

2011 Annual Report PPLs 225, 226 and 227

Santos Operations

This report has been prepared in accordance with the requirements of the Petroleum and Geothermal Energy Act 2000 and the Petroleum and Geothermal Energy Regulations 2000 and covers all of the operations conducted for the PPL 225, 226 and 227 by Santos Ltd during the period 1 January 2011 – December 31 2011.

ANNUAL REPORT - 2011

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ANNUAL REPORT – 2011

PPLs 225, 226 and 227

1. INTRODUCTION

This report covers the activities conducted in Petroleum Production Licence # 225, 226 and 227 (PPL 225, 226 & 227) in the period from 1 January 2011 to 31 December 2011. The PPLs were granted on 16 October 2008, are located in the South Australian section of the Cooper and Eromanga Basins and are operated by Santos Ltd.

This Annual Report was prepared considering the Statements of Environmental Objectives (SEO).

2. EXECUTIVE SUMMARY

There were no serious or reportable incidents or accidents, according to the definitions in the Petroleum Act and Regulations, associated with the activities conducted in PPLs 225, 226 & 227 which resulted in injury or illness to any member of the general public.

The conduct of all operational activity in PPLs 225, 226 & 227 is to the same standards and utilises the systems and procedures in place for Santos operated activity in the Cooper Basin. For specific detail of those this annual report the reader should also refer to the Annual Report of South Australian Cooper Basin Joint Venture Operations.

3. SUMMARY OF REGULATED ACTIVITIES

The following *Regulated Activities* were conducted under the Petroleum license,

- Exploration and appraisal of petroleum.
- Road, track, borrow pit and well lease construction.
- Well drilling operations.
- Operations associated with the production of petroleum, including construction, maintenance, repair and operation of pipelines, facilities and associated infrastructure.

4. PERFORMANCE

The activities covered by this report are administered in accordance with the Petroleum and Geothermal Energy Act 2000, Petroleum and Geothermal Energy Regulations 2000 and the relevant SEO's.

There was good compliance with the requirements of the Act, the Regulations and the SEOs. There were no areas where non-compliance with the relevant legislation or SEOs was identified.

4.1 QUARTERLY PERFORMANCE MEETINGS

Quarterly Performance Meetings between Santos and DMITRE continued during 2011 covering all Santos operational activity in the Cooper Basin. The dates of these meetings are listed in [Appendix 1](#).

5. INCIDENTS

The Petroleum and Geothermal Energy Act 2000 defines all Serious Incidents that are required to be reported promptly to DMITRE. There were no incidents resulting in any injury to any member of the public.

There were no Serious and no immediately Reportable Environmental Incidents recorded during this reporting period in any of PPLs 225, 226 & 227.

5.1 REPORTABLE ENVIRONMENTAL INCIDENTS

Environmental incidents are reported to DMITRE in accordance with the Petroleum legislation.

A Negligible Incident is an incident with minimal impact to the environment, typically with an uncontained hydrocarbon volume less than 200 litres to land. These are reported to DMITRE at the Quarterly Performance meetings listed in [Appendix 1](#). These incidents are subsequently listed on the DMITRE Web-site.

There were no Negligible Incidents reported for any of PPLs 225, 226 & 227 in 2011.

6. MANAGEMENT SYSTEM

Activity in PPLs 225, 226 & 227 is managed to standards that apply to SACBJV activity. These are fully reported in the 2011 SACBJV Annual Report and in some cases meaningful data or information are not possible given the low level of activity in these PPLs compared to all SA Cooper Basin activity. A summary of key elements is repeated in this report.

6.1 ENVIRONMENT, HEALTH & SAFETY MANAGEMENT SYSTEM (EHSMS)

The implementation, monitoring and review of the Santos Environment, Health and Safety Management System (EHSMS) continued as an organisational priority during 2011. Implementation was monitored and communicated to PIRSA at quarterly meetings. Management standards performance was further validated by the use of internal auditors to monitor improvement initiatives highlighted by the EHSMS audit and assessment program.

The EHSMS contains both management standards and hazard standards. The management standards provide a framework for the sustainable achievement of acceptable EHS outcomes, whilst the hazard standards provide a clear process for control of hazards that are specific to Santos' business.

The new Work Health Safety Act and Regulations have been reviewed and a gap analysis completed on the EHSMS in preparation of the introduction in SA.

6.1.1 Management Standards

Further implementation of management standards continued throughout 2011. Process safety (the prevention of high consequence/low frequency events involving sudden loss process fluids/gasses) standards continue to be embedded into the business. Process Safety data continues to be collected and analysed. Trending information is fed back through the monthly Eastern Australia leadership committee. There were 10 management standards amended and updated in 2011– Objectives and Targets; EHS Improvement Plans; Mechanical Integrity; Management System Audit and Review. A significant review was undertaken on Contractor Management and the standard is being updated to improve processes and procedures.

6.1.2 Hazard Standards

Further development and implementation of hazard standards progressed in 2011. The following standards were updated: Land Transportation; Working in Hot Environments; Chemical Management and Dangerous Goods; Asbestos

Implementation of the health and well-being hazard standard continued, with significant focus on workforce health awareness and education. A specific program was put in place for high risk individuals, staff with 5 health risks from previous health check were offered personal health coaching (this commenced in 2010). Drug and alcohol testing continued in 2011 with employees and contractors at all field and office locations being subject to random, for cause and post incident testing. Results indicate a very low failure rate. A fatigue management program was implemented in 2009, including awareness programs, self-management tools and reporting protocols. This program continued in 2011 with refresher awareness sessions in the office, field and specific work on reviewing rosters in the field.

In 2011, sites continued to identify and focus on their 'top 5' hazards standards. These standards were aligned with their Significant Hazard Risk Register, to ensure a constant site-based focus on the most significant hazards. During 2011, sites continued to review and update their Significant Hazard Risk Registers and their top 10 risks and controls were reported back through the monthly Eastern Australia leadership committee meetings.

6.1.3 Training and Awareness

A new program was launched in 2010 to raise the awareness of high risk safety activities. The Santos Lifesaver Program consisted of 10 topics – Working with Electricity, Excavation, Working with Hydrocarbons, Driving Vehicles, Working at Heights, Lifting, Confined Space Entry, Working in the Heat, Management of Change and Start-up process Safety. This program continued in 2011 with a different approach to raising awareness. Santos developed a number of Santos DVDs to educate the workforce on the lifesaver topic. The program also contained a toolbox talk, promotional material (displays, posters, sticker and screen saver), quiz, workplace inspection and audit. This program continues to be successful in raising the level of awareness and resulted in an increase in hazard reporting on these topics.

In 2010, an on-line risk management training program was developed. This program provides an understanding of risk management, basic principles and practical application. This on-line training was rolled out during 2011.

6.2 AUDITS, ASSESSMENTS AND REVIEW PROCESSES

The following summarises some of the Audit and Review processes used to determine system conformance, effectiveness and fitness for purpose.

The EHSMS Audit and Review process was developed to drive the effective implementation of the EHSMS. Detailed Audit Guides were developed for each standard and these were used by internal and external certified auditors to determine the status of conformance across all management standards. Each site/area received an audit or progress review and received a report which provided an overview of conformance against relevant requirements of each management

standard and implementation of key hazard standard indicators. Where a requirement was not at full conformance, the report detailed the corrective action required to achieve full conformance. In 2011, internal auditors were primarily used to conduct audits and progress reviews.

Results of audits and progress review reports were tabled at Eastern Australia Leadership and Site Committee meetings for discussion and tracking of actions. The audit findings were also presented at the Environment, Health, Safety and Sustainability Board meeting.

In 2008 we started to report, investigate and record any High Potential Incidents (HiPos) that occurred within the company. A HiPo is defined as any incident that had potential to result in a fatality. Tracking and reporting HiPos has given the company another avenue to learn from incidents and improve our overall safety performance. The tracking of HiPos continued in 2011, and was reported to senior management on a regular basis.

7. REASONABLY FORESEEABLE THREATS

There were no serious threats identified due to activities conducted in these licence areas during the reportable period.

7.1 RISK ASSESSMENT

Risks are managed to as low as reasonably practicable (ALARP). The outcomes of any risk review regarding SACBJV activities are applied to PPL 225, 226 & 227 activities.

7.1.1 Pipelines

Management of pipeline integrity occurs by targeting pipeline systems and associated equipment which are high risk or near the end of design life (Risk Based Inspection (RBI) approach). Main targets of Pipeline Integrity Management are:

- Re-direction of pipeline operating risks to ALARP
- Address safety risks
- Maintain integrity of ageing pipeline network
- Standards compliance
- AIMS (Asset Integrity Management System) compliance

AIMS is the framework used within Pipeline Integrity to provide effective through-life integrity management of pipeline assets to meet operational availability, as well as achieving statutory and corporate compliance with Safety, Health and Environment

8. EMERGENCY RESPONSE

An Emergency Response Plan (ERP) was developed for activities in South Australia, including PPLs 225, 226 & 227. In the event of an incident, resources would be mobilised to assist.

8.1 EMERGENCY RESPONSE CAPABILITY

Santos maintains a dedicated emergency response crew at Moomba. This consists of fully trained Emergency Officers (fire crew) and medical response personnel together with a large inventory of emergency response equipment, material and vehicles.

8.2 EMERGENCY RESPONSE PROCEDURES

Santos has developed a Crisis Management Plan that will replace the current Santos Incident Management Plan (SIMP) when the revised EHSMS13 is released as part of the EHSMS Improvement Plan. The SCMP has been developed to reflect the national and international growth of Santos.

Detailed, scenario-based emergency response procedures have been developed and implemented under the Santos Incident Management Plan to guide personnel in emergency incident response.

