegetation Impacts | | | | | | | | | | | | | | | | | | |
| EIR Table E-7 & E1 & E2 | | Movement of soils from borrow pits to drill pads and access roads | Loss of vegetation | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Respread topsoil and stockpile vegetation, reinstate construction areas ASAP. Avoid significant or "priority" vegetation | LOW | |
| EIR Table E-3 | | Vehicle movement (including rig moves) | Spread of weed species | M | M | M | M | H | 2 | No | Low | Short | Small | None | None | 1 | Vehicle and equipment wash down when operations have been undertaken in areas of known infestation | LOW | |
| EIR Table E-3 | | | Vegetation damage | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Drive only on designated areas (ie lease and access tracks) | LOW | |
| EIR App E, Table E-1 | | Well site and access track construction and restoration | Vegetation damage | H | H | H | H | H | 1 | No | High | Small | Small | Low | Low | 2 | Appropriate procedures include avoiding significant vegetation, trim rather than clear vegetation and facilitate regrowth by | LOW | |
| EIR Table E-12 | | Explosion or fire on lease (during drilling operations) | Vegetation damage | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Safe work permit system in place. Training to supervise and instruct people entering lease. Petrol vehicles excluded from site. Procedures include bushfire scenario. | LOW | |
| EIR Table E-41 | | Well blowdown | Loss of vegetation caused by resultant bushfires | H | H | H | H | H | 1 | No | Low | | Small | None | None | 1 | Activity conducted in accordance with accepted standards. Constant supervision in high bushfire areas | LOW | |
| | Fauna Impacts | | | | | | | | | | | | | | | | | | |
| EIR Table E-13 | | Cement failure | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continual development of cementing practices to improve the effectiveness of the cementing process is SOP | LOW | |
| EIR Table E-41 | | Well blowdown | Injury or loss of fauna and faunal habitat | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Activity conducted in accordance with accepted standards. Blowdown pits fenced | LOW | |
| EIR Table E-11 | | Casing Failure | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continuous well maintenance integrity program in place to detect any problems | LOW | |
| EIR Table E-8 | | Blowout or kick during drilling | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | 4 | 3 | Considerable design considerations in place and procedures in place | MEDIUM | |
| EIR Table E-4 | | Creation of Borrow Pits | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Pits are not established in areas which pose an unacceptable hazard to stock or wildlife. Existing unrestored pits are used in preference to establishing new ones | LOW | |
| EIR Table E-9 | | Equipment Failure | Bogging hazard to fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-25 | | Movement of Heavy Vehicles (including rig moves) | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Drive only on designated areas (ie lease and access tracks). | LOW | |
| EIR Table E-10 | | Down hole problems (Lost circulation, sloughing hole, stuck pipe, over pressured) | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-18 | | Loss of containment of gas or oil while testing | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted | LOW | |
| EIR Table E-12 | | Explosion or fire on lease (during drilling operations) | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Safe work permit system in place. Training to supervise and instruct people entering lease. Petrol vehicles excluded from site. Procedures include bushfire scenario. | LOW | |

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| 2003 | | | | PREDICTABILITY | | | | | | MANAGEABILITY | | | | | | | | | |
| REF | TYPE OF IMPACT | EVENT(S) | POTENTIAL CONSEQUENCES | SIZE | SCOPE | DURATION | FREQUENCY | STAKEHOLDERS | SIGNIFICANCE | AVOIDANCE | PROBABILITY | DURATION | SIZE AND SCOPE | CUMULATIVE EFFECTS | STAKEHOLDERS | SIGNIFICANCE | COMMENTS | Environmental significance | |
| EIR 7.4 p7-13, Table E-20 | | Spill or leak associated with overflow of drilling, completion or workover fluids in pits on lease (produced formation water, hydrocarbon or chemical) | Injury or loss of fauna | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Procedures include regular inspections of pits and sumps, adequate freeboard maintained in pits and sumps during operations to prevent overflow. | LOW | |
| EIR 7.4 p7-13, Table E-21 | | | Loss of faunal habitat | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Procedures include regular inspections of pits and sumps, adequate freeboard maintained in pits and sumps during operations to prevent overflow. | LOW | |
| EIR Table E-5 & E-6 | | Spill or leak of drilling, completion or workover fluids and chemicals (transportation handling and storage) | Injury or loss of fauna | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Appropriate guidelines and procedures are in place | LOW | |
| EIR Table E-5 & E-6 | | Spills associated with onsite, drilling, completion or workover equipment (diesel fuel, oils) | Injury or loss of fauna | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Fence contamination areas | LOW | |