Emergency response drills are regularly held in order to continuously update plans and maintain a high degree of readiness among personnel.

In the event of the emergency response procedures being used in response to an actual event a debrief of all relevant parties is conducted in order to ensure learnings are incorporated into the plans.

A Business Impact Assessment (IA) has been conducted for Moomba- and Adelaide-based infrastructure in accordance with new Business Continuity Planning arrangements for Santos.

8.3 EMERGENCY RESPONSE DRILLS

While no specific drills were conducted for PPLS 225, 226 & 227 the SACBJV drills cover all activity required to support these PPLs with regard emergency response.

8.4 EMERGENCY RESPONSE

There were no events in any of PPLs 225, 226 & 227 requiring emergency response.

9. GENERAL

9.1 LOCAL COMMUNITY INVOLVEMENT

During this reporting period, Santos continued to be actively involved with the local community associated with various events and issues which impact this community. This involvement ranged from facilitating and participating in local sporting and fund-raising events, to active involvement in various local Committees and groups.

10. SEISMIC EXPLORATION

During report period there was no seismic activity carried out in PPLs 225, 226 & 227.

11. DRILLING AND WELL OPERATIONS

11.1 WELLSITE, CAMPSITE, BORROW PIT and ACCESS TRACK CONSTRUCTION & RESTORATION

During this reporting period one lease was constructed. This is listed in [Appendix 2](#)

No restoration of drilling leases was carried out and no borrow pits were sought by landholders.

Close consultation was maintained with pastoral lessee to ensure their interests remained high in consideration when conducting petroleum activities.

Disturbance to sites of Aboriginal and European heritage was avoided. Santos trained staff is used to scout sites prior to work commencing on the construction of sites and access. Pre clearance of projects is conducted in conjunction with representatives of the Yandruwandha/Yawarrawarrka Native Title Claimant Group.

11.2 DRILLING OPERATIONS

One well was drilled in PPL 226 and none in PPL 225 & 227 during 2011. This is listed in [Appendix 2](#).

11.3 DRILLING ACTIVITY – 2011

No wells are currently planned for 2012.

11.4 WELL COMPLETION, WORKOVER, PRODUCTION, SUSPENSION and ABANDONMENT

There was 1 work-over operation conducted during 2011 in PPL 227, and this is listed in [Appendix 2](#)

No Fracture Stimulation operations were conducted.

At the end of this reporting period, there were 9 oil producing wells.

Environmental Objectives and Performance – Drilling and Well Operations SEO

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 1: Minimise the risk to public and other third parties.</p>	<ul style="list-style-type: none"> ▪ Reasonable measures implemented to ensure no injuries to the public or third parties. 	<ul style="list-style-type: none"> ▪ All employees and contractor personnel complete a safety induction prior to commencement of work in the field. ▪ All employees and contractor personnel undertake a refresher induction every 2 years. ▪ Signage in place to warn third parties of access restrictions to operational areas, with particular warnings when potentially dangerous operations are being undertaken. ▪ Necessary measures (e.g. signage/fencing) taken to prevent the public accessing the wellhead equipment or waste relating to a given well. ▪ Demobilisation inspections undertaken at random to ensure that backfilling and waste removal requirements are met. ▪ Permit to work systems in place for staff and contractors in dangerous situations. ▪ All appropriate PPE (personnel protective equipment) is issued and available as required in accordance with company operating requirements and applicable standards. ▪ Effective Emergency Response Plan (ERP) and procedures are in place in the event of a fire or explosion; Annual exercise of ERP. ▪ Communication of rig moves and other potential hazards to safety associated with drilling and well operations to potentially affected parties prior to commencement of operations. ▪ Compliance with relevant speed restrictions on access roads and tracks. ▪ Reporting systems for recording injuries and accidents in place, and annual (at minimum) review of records to determine injury trends. ▪ Implementation of appropriate corrective actions. ▪ Ensuring safety management plans are updated and reviewed. ▪ Wastewater disposal in accordance with Objective 11. 	<p>There were no injuries to the public or any third parties arising from Drilling and Well operations in 2011.</p> <p>All Santos and Santos Contract employees attend a compulsory safety induction prior to commencing work. Refresher training is provided at regular intervals.</p> <p>Signs are installed at strategic locations in the operating area to deter the public from accessing drilling and production areas and when potentially hazardous tasks are undertaken.</p> <p>A specific Wellsite Permit-to-Work system is used to manage workplace / worksite safety.</p> <p>Personnel are provided with the relevant, approved PPE when undertaking potentially hazardous tasks.</p> <p>Emergency Response Plans and procedures are in place. These procedures are regularly exercised with identified improvements included into the ERPs.</p> <p>Relevant parties are advised of potentially hazardous operations before they are undertaken.</p> <p>An electronic accident and incident recording system is used to report and monitor accidents, incidents and trends.</p> <p>Safety Management Plans, including KPIs, have been developed and introduced by Santos and its contractors. These are regularly reviewed and updated.</p> <p>Emergency Response procedures for well operations were reviewed and updated during this reporting period.</p>

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 2: Minimise disturbance and avoid contamination to soil.</p>	<p><u>Well Site and Access Track Construction</u></p> <ul style="list-style-type: none"> ▪ 0, +1 or +2 GAS criteria are attained for “Minimise impacts on soil” objective as listed in Appendix 1 Table A1 and “To minimise the visual impact” as listed in Appendix 1 Table A2. ▪ No unauthorised off-road driving or creation of shortcuts. ▪ No construction activities are carried out on salt lakes or steep tableland slopes (as defined in EIR). <p><u>Borrow pit construction and restoration</u></p> <ul style="list-style-type: none"> ▪ 0, +1 or +2 GAS criteria are attained for “Minimise visual impacts”, and “Minimise impact on soil” objectives as listed in Appendix 1 Table A3. <p><u>Production Testing/Well Blowdowns</u></p> <ul style="list-style-type: none"> ▪ No soil contamination as a result of production testing or well blowdown operations. 	<p><u>Well Site and Access Track Construction</u></p> <ul style="list-style-type: none"> ▪ Consider alternate routes during planning phase to minimise environmental impacts. ▪ Use existing routes / disturbed ground where practicable. ▪ Gibber mantle on access tracks and well sites (excluding sumps) is not removed where possible, only rolled, in gibber and tableland land systems. Gibber mantle reinstated where appropriate during restoration. ▪ Topsoil stockpiled (including gibber mantle) from sump construction and respread (and gibber recompacted) on abandonment. ▪ The need to traverse sensitive land systems and the methods of managing the impacts must be justified in accordance with company procedures, recorded and available for auditing. <p><u>Borrow pit construction and restoration</u></p> <ul style="list-style-type: none"> ▪ Existing borrow pits to be re-used where practicable. ▪ Siting of new borrow pits to avoid sloped areas and gibber as far as practicable. ▪ Topsoil stockpiled (including gibber mantle) and respread on abandonment (gibber to be recompacted). <p><u>Production Testing / Well Blowdowns</u></p> <ul style="list-style-type: none"> ▪ If appropriate use: <ul style="list-style-type: none"> - impermeable or clay lined flare pit to flare / contain hydrocarbons. - flare tanks. 	<p>Soil disturbance is minimised wherever possible. Rootstock is left intact and top soil is stockpiled for respreading. This is respread during site restoration.</p> <p>Off-road driving is actively discouraged. Alternate routes are considered in planning. Work is restricted to ROW. No construction activity is carried out on salt lakes, steep tablelands or wetland systems. Audits of construction activity are undertaken with high level of performance.</p> <p>Borrow pit construction is minimised by reuse of any suitable existing borrow pit/s. Borrow pits are restored on an ongoing basis to ensure the most time efficient restoration</p> <p>Gas well post fracture stimulation activities remained largely unchanged with dry gas wells typically only flowed 4 to 5 days to atmosphere (flaring where possible) to clean up frac fluids prior to the wells being shut in and connected. Liquids rich gas wells were flowed for similar durations, but were flowed through separators to capture the liquids with the gas going to flare.</p>

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 2 cont: Minimise disturbance and avoid contamination to soil.</p>	<p><u>Fuel and Chemical Storage and Handling</u></p> <ul style="list-style-type: none"> ▪ No spills/leaks outside of areas designed to contain them. ▪ Level of hydrocarbon continually decreasing for in situ remediation of spills. ▪ Soils remediated to a level as determined by the SHI process. ▪ Also refer to Objective 12. <p><u>Waste Disposal (domestic, sewage and sludges)</u></p> <ul style="list-style-type: none"> ▪ All domestic wastes are disposed of in accordance with EPA licensing requirements. ▪ 0, +1 or +2 GAS criteria are attained for “Site to be left in a clean and tidy condition” objective listed in Appendix 1 Table A2. ▪ No spills or leaks from sewage treatment processing. ▪ Refer to Assessment Criteria for Objective 11. 	<p><u>Fuel and Chemical Storage and Handling</u></p> <ul style="list-style-type: none"> ▪ All fuel, oil and chemical storages banded in accordance with the appropriate standards and guidelines e.g. EPA guideline <i>080/07 Bunding and Spill Management</i>. ▪ Records of spill events and corrective actions maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Logged incidents are reviewed annually to determine areas that may require corrective action in order to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Chemical and fuel storage procedures, including signage, are reviewed and monitored in audit process. <p><u>Spill Response / Contingency Planning</u></p> <ul style="list-style-type: none"> ▪ Results of emergency response procedures carried out in accordance with Regulation 31 show that an oil spill contingency plan in place in the event of a spill is adequate and any necessary remedial action needed to the plan is undertaken promptly. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. ▪ Annual spill response training exercise / rehearsal is undertaken. ▪ Spills or leaks are immediately reported and clean up actions initiated. <p><u>Waste Disposal (domestic, sewage and sludges)</u></p> <ul style="list-style-type: none"> ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Approved transportable Aerated Wastewater Treatment Plants (AWTPs) used for rigs/camps (once approved AWTPs are available from a supplier suitable to Santos¹). Interim controls for management of sewage effluent (developed in consultation with the Department of Health) implemented¹. ▪ Use of permanent septic systems with camps where possible ▪ Refer to Objective 11. 	<p>No spills occurred outside areas designed to contain them.</p> <p>SACBJV learnings from Incidents were reviewed to enable improvement strategies to be identified and are applied to PPL 206 and 215 activity.</p> <p>No oil spill is likely to have impacted ground water.</p> <p>Records of spills are maintained.</p> <p>Spills are reported in accordance with legislative and company requirements.</p> <p>Incident registers are reviewed to determine areas requiring improvement and to ensure ongoing improvement.</p> <p>Domestic wastes are disposed of in accordance with EPA License Requirements. Audits identified good Performance</p> <p>Waste bins and containers are covered during Transport</p> <p>New landfill cell completed and approved by EPA</p> <p>Landfill cells are located only at Authorised facilities and are fenced to exclude stock and wildlife</p> <p>There were no incidents at installed sewage disposal Facilities</p>

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 3: Avoid the introduction or spread of pest plants and animals and implement control measures as necessary.</p>	<ul style="list-style-type: none"> ▪ No weeds or feral animals are introduced to, or spread in, operational areas as a consequence of activities. 	<ul style="list-style-type: none"> ▪ Where appropriate a weed and feral animal management strategy is in place (avoidance and control strategies). ▪ Rig and vehicle wash downs are initiated in accordance with the management strategy. 	<p>Weed and feral animal strategies are in place. There is no evidence of the introduction of weeds or feral animals.</p> <p>Vehicles and rig equipment is washed in accordance with the management strategy.</p>
<p>Objective 4: Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.</p>	<p><u>Well Lease and Access Track Construction</u></p> <ul style="list-style-type: none"> ▪ Well sites and access tracks are located and constructed to maintain pre-existing water flows (i.e. channel contours are maintained on floodplains and at creek crossings). <p><u>Drilling Mud Sumps and Flare Pits</u></p> <ul style="list-style-type: none"> ▪ No overflow of drill cuttings, muds and other drilling fluids from mud sumps. ▪ No waste material disposal to sumps and flare pits. <p><u>Well Heads (Oil and Gas Systems)</u></p> <ul style="list-style-type: none"> ▪ No leaks/spills outside of areas designed to contain them. 	<p><u>Well Lease and Access Track Construction</u></p> <ul style="list-style-type: none"> ▪ Sensitive land systems (e.g. wetlands) avoided wherever possible. Where activities are undertaken in or near these areas, appropriate review, assessment and mitigation measures are in place to ensure that surface water flows are maintained and contamination of surface water and groundwater is avoided. <p><u>Drilling Mud Sumps and Flare Pits</u></p> <ul style="list-style-type: none"> ▪ All drill cuttings, muds and non toxic drill fluids are contained within the designated mud sumps with adequate freeboard at the completion of operations to allow for a 1m cover of clean fill at remediation. <p><u>Well Heads (Oil and Gas Systems)</u></p> <ul style="list-style-type: none"> ▪ Where appropriate, imperviously lined well cellars are installed on oil wells. ▪ Bunds / containment devices are installed on gas well skirts. ▪ Well heads shut in and chemicals removed prior to flood events. ▪ Jet pumps are installed within containment device with an adequately sized containment sump. 	<p>Drainage channels and patterns are maintained or restored to minimise impeding or changing natural drainage patterns associated with well leases, access tracks and roads and at creek crossings.</p> <p>Work programs are modified to avoid periods of flooding and other seasonal influences and variations.</p> <p>No overflow of drilling mud sumps occurred. No waste material is disposed of in drilling mud sumps or flare pits. Investigated alternatives for impervious lining for well cellars.</p> <p>Automatic shutdown of wellhead pumps investigated and devices progressively fitted to all beam pumps to shutdown pump if Polished rod packer fails. Wells are shut-in and wellhead equipment is removed in areas to be impacted by flooding. Jet-pumps are installed with 9M3 sumps.</p>

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 4 cont Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.</p>	<p><u>Well Blowdown/Production Testing</u></p> <ul style="list-style-type: none"> ▪ No water (surface or groundwater) contamination as a result of production testing or well blowdown operations. <p><u>Fuel/Chemical Storage and Handling</u></p> <ul style="list-style-type: none"> ▪ No water (surface or groundwater) contamination as a result of fuel or chemical storage and handling. 	<p><u>Well Blowdown/Production Testing</u></p> <ul style="list-style-type: none"> ▪ Activity is conducted in accordance with accepted industry standards / good oilfield practice. ▪ If appropriate use: <ul style="list-style-type: none"> - impermeable / clay lined flare pit - flare tanks - separators - supervision. <p><u>Fuel and Chemical Storage and Handling</u></p> <ul style="list-style-type: none"> ▪ All fuel, oil and chemical storages banded in accordance with the appropriate standards (e.g. AS 1940 and EPA guideline 080/07 <i>Bunding and Spill Management</i>). ▪ Records of spill events and corrective actions maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Logged incidents are reviewed annually to determine areas that may require corrective action in order to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Chemical and fuel storage procedures, including signage, are reviewed and monitored in audit process. <p><u>Waste Management</u></p> <ul style="list-style-type: none"> ▪ Refer to Objective 11. <p><u>Spill Response / Contingency Planning</u></p> <ul style="list-style-type: none"> ▪ Results of emergency response procedures carried out in accord with Regulation 31 show that oil spill contingency plan in place in the event of a spill is adequate and any necessary remedial action needed to the plan is undertaken promptly. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. ▪ Annual spill response training exercise / rehearsal is undertaken. 	<p><u>See Objective 2 above.</u></p> <p>Records of spills are maintained Spills which occurred outside areas designed to contain them are reported at quarterly meetings. Spills are reported in accordance with legislative and company requirements. Incident registers are reviewed to determine areas requiring improvement and to ensure ongoing improvement.</p> <p>Soil removed to land farm in some instances to eliminate contamination. No spill is likely to have impacted ground water.</p> <p>Emergency response procedures for spill response are in place and regularly exercised. Learning from exercises and actual events are included in Plans.</p> <p>Oil Spill Plans are up-to-date and regularly drilled. Spill response equipment and procedures are regularly audited.</p> <p>Regular drills are conducted.</p>

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 5: Avoid disturbance to sites of cultural and heritage significance.</p>	<ul style="list-style-type: none"> ▪ Proposed well sites and access tracks have been surveyed and any sites of Aboriginal and non-Aboriginal heritage identified. ▪ Any identified cultural and heritage sites have been avoided. 	<ul style="list-style-type: none"> ▪ Consultation with stakeholders (i.e. government agencies, landholders etc) in relation to the possible existence of heritage sites, as necessary. ▪ Heritage report forms completed for any sites or artefacts identified, and report forms forwarded to the Aboriginal Heritage Branch, Aboriginal Affairs and Reconciliation Division (AARD). ▪ Survey records are kept and are available for auditing. ▪ Areas requiring remediation which lie outside previously surveyed sites should be surveyed in accordance with company heritage clearance procedures. ▪ A procedure is in place for the appropriate response to any sites discovered during drilling activities. <p><u>Note:</u> Where a negotiated agreement or determination for heritage clearance is in place, compliance with the negotiated agreement or determination takes precedence over the above criteria.</p>	<p>Construction sites are inspected for cultural heritage sites. Identified sites are avoided. Significant sites are fenced.</p> <p>Identified sites are avoided.</p>
<p>Objective 6: Minimise loss of aquifer pressures and avoid aquifer contamination.</p>	<p><u>Drilling & Completion Activities</u></p> <ul style="list-style-type: none"> ▪ There is no uncontrolled flow to surface (blow out). ▪ Sufficient barriers exist in casing annulus to prevent crossflow between separate aquifers or hydrocarbon reservoirs. ▪ Relevant government approval obtained for abandonment of any radioactive tool left downhole. 	<p><u>Drilling & Completion Activities</u></p> <ul style="list-style-type: none"> ▪ A competent cement bond between aquifer and hydrocarbon reservoirs is demonstrated. ▪ For cases where isolation of these formations is not established, a risk assessment incorporating the use of pressure / permeability / salinity data is undertaken in consultation with DLWBC & SAALNRM Board to determine if lack of cement or poor bond will cause or has caused damaging crossflow which needs to be remediated. 	<p>There were no well bore failures reported</p>

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<p>Objective 6 Cont: Minimise loss of aquifer pressures and avoid aquifer contamination</p>	<p><u>Producing, Injection, Inactive and Abandoned Wells</u></p> <p>No cross-flow behind casing between aquifers, and between aquifers and hydrocarbon reservoirs unless approved by DWLBC.</p>	<p><u>Producing, Injection and Inactive Wells</u></p> <ul style="list-style-type: none"> ▪ Monitoring programs implemented (e.g. through well logs, pressure measurements, casing integrity measurements and corrosion monitoring programs) to assess condition of casing and cross-flow behind casing. ▪ Casing annulus pressures are monitored every 2 years. ▪ The condition of the primary casing barrier is adequate. ▪ For cases where crossflow is detected, a risk assessment incorporating the use of pressure / permeability / salinity data is undertaken in consultation with DLWBC & SAALNRM Board to determine if lack of cement or poor bond will cause or has caused damaging crossflow which needs to be remediated. <p><u>Well Abandonment Activities</u></p> <ul style="list-style-type: none"> ▪ Isolation barriers are set in place to ensure that crossflow, contamination or pressure reduction will not occur. ▪ Barriers will be set to meet or exceed the requirements of applicable standards for the decommissioning and abandonment of water bores and abandonment of petroleum wells. <p>The placement of isolation barriers will in general be to isolate the groups of formations as listed under comments. The number and placement of barriers may be varied from this standard approach on a case-by-case basis by Santos personnel using relevant available data and the SA Cooper Basin Water Pressure and Salinity Module Report (2002), and in consultation with DWLBC.</p>	<p>Corrosion monitoring, pressure measurements and casing integrity monitoring programs undertaken on a regular basis. Wells prioritised for remedial action based on condition of casing barriers. Cement bond logs conducted on new wells for baseline indication of cement bond.</p>