| EIR Table E-6 | | Spill associated with the transport oil and condensate (via truck) | Access to contaminants by fauna | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-24 | | Disposal of hydrocarbon and formation waters to excavated flare pits during well testing and clean up | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | Medium | 1 | Flare pits fenced if any carry over, Final restoration includes burial of pit with one metre of fill. Flare is kept alight to ensure all hydrocarbon carryover is burnt | LOW | |
| EIR Table E-5 | | Sump Overflow (jet pump) | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-14 | | Lubricator failure (Well completion and work over operation) | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | Medium | 1 | Immediate clean up and remediation to minimise contamination. Relevant training, regular maintenance and drills are part of procedures and guidelines | LOW | |
| EIR Table E-5 & E-6 | | Spills or leaks associated with storage and disposal of oil and gas liquids and other produced fluids | Injury or loss of fauna | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Fence contamination areas | LOW | |
| EIR Table E-5 & E-6 | | Spill or leak associated with service rig fluids and chemicals (via truck and storage and handling at lease) | Injury or loss of fauna | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR 7.4.1, Table E-33 | | Storage and transportation of domestic wastes | Scavenging by pest and native species | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Minimise generation of waste, Covered bins provided. All load of rubbish is covered when transporting waste | LOW | |
| EIR 7.4.1, Table E-33 | | | Pest outbreaks | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Minimise generation of waste, Covered bins provided. All load of rubbish is covered when transporting waste | LOW | |
| EIR Table E-5 & E-6 | | Spills to water associated with the transport of fuels and chemicals (via truck) | Access to contaminants by fauna | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-35 | | Disposal of drill cuttings and muds to excavated sumps | Access to contaminants by fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Sumps fenced and filled to prevent access to fauna. Final restoration by burial of dried sumps contents with at one metre of cover prior to re-profiling. Use low toxicity chemical alternatives where appropriate | LOW | |
| EIR Table E-1 | | Well site and access track construction and restoration | Impeded faunal movement through construction zone | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Reinstate construction sites, rip areas of compacted soils and restore natural contours to minimise impacts | LOW | |
| EIR Table E-5 | | Snuffing box failure | Injury or loss of fauna | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| | | Sensitive Area Impacts | | | | | | | | | | | | | | | | | |
| | | Social Environment | | | | | | | | | | | | | | | | | |
| | | Community Resource Impacts | | | | | | | | | | | | | | | | | |
| EIR Table E-1 & E2 | | Well site and access track construction 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 | LOW | |
| EIR Table E-25,26 & 3 7 E-26 | | Vehicle movement (including rig moves) | Damage to third party infrastructure | H | H | H | H | H | 1 | No | Low | Short | Small | Low | Medium | 2 | Drive on designated access tracks only. Procedures in place to repair and compensate for damage to third party infrastructure | LOW | |

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| 2003 | | | PREDICTABILITY | | | | | | | MANAGEABILITY | | | | | | | | |
| REF | TYPE OF IMPACT | EVENT(S) | POTENTIAL CONSEQUENCES | SIZE | SCOPE | DURATION | FREQUENCY | STAKEHOLDERS | SIGNIFICANCE | AVOIDANCE | PROBABILITY | DURATION | SIZE AND SCOPE | CUMULATIVE EFFECTS | STAKEHOLDERS | SIGNIFICANCE | COMMENTS | Environmental significance |
| | Cultural & Heritage Impacts | | | | | | | | | | | | | | | | | LOW |
| EIR Table E-1 | | Disturbance during construction of well site, well assess track and borrow pits | Damage sites of cultural significance | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Procedures observed to identify and protect cultural heritage sites. | LOW |
| EIR table E-3 | | Vehicle movement (including rig moves) | Damage sites of cultural significance | M | H | H | M | H | 2 | Yes | | | | | Medium | 2 | Procedures observed to identify and protect cultural heritage sites. Access along prepared access roads only. | MEDIUM |
| | Community Health & Safety | | | | | | | | | | | | | | | | | |
| EIR App D p1, Table E-25 | | Vehicle movement (including rig moves) | Collisions with other road uses | M | M | M | M | H | 2 | No | Low | Short | Small | None | None | 1 | Driver training, road signage, 80kmh maximum speed limit for all drivers, driving with headlights on compulsory. Stakeholders concerned addressed | LOW |
| EIR App D page 2 | | | Dust from vehicles decreased visibility and increases risk of vehicle collisions | M | M | M | M | H | 2 | No | Low | Short | Small | None | Medium | 4 | Driving into dust is a dismissible offence for all employees in Cooper Basin. Stakeholders concerns addressed | MEDIUM |
| EIR App D page 3 | | | Increased public access to remote areas with increased risk of road accidents | M | M | M | M | M | 2 | No | Low | Short | Small | None | None | 4 | Signage placed advising tourists no entry to wellsite access tracks | MEDIUM |