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<p>Objective 7: Minimise disturbance to native vegetation and native fauna.</p>	<p><u>Well Lease and Access Track Construction and Restoration</u></p> <ul style="list-style-type: none"> ▪ Any sites with rare, vulnerable and endangered flora and fauna have been identified and avoided. ▪ 0, +1 or +2 GAS criteria are attained for “Minimise impact on vegetation” objective as listed in Appendix 1 Table A1 and “The revegetation of indigenous species” objective as listed in Appendix 1 Table A2, during well lease and access track site selection and construction and restoration. <p><u>Borrow Pit Construction and Restoration</u></p> <ul style="list-style-type: none"> ▪ 0, +1 or +2 GAS criteria are attained for “Minimise impacts on vegetation” objectives as listed in Appendix 1 Table A3 during borrow pit site selection, construction, and restoration. <p><u>Waste Management</u></p> <ul style="list-style-type: none"> ▪ Refer to assessment criteria for Objective 11. <p><u>Fuel and Chemical Storage and Handling</u></p> <p>Refer to assessment criteria for Objectives 2 and 4.</p>	<p><u>Well Lease and Access Track Construction and Restoration</u></p> <ul style="list-style-type: none"> ▪ Proposed well sites, camp sites, access tracks and borrow pit sites have been assessed for rare, vulnerable and endangered flora and fauna species before the commencement of construction. ▪ Consider alternate routes during planning phase to minimise environmental impacts ▪ Sensitive land systems (e.g. wetlands) avoided wherever possible. Where activities are undertaken in these areas (i.e. no practicable alternative), appropriate review, assessment and mitigation measures are in place. ▪ Facilities (e.g. borrow pits, well cellars) are designed and constructed as far as practicable to minimise fauna entrapment. ▪ Sumps and mud pits are fenced as appropriate to minimise wildlife access ▪ Assessment records are kept and are available for auditing. ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve) excavations are left in a state as agreed with the responsible statutory body ▪ Borrow pits are restored to minimise water holding capacity, where agreements are not in place with stakeholders. <p><u>Waste Management</u></p> <ul style="list-style-type: none"> ▪ Covered bins are provided for the collection and storage of putrescible wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Refer to Objective 11. <p><u>Fuel and Chemical Storage and Handling</u></p> <ul style="list-style-type: none"> ▪ Refer to Objectives 2 & 4. <p><u>Fauna Management</u></p> <ul style="list-style-type: none"> ▪ No domestic pets allowed at camps or worksites. <p>Feeding of wildlife (e.g. dingoes) is not permitted.</p>	<p>Study undertaken to determine habitats for rare, vulnerable and endangered species. Areas identified are avoided.</p> <p>Vegetation impacts are minimised during well lease access and construction by scouting surveys prior to the entry of construction machinery. Wherever possible, significant vegetation is avoided.</p> <p>Borrow pit site selection provides for the avoidance of vegetation impacts. Borrow pits are restored on an ongoing basis to allow natural vegetation regrowth to recommence. Where necessary, borrow pits are reopened to minimise vegetation impacts.</p>

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<p>Objective 8: Minimise air pollution and greenhouse gas emissions.</p>	<ul style="list-style-type: none"> ▪ Performance to EPA requirements. 	<p><u>Well Testing</u></p> <ul style="list-style-type: none"> ▪ Conduct well testing in accordance with appropriate industry accepted standards. ▪ Continually review and improve operations. ▪ Appropriate emergency response procedures are in place for the case of a gas leak. <p><u>Well Blowdown</u></p> <ul style="list-style-type: none"> ▪ Blowdown carried out in accordance with industry accepted standards / good production practice. ▪ Any well that is consistently blown down is identified for a small ID tubing or plunger lift installation to minimise blow downs on that well. 	<p>Petroleum engineering activities are continuously reviewed for opportunities to minimise air pollution and greenhouse gas emissions.</p> <p>Emergency response procedures are in place, are regularly tested and improvements identified are included in the plans.</p>
<p>Objective 9: Maintain and enhance partnerships with the Cooper Basin community.</p>	<ul style="list-style-type: none"> ▪ No unresolved reasonable complaints from the community. 	<ul style="list-style-type: none"> ▪ Relevant affected parties are notified and consulted on proposed activities. ▪ Forward development plans are presented to the local community. ▪ Local community projects and events are sponsored and supported where appropriate. ▪ Industry membership of appropriate regional land management committees and boards 	<p>Relevant parties are notified and consulted on proposed activities. There were no complaints, concerns or issues left unresolved.</p> <p>Local community events and activities are actively supported. Membership and active participation is made to regional management committees and Boards.</p>

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<p>Objective 10: Avoid or minimise disturbance to stakeholders and/or associated infrastructure</p>	<ul style="list-style-type: none"> ▪ No reasonable stakeholder complaints left unresolved. 	<ul style="list-style-type: none"> ▪ Induction for all employees and contractors covers pastoral, conservation, tourism, legislation and infrastructure issues. ▪ Relevant stakeholders are notified prior to survey and construction of well sites, camp sites and access tracks and undertaking of operations (pursuant to Regulations). Borrow pits left open (unrestored) if requested by landholder and upon receipt of letter of transfer of responsibility to landholder. ▪ Gates or cattle grids are installed to a standard, consistent with pastoral infrastructure in fences where crossings are required for access. ▪ All gates left in the condition in which they were found (i.e. open/closed). ▪ Potential sources of contamination are fenced as appropriate to prevent stock access. ▪ Excavations are located and managed so as not to pose an unacceptable hazard to stock or wildlife. ▪ System is in place for logging landholder complaints to ensure that issues are addressed as appropriate. ▪ Requirements of the Cattle Care and Organic Beef accreditation programs are complied with. ▪ In recognised conservation reserves (e.g. Innamincka Regional Reserve) excavations are left in a state as agreed with the responsible statutory body (e.g. DENR). 	<p>The importance of developing and maintaining good relationships with landholders is stressed to all employees and contractors. Relevant stakeholders are notified of and consulted about projects and are provided with information, maps etc.</p> <p>No Borrow pits were formally transferred to landholders.</p> <p>Grids, fences, gates installed are to a standard acceptable to the landholder.</p> <p>All gates are left "as found". In response to concerns regarding potential for contamination of cattle an extensive fencing of facilities program was completed in 2005 and continues to be installed and repaired as required</p> <p>Landholder complaints and requests are logged to ensure closeout. There were no complaints lodged. Cattle management systems (cattle care) are recognised and complied with.</p>

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<p>Objective 11: Optimise waste reduction and recovery.</p>	<ul style="list-style-type: none"> ▪ All wastes to be disposed of at an EPA licensed facility in accordance with EPA Licence conditions, with the exception of drilling fluids, drill cuttings, other fluids disposed during well clean-up and wastewater (see below). ▪ Wastewater (sewage and grey water) disposed of in accordance with the <i>Public and Environmental Health (Waste Control) Regulations 1995</i> or to the Department of Health's satisfaction. ▪ Attainment of GAS criteria for "Site to be left in clean, tidy and safe condition" objective during well site restoration (refer Appendix 1 Table A2). ▪ Attainment of GAS criteria for "Site left in clean and tidy condition" objective during borrow pit restoration (refer Appendix 1 Table A3). 	<ul style="list-style-type: none"> ▪ Chemicals and oil are purchased in bulk. "Bulki bins" or other storage tanks are in place for large volume items. ▪ Covered bins are provided for the collection and storage of putrescible wastes. All loads of rubbish are covered during transport to a licensed waste facility. ▪ Waste streams are segregated on site to maximise opportunities for waste recovery, reuse and recycling. ▪ Coordinate covered waste transportation on backload. ▪ Production of waste is minimised by purchasing specifying reusable, biodegradable or recyclable materials in procurement, where practical. ▪ Drilling fluids, drill cuttings and other fluids are disposed of to sump on the Act licence area. ▪ Waste water (sewage) disposal is where possible in accordance with the <i>Public and Environmental Health (Waste Control) Regulations 1995</i> (which require that the waste water disposal system must either comply with the <i>Standard for the Construction, Installation and Operation of Septic Tank Systems in SA</i> or be operated to the satisfaction of the Department of Health) and the <i>Environment Protection (Water Quality) Policy 2003</i>. ▪ Grey water is disposed of to the sewage treatment system. ▪ Secondary treated sewage wastewater is disposed of onto land well away from any place from which it is reasonably likely to enter any waters, and to minimise spray drift and ponding, in accordance with clause 11 of the <i>Environment Protection (Water Quality) Policy 2003</i>. 	<p>Chemicals, cement & inhibitors are purchased in bulk containers. Waste material is disposed of at EPA Approved facilities.</p>

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<p>Objective 12: Remediate and rehabilitate operational areas to agreed standards.</p>	<ul style="list-style-type: none"> ▪ No unresolved reasonable stakeholder complaints. <p><u>Contaminated Site Remediation</u></p> <ul style="list-style-type: none"> ▪ Contaminated sites are remediated in accordance with criteria developed with the principles of the National Environment Protection Measure for Contaminated sites and in consultation with the EPA. <p><u>Well Site and Access Track Restoration</u></p> <ul style="list-style-type: none"> ▪ The attainment of 0, +1 or +2 GAS criteria for: <ul style="list-style-type: none"> - “minimise visual impact of abandoned well sites” - “minimise visual impact of abandoned access tracks” - “re-establish natural vegetation on abandoned well sites and access tracks” <p><u>Borrow Pit Restoration</u></p> <ul style="list-style-type: none"> ▪ The attainment of 0, +1 or +2 GAS criteria for: <ul style="list-style-type: none"> - “minimise impact on vegetation” - “minimise impact on soil” - “Minimise visual impacts” ▪ <u>Note:</u> Well abandonment issues addressed under objective 6. 	<ul style="list-style-type: none"> ▪ Rehabilitation/ abandonment plans for surface activities will be developed in consultation with relevant stakeholders <p><u>Well Site and Access Track Restoration</u></p> <ul style="list-style-type: none"> ▪ Compacted soil areas have been ripped (except on gibber and tablelands) and soil profile and contours are reinstated following completion of operations. 	<p>No complaints raised by stakeholders.</p>

12. PRODUCTION & PROCESSING FACILITY OPERATIONS

Production from PPLs 225, 226 & 227 during the period covered by this report was 0.125 mm BBLs

12.1 PRODUCTION FORECAST – 2012

The estimated Crude Oil production for 2012 is 0.105 (mm BBLs).

12.2 ROAD AND WELLSITE LEASE AND ACCESS CONSTRUCTION AND RESTORATION

There were 0 borrow pit constructed during the report period.

No additional restoration work was completed in the report period.

Performance against the Production and Processing SEO is described in the following Table.

12.3 PIPELINE CONSTRUCTION, OPERATION AND MONITORING

No flow lines were constructed to connect new wells to the production system

Environmental Objectives and Performance – Production and Processing SEO

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 1: Minimise any safety risk to public and other third parties.</p>	<ul style="list-style-type: none"> ▪ Reasonable measures implemented to ensure no injuries to the public or third parties. 	<ul style="list-style-type: none"> ▪ All employees and contractor personnel complete a safety induction prior to commencement of work in the field. ▪ All employees and contractor personnel undertake a refresher induction every 2 years. ▪ Signage in place to warn third parties of access restrictions to operational areas, with particular warnings when potentially dangerous operations are being undertaken. ▪ Necessary measures (e.g. signage/fencing) taken to prevent the public accessing the wellhead equipment or waste relating to a given well. ▪ Demobilisation inspections undertaken at random to ensure that backfilling and waste removal requirements are met. ▪ Permit to work systems in place for staff and contractors in dangerous situations. ▪ All appropriate PPE (personnel protective equipment) is issued and available as required in accordance with company operating requirements and applicable standards. ▪ Effective Emergency Response Plan (ERP) and procedures are in place in the event of a fire or explosion; Annual exercise of ERP. ▪ Communication of rig moves and other potential hazards to safety associated with drilling and well operations to potentially affected parties prior to commencement of operations. ▪ Compliance with relevant speed restrictions on access roads and tracks. ▪ Reporting systems for recording injuries and accidents in place, and annual (at minimum) review of records to determine injury trends. ▪ Implementation of appropriate corrective actions. ▪ Ensuring safety management plans are updated and reviewed. ▪ Wastewater disposal in accordance with Objective 11. 	<ul style="list-style-type: none"> ▪ There were no injuries to the public or any third parties arising from Drilling and Well operations ▪ All Santos and Santos Contract employees attend a compulsory safety induction prior to commencing work. Refresher training is provided at regular intervals. ▪ Signs are installed at strategic locations in the operating area to deter the public from accessing drilling and production areas and when potentially hazardous tasks are undertaken. ▪ A specific Wellsite Permit-to-Work system is used to manage workplace / worksite safety. ▪ Personnel are provided with the relevant, approved PPE when undertaking potentially hazardous tasks. ▪ Emergency Response Plans and procedures are in place. These procedures are regularly exercised with identified improvements included into the ERPs. ▪ Relevant parties are advised of potentially hazardous operations before they are undertaken. ▪ An electronic accident and incident recording system is used to report and monitor accidents, incidents and trends. ▪ Safety Management Plans, including KPIs, have been developed and introduced by Santos and its contractors. These are regularly reviewed and updated. ▪ Emergency Response procedures for well operations were reviewed and updated during this reporting period.

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<p>Objective 2: Minimise disturbance and avoid contamination to soil.</p>	<p><u>Construction Activities (e.g. pipelines and roads)</u></p> <ul style="list-style-type: none"> ▪ No evidence of significant subsoil on surface (colour) on the pipeline ROW following construction. ▪ No subsidence is evident over pipeline trench. ▪ At pipeline dune crossings, dune profiles have been restored consistent with surrounding dune profiles. ▪ No visual evidence of soil compaction following remediation of the pipeline easement (e.g. hard soil, local water pooling). ▪ The extent of erosion on the ROW is consistent with surrounding land. ▪ No unauthorised off-road driving or creation of shortcuts. ▪ No construction activities are carried out on salt lakes or steep tableland slopes (as defined in EIR). ▪ 0, +1 or +2 GAS criteria are attained for goals related to this objective as listed in Appendix 1 and Appendix 4. 	<p><u>Construction Activities (e.g. pipelines and roads)</u></p> <ul style="list-style-type: none"> ▪ Santos operational procedures and guidelines are in place and will be followed for construction activities, for example to conserve soil resources: <ul style="list-style-type: none"> ▪ topsoil is stockpiled separately from subsoil and respread during reinstatement ▪ no windrows remain after pipeline construction (except on dunes where some windrows are inevitable after reprofiling but will quickly disappear ▪ if a crown over the pipeline trench is left to alleviate subsidence, periodic breaches are left to avoid channelling water flows down the ROW ▪ areas of compacted soil are ripped ▪ Consider alternate routes during planning phase to minimise environmental impacts. ▪ Works are restricted to construction ROW. ▪ The need to traverse sensitive land systems and the method of managing the impacts must be justified in accordance with company procedures, recorded and available for auditing. ▪ Annual audit of construction practices. <p><u>Spill Response / Contingency Planning</u></p> <ul style="list-style-type: none"> ▪ Results of emergency response procedures carried out in accordance with Regulation 31 show that an oil spill contingency plan in place in the event of a spill is adequate and any necessary remedial action needed to the plan is undertaken promptly. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. ▪ Annual spill response training exercise is undertaken. ▪ Refer to Section 3 “Reporting” for clarification of incident reporting requirements 	<ul style="list-style-type: none"> ▪ Soil disturbance is minimised wherever possible. Rootstock is left intact and top soil is stockpiled for respreading. This is respread during site restoration. ▪ Off-road driving is actively discouraged. Alternate routes are considered in planning. Work is restricted to ROW. ▪ No construction activity is carried out on salt lakes, steep tablelands or wetland systems. ▪ Audits of construction activity are undertaken with high level of performance. ▪ Borrow pit construction is minimised by reuse of any suitable existing borrow pit/s. Borrow pits are restored on an ongoing basis to ensure the most time efficient restoration

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<p>Objective 2 cont: Minimise disturbance and avoid contamination to soil</p>	<p><u>Fuel and Chemical Storage, Handling and Transportation</u></p> <ul style="list-style-type: none"> ▪ No spills/leaks outside of areas designed to contain them. ▪ Soils remediated to a level as determined by the SHI Decision Framework. ▪ Also refer to Objective 12. <p><u>Oil/Condensate Spills (Pipeline/Road Transport)</u></p> <ul style="list-style-type: none"> ▪ No spills/leaks outside of areas designed to contain them. ▪ Level of hydrocarbon continually decreasing for in situ remediation of spills. ▪ Soils remediated to a level as determined by the SHI Decision Framework. <p><u>Produced Formation Water (PFW)</u></p> <ul style="list-style-type: none"> • 0, +1 or +2 GAS criteria are attained for goals related to produced formation water impacts on soil, as listed in Appendix 2. • PFW EMP developed and objectives achieved. 	<p><u>Fuel and Chemical Storage, Handling and Transportation</u></p> <ul style="list-style-type: none"> ▪ All fuel, oil and chemicals are stored, handled and transported in accordance with appropriate standards and guidelines e.g. Australian Standard AS 1940, Australian Dangerous Goods (ADG) Code, EPA guidelines <i>080/07 Bunding and Spill Management</i>. ▪ Fuel and chemical storage, handling and transport procedures are reviewed and monitored in audit process. ▪ Records of spill events and corrective actions are maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Logged incidents are reviewed annually to determine areas that may require corrective action to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Audit against EHSMS standards for underground storage tanks and bunds on a four yearly minimum frequency. <p><u>Oil/Condensate Spills (Pipeline/Road Transport)</u></p> <ul style="list-style-type: none"> ▪ Pipelines are compliant with AS2885 pipeline standards ▪ Pipeline Management System is reviewed annually. ▪ Pipelines are inspected and maintained in accordance with Pipeline Integrity Management System ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Records of spill events and corrective actions are maintained in accordance with company procedures. <p><u>Produced Formation Water (PFW)</u></p> <p>Develop (in consultation with DMITRE and the EPA) and implement Environmental Management Plan (EMP) following the PFW facility status review that has been conducted.</p>	<ul style="list-style-type: none"> ▪ No spills occurred outside areas designed to contain them as reported at quarterly meetings. ▪ SACBJV learnings from Incidents were reviewed to enable improvement strategies to be identified and are applied to PPL 208 & 215 activity. ▪ No oil spill is likely to have impacted ground water. ▪ Records of spills are maintained. ▪ Spills are reported in accordance with legislative and company requirements. ▪ Incident registers are reviewed to determine areas requiring improvement and to ensure ongoing improvement.