| EIR P92. EIR Table E-5 & E6 | | Spills or leaks associated with storage and disposal of oil and gas liquids and other produced fluids | Danger to health and safety of employees and public | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 3 | Immediate clean up and remediation to minimise contamination. | LOW |
| EIR Table E-38 | | Spills to land associated with the transport of fuels and chemicals (via truck) | Danger to health and safety of employees and public | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Correct transportation procedures are followed | LOW |
| EIR Table E-39 | | | Atmospheric pollution | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW |
| EIR Table E-5 | | Sump Overflow (jet pump) | Danger to health and safety of employees and public | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Appropriate procedures include bunding, installing shut off valves, fencing any contaminated sites and immediate clean up and remediation | LOW |
| EIR p83, E-8 | | Blowout or kick during drilling | Danger to health and safety of employees and public | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 4 | Never been a blowout in CB. Predictable pressure gradient, considerable guidelines, safety practices and certified training for drillers | MEDIUM |
| EIR Table E-9 | | Equipment failure | Danger to health and safety of employees and public | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW |
| EIR Table E-12 | | Explosion or fire on lease (during drilling operations) | Danger to health and safety of employees and public | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Safe work permit system in place. Training to supervise and instruct people entering lease. Petrol vehicles excluded from site. Procedures include bushfire scenario. | LOW |
| EIR Table E-12 | | | Danger to health and safety of employees and public | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Safe work permit system in place. Training to supervise and instruct people entering lease. Petrol vehicles excluded from site. Procedures include bushfire scenario. | LOW |
| EIR Table E-18 | | Loss of containment gas or oil while testing | Atmospheric pollution (gas) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted and appropriate emergency response procedures are followed | LOW |
| EIR Table E-18 | | | Atmospheric pollution (gas) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted. | LOW |
| EIR Table E-5 & E-6 | | Spills and leaks associated with chemical and fuel transportation | Danger to health and safety of employees and public | M | H | H | M | H | 2 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW |
| EIR Table E-5 & E-6 | | Spill or leak of drilling, completion or workover fluids and chemicals (transportation handling and storage) | Danger to health and safety of employees and public | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW |
| EIR Table E-5 & E-6 | | | Atmospheric pollution (gas) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW |

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| 2003 | | | PREDICTABILITY | | | | | | | MANAGEABILITY | | | | | | | | | |
| REF | TYPE OF IMPACT | EVENT(S) | POTENTIAL CONSEQUENCES | SIZE | SCOPE | DURATION | FREQUENCY | STAKEHOLDERS | SIGNIFICANCE | AVOIDANCE | PROBABILITY | DURATION | SIZE AND SCOPE | CUMULATIVE EFFECTS | STAKEHOLDERS | SIGNIFICANCE | COMMENTS | Environmental significance | |
| EIR Table E-13 | | Cement failure | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continual development of cementing practices to improve the effectiveness of the cementing process is SOP | LOW | |
| EIR Table E-13 | | | Loss of reserves and reservoir pressure | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continual development of cementing practices to improve the effectiveness of the cementing process is SOP | LOW | |
| EIR Table E-13 | | | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continual development of cementing practices to improve the effectiveness of the cementing process is SOP | LOW | |
| EIR Table 5 | | Accidental fuel and oil spills | Bogging hazard to stock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Fencing any contaminated area if threat posed to stock or wildlife | LOW | |
| EIR Table E-8 | | Blowout or kick during drilling | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Considerable design considerations in place and procedures in place | LOW | |
| EIR Table E-8 | | Blowout or kick during drilling | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Considerable design considerations in place and procedures in place | LOW | |
| EIR Table E-8 | | Blowout or kick during drilling | Loss of organic beef certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Considerable design considerations in place and procedures in place | LOW | |
| EIR Table E-9 | | Equipment failure | Loss of reserves and reservoir pressure | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-9 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Conduct regular inspections regular maintenance and drills. Training programs. Emergency response procedures. | LOW | |
| EIR Table E-9 | | | Loss of reserves and reservoir pressure | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Conduct regular inspections regular maintenance and drills. Training programs. Emergency response procedures. | LOW | |