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<p>Objective 2 cont: Minimise disturbance and avoid contamination to soil</p>	<p><u>Waste Disposal (domestic, sewage and sludges)</u></p> <ul style="list-style-type: none"> ▪ All domestic wastes are disposed of in accordance with EPA licensing requirements. ▪ No evidence of rubbish or litter on ROW or at campsites / facilities. ▪ No spills or leaks from sludge treatment process and sludge pits. ▪ No increase in contamination at LTUs designated treatment area. <p>Refer to assessment criteria for Objective 11.</p>	<p><u>Waste Disposal (domestic, sewage and sludges)</u></p> <ul style="list-style-type: none"> ▪ Site activities to be audited against EPA licence for Waste Depot on a minimum two years schedule. ▪ EHS04 Waste Management is adhered to. ▪ Audit against EHS04 Waste Management – 4 yearly minimum. ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Disposal areas are not established in locations, which pose an unacceptable hazard to stock or wildlife. ▪ Sewage treatment facilities to be operated in accordance with design criteria. <p>Refer to Objective 11.Refer to Objective 11.</p>	<ul style="list-style-type: none"> ▪ Domestic wastes are disposed of in accordance with EPA License Requirements. Audits identified good performance. ▪ Waste bins and containers are covered during transport. ▪ New landfill cell completed and approved by EPA ▪ Landfill cells are located only at Authorised facilities and are fenced to exclude stock and wildlife. ▪ There were no incidents at installed sewage disposal facilities.
<p>Objective 3: Avoid the introduction or spread of pest plants and animals and implement control measures as necessary.</p>	<ul style="list-style-type: none"> ▪ No weeds or feral animals are introduced to, or spread in, operational areas as a consequence of activities. ▪ Weed management plans are implemented where priority weed species are identified. 	<ul style="list-style-type: none"> ▪ Where appropriate, weed and feral animal management strategy is in place (avoidance and control strategies). ▪ Vehicle and equipment wash downs to be initiated in accordance with the management strategy. 	<ul style="list-style-type: none"> ▪ Weed and feral animal strategies are in place. There is no evidence of the introduction of weeds or feral animals. ▪ Vehicles and rig equipment is washed in accordance with the management strategy.

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<p>Objective 4: Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.</p>	<p><u>Construction Activities (e.g. pipelines and roads)</u></p> <ul style="list-style-type: none"> ▪ 0, +1 or +2 GAS criteria are attained for goals related to this objective as listed in Appendix 1 and 2. ▪ Construction activities (e.g. access tracks or pipelines) are located and constructed to maintain pre-existing water flows (i.e. channel contours are maintained on floodplains and at creek crossings). ▪ No water (surface or groundwater) contamination as a result of construction activities. <p><u>Produced Formation Water (PFW)</u></p> <ul style="list-style-type: none"> ▪ Refer to assessment criteria for Objective 2. ▪ No unlicensed discharge of water to a creek, river or lake.. <p><u>PFW Waterflood</u></p> <ul style="list-style-type: none"> ▪ No significant change in surface or groundwater contamination as a result of waterflood activities.. 	<p><u>Construction Activities (e.g. pipelines and roads)</u></p> <ul style="list-style-type: none"> • Constructed activities undertaken are designed and managed to avoid diversion of water flows. • Sensitive land systems (e.g. wetlands) avoided wherever possible. Where activities are undertaken in or near these areas, appropriate review, assessment and mitigation measures are in place to ensure that surface water flows are maintained and contamination of surface water and groundwater is avoided. <p><u>Produced Formation Water (PFW)</u></p> <ul style="list-style-type: none"> ▪ Refer to Objective 2. ▪ Water disposal ponds are located away from areas which are inundated during floods where possible (preferably above the 100-year flood level). ▪ Interceptor pits are not located in areas prone to inundation by flooding. <p><u>PFW Waterflood</u></p> <ul style="list-style-type: none"> ▪ Pumps and associated equipment installed within containment device with an adequately sized containment sump (e.g. at least 9m³). ▪ Refer to Objective 2. 	<ul style="list-style-type: none"> ▪ Drainage channels and patterns are maintained or restored to minimise impeding or changing natural drainage patterns associated with well leases, access tracks and roads and at creek crossings. ▪ Work programs are modified to avoid periods of flooding and other seasonal influences and variations.

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<p>Objective 4 cont Minimise disturbance to drainage patterns and avoid contamination of surface waters and shallow ground water resources.</p>	<p><u>Fuel and Chemical Storage, Handling and Transportation</u></p> <ul style="list-style-type: none"> ▪ Soils remediated to a level as determined by the SHI Decision Framework. Also refer to Objective 12. ▪ No water (surface or groundwater) contamination as a result of these activities. <p><u>Cooper Creek Water Extraction</u> No significant change in flow or contamination as a result of extraction activities.</p>	<p><u>Fuel and Chemical Storage, Handling and Transportation</u></p> <ul style="list-style-type: none"> ▪ All fuel, oil and chemicals are stored, handled and transported in accordance with appropriate standards e.g. Australian Standard AS 1940, Australian Dangerous Goods (ADG) Code, EPA guideline <i>080/07 Bunding and Spill Management</i>. ▪ Fuel and chemical storage, handling and transport procedures are reviewed and monitored in an audit process. ▪ Records of spill events and corrective actions are maintained in accordance with company procedures. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Logged incidents are reviewed annually to determine areas that may require corrective action to reduce spill volumes in subsequent years (and drive continual improvement). ▪ Implementation of the SHI Decision Making Framework approved in January 2010. <p><u>Cooper Creek Water Extraction</u> Approval to conduct surfacewater extraction from Cooper Creek is subject to the following conditions:</p> <ul style="list-style-type: none"> ▪ An approvals request for any proposed extraction is raised internally. This request will include estimated total volume required. ▪ The above request must demonstrate that PFW and Borewater of an acceptable quality cannot be sourced within an economically viable haulage distance (maximum 2 hour return journey). ▪ Any approved extraction occurs where water flow at Callamurra is $\geq 2.15\text{m}$ ($\geq 0.1\text{m}$ flow at Innamincka Causeway) and rising, and never at permanent water refuges (e.g Callamurra). Maps of approved surfacewater extraction points at Innamincka, Kudrieke and Mitchie Crossings are included in Appendix 2 of the EIR Addendum (Santos, 2010). ▪ Cumulative extraction volume to be capped at 15 ML per year. ▪ Cumulative extraction volumes to be recorded in monitoring database and included in annual DMITRE reporting. ▪ Non-conformance with the above is a reportable incident - see Section 3 "Reporting" for incident definitions. 	<ul style="list-style-type: none"> ▪ Records of spills are maintained ▪ Spills are reported in accordance with legislative and company requirements. ▪ Incident registers are reviewed to determine areas requiring improvement and to ensure ongoing improvement.

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p><u>Objective 4 cont</u></p>	<p><u>Waste Disposal (domestic, sewage and sludges)</u></p> <ul style="list-style-type: none"> ▪ Refer to assessment criteria for Waste Disposal for Objective 2. ▪ Refer to assessment criteria for Objective 11. <p><u>Oil/Condensate Spills (Pipeline/Road Transport)</u></p> <ul style="list-style-type: none"> ▪ No spills/leaks outside of areas designed to contain them. ▪ Level of hydrocarbon continually decreasing for in situ remediation of spills. <p>Soils remediated to a level as determined by the SHI Decision Framework.</p>	<p><u>Waste Disposal (domestic, sewage and sludges)</u></p> <ul style="list-style-type: none"> ▪ Site activities to be audited against EPA licence for waste depot on a minimum of every two years. ▪ Audit against EHS04 Waste Management – 4 yearly minimum. ▪ Covered bins are provided for the collection and storage of wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Pits are not established in locations which pose an unacceptable hazard to stock or wildlife. <p>Sewage treatment facilities to be operated in accordance with design criteria.</p> <p><u>Oil/Condensate Spills (Pipeline/Road Transport)</u></p> <ul style="list-style-type: none"> ▪ Pipelines are compliant with AS2885 pipeline standards. ▪ Pipeline Management System is reviewed annually. ▪ Pipelines are inspected and maintained in accordance with Pipeline Integrity Management System. ▪ Spills or leaks are immediately reported and clean up actions initiated. ▪ Records of spill events and corrective actions are maintained in accordance with company procedures. ▪ Refer to Section 3 “Reporting” for clarification of incident reporting requirements <p><u>Spill Response / Contingency Planning</u></p> <ul style="list-style-type: none"> ▪ Results of emergency response procedures, carried out in accord with Regulation 31, show that the oil spill contingency plan in place in the event of a spill is adequate and any necessary remedial action needed to the plan is undertaken promptly. ▪ Oil spill contingency plan (reviewed annually) is up to date with specific scenarios relating to spills to creeks and floodplain areas. ▪ Spill response equipment is audited annually. <p>Annual spill response training exercise is undertaken.</p>	<ul style="list-style-type: none"> ▪ Soil removed to land farm in some instances to eliminate contamination. No spill is likely to have impacted ground water. ▪ Emergency response procedures for spill response are in place and regularly exercised. Learning from exercises and actual events are included in Plans. ▪ Oil Spill Plans are up-to-date and regularly drilled. ▪ Spill response equipment and procedures are regularly audited. ▪ Regular drills are conducted.

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 5: Avoid disturbance to sites of cultural and heritage significance.</p>	<ul style="list-style-type: none"> ▪ Proposed well sites and access tracks have been surveyed and any sites of Aboriginal and non-Aboriginal heritage identified. ▪ Any identified cultural and heritage sites have been avoided. 	<ul style="list-style-type: none"> ▪ Consultation with stakeholders (i.e. government agencies, landholders etc) in relation to the possible existence of heritage sites, as necessary. ▪ Heritage report forms completed for any sites or artefacts identified, and report forms forwarded to the Aboriginal Heritage Branch, Aboriginal Affairs and Reconciliation Division (AARD). ▪ Survey records are kept and are available for auditing. ▪ Areas requiring remediation which lie outside previously surveyed sites should be surveyed in accordance with company heritage clearance procedures. ▪ A procedure is in place for the appropriate response to any sites discovered during drilling activities. <p><u>Note:</u> Where a negotiated agreement or determination for heritage clearance is in place, compliance with the negotiated agreement or determination takes precedence over the above criteria.</p>	<ul style="list-style-type: none"> ▪ Construction sites are inspected for cultural heritage sites. Identified sites are avoided. Significant sites are fenced. ▪ Identified sites are avoided.
<p>Objective 6 Minimise loss of aquifer pressure and avoid aquifer contamination.</p>	<ul style="list-style-type: none"> ▪ There is no uncontrolled flow to the surface (i.e. no free flowing bores). <p><u>Produced Formation Water (PFW) Waterflood Injection Wells</u></p> <p>No significant change in water quality from the injection aquifer</p>	<ul style="list-style-type: none"> ▪ The volume/flow of water used by the Moomba Plant is continuously monitored to ensure appropriate management. ▪ Water usage is monitored, reviewed and management strategies implemented to minimise wastage. ▪ Review water licensing requirements and allocation plans. <p><u>Produced Formation Water (PFW) Waterflood Injection Wells</u></p> <ul style="list-style-type: none"> ▪ Aquifer water quality monitored where appropriate through testing carried out during Waterflood activities. 	<ul style="list-style-type: none"> ▪ There were no well bore failures reported

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 7: Minimise disturbance to native vegetation and native fauna.</p>	<p><u>Construction Activities</u></p> <ul style="list-style-type: none"> ▪ Any sites of rare, vulnerable and endangered flora and fauna have been identified, flagged and subsequently avoided. ▪ No removal of trees / vegetation of priority 1, 2 or 3 in Field Guide¹ in areas where removal could have been avoided. ▪ No removal of trees at campsites. ▪ No evidence of tree removal where trimming appropriate. ▪ The type and density of vegetation on the rehabilitated ROW is consistent with the surrounding landscape, but less mature. Note: assessment will take into account that regrowth is a time and rainfall dependent process. ▪ 0, +1 or +2 GAS criteria are attained for goals related to this objective as listed in Appendix 1 and 2. 	<p><u>Construction Activities</u></p> <ul style="list-style-type: none"> ▪ Proposed construction areas have been assessed for rare, vulnerable and endangered flora and fauna species before the commencement of construction. ▪ Consider alternate routes during planning phase to minimise environmental impacts. ▪ Sensitive land systems (e.g. wetlands) avoided wherever possible. Where activities are undertaken in these areas (i.e. no practicable alternative), appropriate review, assessment and mitigation measures are in place. ▪ Assessment records are kept and are available for auditing. ▪ Optimised ROW widths are identified and implemented. ▪ Trees are trimmed rather than cleared where possible. ▪ Root stock is not removed beyond 3m of trenchline and ROW is either only lightly graded or not graded. Where vegetation is removed, it is respread over the full width of the ROW (excluding the access track). 	<ul style="list-style-type: none"> ▪ Study undertaken to determine habitats for rare, vulnerable and endangered species. Areas identified are avoided. ▪ Vegetation impacts are minimised during well lease access and construction by scouting surveys prior to the entry of construction machinery. Wherever possible, significant vegetation is avoided.

¹ Field Guide refers to the *Field Guide to the Common Plants of the Cooper Basin – South Australia and Queensland* (Wiltshire and Schmidt 2003)

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p><u>Objective 7 Cont</u></p>	<p><u>Borrow Pits</u></p> <ul style="list-style-type: none"> ▪ 0, +1 or +2 GAS criteria for goals related to this objective, as listed in Appendix 1 are attained during site selection and construction. <p><u>Fuel and Chemical Storage and Management</u></p> <ul style="list-style-type: none"> ▪ Refer to assessment criteria for objectives 2 and 4. <p><u>Waste Management</u></p> <ul style="list-style-type: none"> ▪ Refer to assessment criteria for Objective 2, 4 and 11. 	<p><u>Borrow Pits</u></p> <ul style="list-style-type: none"> ▪ Pits are not established in locations which pose an unacceptable hazard to stock or wildlife (i.e. not within 50m of any roads or access tracks, well leases or other plant and equipment). ▪ Sensitive land systems (e.g. wetlands) avoided wherever possible. Where activities are undertaken in these areas (i.e. no practicable alternative), appropriate review, assessment and mitigation measures are in place. ▪ Borrow pits are restored as soon as practicable after material extraction is complete to a standard consistent with the surrounding land use. ▪ Borrow pits are restored to minimise water holding capacity, where agreements are not in place with stakeholders ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve) excavations are left in a state as agreed with the responsible statutory body. <p><u>Fuel and Chemical Storage and Management</u></p> <p>Refer to Objectives 2 & 4.</p> <p><u>Waste Management</u></p> <ul style="list-style-type: none"> ▪ Covered bins are provided for the collection and storage of putrescible wastes. ▪ All loads of rubbish are covered during transport to the central waste facility. ▪ Pits are not established in locations which pose an unacceptable hazard to stock or wildlife. ▪ Sewage treatment facilities to be operated in accordance with design criteria. <p>PFW pits are fenced as appropriate to minimise wildlife access.</p>	<ul style="list-style-type: none"> ▪ Borrow pit site selection provides for the avoidance of vegetation impacts. Borrow pits are restored on an ongoing basis to allow natural vegetation regrowth to recommence. Where necessary, borrow pits are reopened to minimise vegetation impacts.

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p><u>Objective 7 Cont</u></p>	<p><u>Native Vegetation Act SEB</u></p> <ul style="list-style-type: none"> ▪ Significant Environmental Benefit (SEB) for native vegetation clearance approved by DMITRE (where delegated authority applies) or Native Vegetation Council (NVC). ▪ Significant environmental benefit obligation is ultimately satisfied / implemented. <p><u>Fauna Management</u></p> <ul style="list-style-type: none"> ▪ Native fauna casualties associated with construction activities restricted to as low as reasonably practical (ALARP). 	<p><u>Native Vegetation Act SEB</u></p> <ul style="list-style-type: none"> ▪ Work (or payment to Native Vegetation Fund) undertaken to achieve an SEB for native vegetation clearance. ▪ SEB requirement either: <ul style="list-style-type: none"> - determined using the Guidelines (DWLBC 2005) or - negotiated with DMITRE or the Native Vegetation Council where SEB calculation differs from the standard methodology in the Guidelines. <p><u>Fauna Management</u></p> <ul style="list-style-type: none"> ▪ No domestic pets allowed at camps or worksites. ▪ Feeding of wildlife (e.g. dingoes) is not permitted. ▪ Where possible, provision of fauna exit ramps every 500m in open trenches, with other mechanisms for fauna exit (branches, mesh etc.) at more regular intervals in between. ▪ Inspection of trenches and removal of trapped fauna, where appropriate. ▪ Minimise length of time trench is open where practicable. 	

Environmental Objectives	Assessment Criteria	Guide to Objectives Achievement	Performance 2011 Report Period
<p>Objective 8: Minimise air pollution and greenhouse gas emissions.</p>	<p><u>Gathering Systems/Satellite Facilities/Moomba Plant</u></p> <ul style="list-style-type: none"> ▪ Compliance with EPA requirements. 	<p><u>Gathering Systems/Satellite Facilities/Moomba Plant</u></p> <ul style="list-style-type: none"> ▪ Conduct production operations in accordance with appropriate industry accepted standards. ▪ Continually review and improve operations. ▪ Appropriate Emergency Response Procedures are in place in case of a gas leak. 	<ul style="list-style-type: none"> • Operations conducted in accordance with established standards • Gas well post fracture stimulation activities remained largely unchanged with dry gas wells typically only flowed 4 to 5 days to atmosphere (flaring where possible) to clean up frac fluids prior to the wells being shut in and connected. Liquids rich gas wells were flowed for similar durations, but were flowed through separators to capture the liquids with the gas going to flare.
<p>Objective 9: Maintain and enhance partnerships with the Cooper Basin community.</p>	<ul style="list-style-type: none"> ▪ No reasonable stakeholder complaints left unresolved. 	<ul style="list-style-type: none"> ▪ Relevant affected parties are notified and consulted on proposed activities. ▪ Forward development plans are presented to the local community. ▪ Local community projects and events are sponsored and supported where appropriate. ▪ Industry membership of appropriate regional land management committees and boards 	<ul style="list-style-type: none"> ▪ Relevant parties are notified and consulted on proposed activities. There were no complaints, concerns or issues left unresolved. ▪ Local community events and activities are actively supported. ▪ Membership and active participation is made to regional management committees and Boards. ▪ Pastoralists Newsletter produced to update landholders of Santos activities in the area