| EIR Table E-10 | | Down hole problems (Lost circulation, sloughing hole, stuck pipe, over pressured) | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-10 | | | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Appropriate procedures for spills | LOW | |
| EIR Table E-11 | | Casing Failure | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continuous well maintenance integrity program in place to detect any problems | LOW | |
| EIR Table E-11 | | | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continuous well maintenance integrity program in place to detect any problems | LOW | |
| EIR Table E-11 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continuous well maintenance integrity program in place to detect any problems | LOW | |
| EIR Table E-11 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Continuous well maintenance integrity program in place to detect any problems | LOW | |
| EIR table E-12 | | Explosion or fire on lease (during drilling operations) | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Safe work permit system in place. Training to supervise and instruct people entering lease. Petrol vehicles excluded from site. Procedures include bushfire scenario. | LOW | |
| | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Safe work permit system in place. Training to supervise and instruct people entering lease. Petrol vehicles excluded from site. Procedures include bushfire scenario. | LOW | |
| | | | Loss of reserves and reservoir pressure | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Safe work permit system in place. Training to supervise and instruct people entering lease. Petrol vehicles excluded from site. Procedures include bushfire scenario. | LOW | |
| EIR Table E-18 | | Loss of containment of gas or oil while testing | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted | LOW | |
| | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Constant observation during testing. Operators are trained to handle situations of this type. As soon as any loss is detected the test is aborted | LOW | |
| EIR Table E-5 & E-6 | | Spill or leak of drilling, completion or workover fluids and chemicals (transportation handling and storage) | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-5 & E-6 | | | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-5 & E-6 | | | Disruption to land use (eg grazing) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | | LOW | |

| Santos Cooper Basin Drilling and Well Operations SEO Environmental Significance Assessment | | | | | | | | | | | | | | | | | | | |
|--|----------------|--|---|----------------|-------|----------|-----------|--------------|--------------|---------------|-------------|----------|----------------|--------------------|--------------|--------------|--|----------------------------|--|
| Assessors: Michael Malavazos and Angela Crimes | | | ABBREVIATIONS: H = High certainty; M = | | | | | | | | | | | | | | | | |
| 2003 | | | | PREDICTABILITY | | | | | | MANAGEABILITY | | | | | | | | | |
| REF | TYPE OF IMPACT | EVENT(S) | POTENTIAL CONSEQUENCES | SIZE | SCOPE | DURATION | FREQUENCY | STAKEHOLDERS | SIGNIFICANCE | AVOIDANCE | PROBABILITY | DURATION | SIZE AND SCOPE | CUMULATIVE EFFECTS | STAKEHOLDERS | SIGNIFICANCE | COMMENTS | Environmental significance | |
| EIR Table E-5 & E-6 | | Spill or leak associated with overflow of drilling, completion or workover fluids in pits on lease (produced formation water, hydrocarbon or chemical) | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-5 & E-6 | | | Disruption to land use (eg grazing) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Contaminated area fenced if threat posed to cattle | LOW | |
| EIR Table E-5 & E-6 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Contaminated area fenced if threat posed to cattle | LOW | |
| EIR Table E5,E6 | | Spills associated with onsite, drilling, completion or workover equipment (diesel fuel, oils) | Disruption to land use (eg grazing) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Contaminated area fenced if threat posed to cattle | LOW | |
| EIR Table E-5 & E-6 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Contaminated area fenced if threat posed to cattle | LOW | |
| EIR Table E-5 & E-6 | | | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Contaminated area fenced if threat posed to cattle | LOW | |
| EIR Table E-6 | | Spill associated with the transport oil and condensate (via truck) | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW | |
| EIR Table E-5 & E-6 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW | |
| EIR Table E-24 | | Disposal of hydrocarbon and formation waters to excavated flare pits during well testing and clean up | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Sumps fenced and filled to prevent access to cattle | LOW | |
| EIR Table E-24 | | | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Sumps fenced and filled to prevent access to cattle | LOW | |
| EIR Table E-3 | | Vehicle movement (including rig moves) | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Driving on designated areas only (lease and access tracks) | LOW | |
| EIR Table E-3 | | | Introduction & Spread of weeds | M | M | M | M | H | 2 | No | Low | Short | Small | None | None | 1 | Vehicle and equipment wash down when operations have been undertaken in areas of known infestation | LOW | |
| EIR Table E-3 | | | Disruption to land use (eg grazing and tourism) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Driving on designated areas only (lease and access tracks) | LOW | |
| EIR Table E-3 | | | Damage to third party infrastructure | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Driving on designated areas only (lease and access tracks) | LOW | |
| EIR Table E-27 | | Flooding of surrounding floodplains/watercourses | Damage to petroleum infrastructure (eg flare pits, drilling pits) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Flood management control plan and general fluid containment procedures are in place. No transportation during flood periods. | LOW | |
| EIR Table 4-14 | | Lubricator failure (Well completion and work over operation) | Loss of reserves and reservoir pressure | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, maintenance and drills. In the event of a spill or leak follow appropriate emergency response procedures. | LOW | |
| EIR Table 4-14 | | | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | | LOW | |
| EIR Table E-15 | | Packer failure (workcover and well completion) | Loss of reserves and reservoir pressure | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Regular inspections, regular maintenance and drills. Well integrity every two years. Appropriate procedures for spills | LOW | |
| EIR Table E-16 | | Tubing failure (workcover and well completion) | Loss of reserves and reservoir pressure | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Conduct regular inspections regular maintenance and drills. Well integrity testing every two years | LOW | |
| EIR Table E-5 & E-6 | | Spill or leak associated with service rig fluids and chemicals (via truck and storage and handling at lease) | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Any dry chemicals carried are covered | LOW | |
| EIR Table E-5 & E-6 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. Any dry chemicals carried are covered | LOW | |
| EIR Table E-5 & E-6 | | | Disruption to land use (eg grazing) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-5 & E-6 | | Spill associated with service rig equipment (diesel fuel, oils) | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| EIR Table E-5 & E-6 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |
| | | | Disruption to land use (eg grazing) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW | |

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| 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 EFFECTS | STAKEHOLDERS | | | SIGNIFICANCE |
| | | Spill or leaks associated with storage and disposal of oil and gas liquids and other produced fluids. | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation to minimise contamination. | LOW |
| | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Fencing of effected area, Low toxicity muds and chemicals used. | LOW |
| | | | Disruption to land use (eg grazing) | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Fencing of effected area, Low toxicity muds and chemicals used. | LOW |
| | | Snuffing box failure | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Fencing of effected area, Low toxicity muds and chemicals used. | LOW |
| | | | Access to livestock to contaminants | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Fencing of effected area, Low toxicity muds and chemicals used. | LOW |
| EIR Table E-5 | | Sump Overflow (jet pump) | Access to livestock to contaminants | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Area cleaned up and remediated, Sumps fenced and filled to prevent access to cattle | LOW |
| EIR Table E-5 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Sumps fenced and filled to prevent access to cattle | LOW |
| EIR 7.4 p7-13 | | Disposal of drill cuttings and muds to excavated sumps | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Sumps fenced and filled to prevent access to cattle | LOW |
| EIR 7.4 p7-14 | | | Access to livestock to contaminants | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Area cleaned up and remediated, Sumps fenced and filled to prevent access to cattle | LOW |
| EIR Table E-5 & E-6 | | Spills to land associated with the transport of fuels and chemicals (via truck) | Access to livestock to contaminants | M | M | M | H | H | 2 | No | Low | Short | Small | None | None | 1 | Area cleaned up and remediated, Sumps fenced and filled to prevent access to cattle | LOW |
| EIR Table E-5 & E-6 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW |
| EIR Table E-5 & E-6 | | Spills to water associated with the transport of fuels and chemicals (via truck) | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered | LOW |
| EIR Table E-5 & E-6 | | | Access to livestock to contaminants | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Immediate clean up and remediation. Any dry chemicals carried are covered. Effected areas fenced | LOW |
| EIR Table E-41 | | Well blowdown | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Blowdown pits fenced and filled to prevent access to cattle | LOW |
| EIR Table E-41 | | | Injury or loss of livestock | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Blowdown pits fenced and filled to prevent access to cattle | LOW |
| EIR Table E-1 & E2 | | | Loss of Organic Beef Certification | H | H | H | H | H | 1 | No | Low | Short | Small | None | None | 1 | Rip areas, restore borrow pits, Minimise potential for introduction of weeds by spraying vehicles and equipment | LOW |