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 10: Avoid or minimise disturbance to stakeholders and/or associated infrastructure</p>	<ul style="list-style-type: none"> ▪ No reasonable stakeholder complaints left unresolved. <p><u>Cooper Creek Water Extraction</u></p> <ul style="list-style-type: none"> ▪ No impacts on local stakeholders from the extraction of water from the creek system. ▪ Refer to Objective 4. 	<ul style="list-style-type: none"> ▪ Induction for all employees and contractors covers pastoral, conservation, tourism, legislation and infrastructure issues. ▪ Relevant stakeholders are notified prior to survey and construction of well sites, camp sites and access tracks and undertaking of operations (pursuant to the Regulations). Borrow pits left open (unrestored) if requested by stakeholder and upon receipt of letter of transfer of responsibility to stakeholder. ▪ Gates or cattle grids are installed to a standard, consistent with pastoral infrastructure instead of fences where crossings are required for access. ▪ All gates left in the condition in which they were found (i.e. open/closed). ▪ Fences repaired to 'as before' standard following pipeline construction. ▪ Potential sources of contamination (e.g. formation water ponds) are fenced as appropriate to prevent stock access. ▪ Written evidence that stakeholder is satisfied with water disposal arrangements. ▪ System is in place for logging stakeholder complaints to ensure that issues are addressed as appropriate. ▪ Requirements of the Cattle Care and Organic Beef accreditation programs are complied with. ▪ In recognised conservation reserves (i.e. Innamincka Regional Reserve) excavations are left in a state as agreed <p><u>Cooper Creek Water Extraction</u> Refer to Objective 4.</p>	<ul style="list-style-type: none"> ▪ The importance of developing and maintaining good relationships with landholders is stressed to all employees and contractors. ▪ Relevant stakeholders are notified of and consulted about projects and are provided with information, maps etc. ▪ No Borrow pits were formally transferred to landholders. ▪ Grids, fences, gates installed are to a standard acceptable to the landholder. ▪ All gates are left "as found". ▪ In response to concerns regarding potential for contamination of cattle an extensive fencing of facilities program was completed in 2005 and continues to be installed and repaired as required ▪ Landholder complaints and requests are logged to ensure closeout. There were no complaints lodged. ▪ Cattle management systems (cattle care) are recognised and complied with.

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 11: Optimise (in order of most to least preferable) waste avoidance, reduction, reuse, recycling, treatment and disposal</p>	<ul style="list-style-type: none"> ▪ Domestic wastes are disposed of in accordance with EPA licensing requirements. ▪ Wastewater (sewage and grey water) disposed of in accordance with the <i>Public and Environmental Health (Waste Control) Regulations 1995</i> or to the Department of Health's satisfaction. ▪ No spills or leaks from sludge treatment process and sludge pits. ▪ No increase in contamination at LTUs designated treatment area 	<ul style="list-style-type: none"> ▪ Chemicals and oil are purchased in bulk. 'Bulki bins' or other storage tanks are in place for large volume items. ▪ Fencing around waste disposal facility is regularly inspected and maintained. ▪ Waste streams are segregated on site to maximise opportunities for waste recovery, reuse and recycling. ▪ Evidence/records are maintained showing that recyclable material has been returned to Moomba Waste Management Depot. ▪ Production of waste is minimised by specifying reusable, biodegradable or recyclable materials in procurement, where practical. ▪ Waste audit conducted at 5 year minimum interval. ▪ Waste water (sewage) disposal is where possible in accordance with the <i>Public and Environmental Health (Waste Control) Regulations 1995</i> (which require that the waste water disposal system must either comply with the <i>Standard for the Construction, Installation and Operation of Septic Tank Systems in SA</i> or be operated to the satisfaction of the Department of Health) and the <i>Environment Protection (Water Quality) Policy 2003</i>. ▪ Evidence/records maintained to show that appropriately designed sewage facilities have been constructed. 	<ul style="list-style-type: none"> ▪ Chemicals, cement & inhibitors are purchased in bulk containers. ▪ Waste material is disposed of at EPA Approved facilities.

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 12: Remediate and rehabilitate operational areas to agreed standards.</p>	<p><u>Contaminated Site Remediation</u></p> <ul style="list-style-type: none"> ▪ Contaminated sites are remediated to a level as determined by the approved SHI Decision Framework. <p><u>Construction Site and Access Track Restoration</u></p> <ul style="list-style-type: none"> ▪ Refer to assessment criteria for Objectives 2, 4, 7 and 11. ▪ 0, +1 or +2 GAS criteria are attained for 'minimise the visual impact' and 'revegetation of indigenous species' as listed in Appendix 4. <p><u>Borrow Pit Restoration</u></p> <ul style="list-style-type: none"> ▪ The attainment of 0, +1 or +2 GAS criteria as in Appendix 1. <p><u>Production Facility Abandonment</u></p> <ul style="list-style-type: none"> ▪ Surface structures are removed and the ground surface re-contoured to approximate pre-existing contours unless alternative agreement is reached with the regulator and stakeholders. ▪ 0, +1 or +2 GAS criteria are attained for 'minimise the visual impact' and 'revegetation of indigenous species' as listed in Appendix 4, unless alternative agreement is reached with the regulator and stakeholders. ▪ Refer to criteria for contaminated site remediation under this objective (above). ▪ Refer to the assessment criteria for Objective 11. 	<ul style="list-style-type: none"> ▪ Rehabilitation/abandonment plans for regulated activities will be developed in consultation with relevant stakeholders. <p><u>Construction Site and Access Track Restoration</u></p> <p>Compacted soil areas have been ripped (except on gibber and tablelands) and soil profile and contours are reinstated following completion of operations.</p> <p><u>Production Facility Abandonment</u></p> <p>The following steps will typically be undertaken unless otherwise agreed with the regulator and stakeholders:</p> <ul style="list-style-type: none"> ▪ hydrocarbon and contaminants will be reduced to an acceptable level in buried structures (e.g. pipelines, tanks, pits) as determined by the approved SHI Decision Framework. ▪ hazardous materials will be stabilised or removed including ground decontamination. ▪ hazardous material dumps will be clearly marked and a monitoring plan developed and implemented. ▪ surface structures will be removed and re-used / recycled where appropriate ▪ waste will be removed and recycled where appropriate (refer to Objective 11). ▪ foundations will be levelled and covered (the standard to which they will be restored will be defined as a result of stakeholder consultations). ▪ disturbed areas will be re-contoured to approximate pre-existing contours, natural drainage restored and compaction relieved (e.g. by scarification or ripping where appropriate) to promote rainwater infiltration and enhance seed capture and germination. ▪ contour banks and energy dissipating structures will be constructed where necessary to protect disturbed areas from erosion prior to stabilisation 	<p>No stakeholder complaints are unresolved.</p> <p>No contaminated sites</p> <p>Access tracks are restored in accordance with restoration guidelines.</p> <p>No Activity</p>

Environmental Objectives	Assessment Criteria	Guide to How Objectives Can Be Achieved	Performance 2011 Report Period
<p>Objective 12 Cont:</p>	<p><u>Pipeline Abandonment</u> Attainment of the following (unless otherwise agreed with stakeholders and approved by the regulatory authority):</p> <ul style="list-style-type: none"> ▪ No evidence of waste, redundant equipment / infrastructure or signs and markers on abandoned pipelines. ▪ Refer to criteria for contaminated site remediation under this objective (above). ▪ Refer to the assessment criteria for Objective 11. 	<p><u>Pipeline Abandonment</u> The following steps will typically be undertaken unless otherwise agreed with the regulator and stakeholders:</p> <ul style="list-style-type: none"> ▪ all aboveground pipes and supports will be assessed for the condition of the pipe for either salvage or for dismantling and re-use. ▪ all underground pipe work will be cut-off (at a minimum depth of 750mm below the natural surface or at pipeline depth, removed and blinded below the surface. ▪ all aboveground signs and markers will be removed. ▪ all pipeline protection systems will be removed to allow the pipeline to degrade in-situ. ▪ monitoring and auditing of abandoned pipelines will be undertaken. ▪ all pipelines which are partially or wholly left in-situ will be accurately mapped and recorded. Records will be prepared and submitted to the appropriate authority. 	<p>No Activity</p>
<p>Objective 13: Minimise as far as reasonably practicable interruptions to natural gas supply.</p>	<ul style="list-style-type: none"> ▪ No interruptions to natural gas supply that cause significant social disruption. 	<ul style="list-style-type: none"> ▪ Adequate contingencies are in place which seek to address a prudent level of security of supply in the case of short and unforeseen interruption events (e.g. adequate gas storage). ▪ Pipelines are designed, operated and maintained in accordance with AS 2885. ▪ Plant and equipment are designed, operated and maintained in accordance with appropriate industry accepted standards. ▪ Emergency Response Plan (ERP) and associated procedures are in place and exercised. ▪ Results and recommendations of plant and facility hazard reviews, including the five (5) yearly Fitness for Purpose assessment, are appropriately addressed. ▪ Significant operations-specific hazards and risks are summarised in the Significant Hazard Risk Register (SHRR). 	<p>Oil Production only</p>

13. STATEMENT OF ACTUAL AND PROPOSED EXPENDITURE 2011/2012

PPLs 225, 226 & 227 -

Confidential

14. GLOSSARY OF TERMS

AIMS	Asset Integrity Management System
ALARP	As Low As Reasonably Practicable
BBLs	Barrels
DFW	Department for Water (previously DWLBC)
DMITRE	Department for Manufacturing, Innovation, Trade, Resources and Energy (previously PIRSA)
EHS	Environment, Health and Safety
EHSMS	Environment, Health and Safety Management System
EIR	Environmental Impact report
EPA	Environment Protection Authority
ERP	Emergency Response Plan
GAS	Goal Attainment Scaling
GRE	Glass Reinforced Epoxy
HiPo's	High Potential Incidents
IMP	Integrity Management Plan
KPI	Key Performance Indicator
Kbbbls	Kilo barrels (1,000 barrels)
LTU	Land Treatment Unit
mm BBLs	Million barrels
PAMS	Pipeline Asset Management System
PEL	Petroleum Exploration License
PL	Pipeline Licence
PFW	Produced Formation Water
PPL	Petroleum Production License
PPE	Personal Protective Equipment
PSM	Process Safety Management
ROW	Right of Way (for pipelines)
SACB	South Australian Cooper Basin
SACBJV	South Australian Cooper Basin Joint Venture
SEO	Statement of Environmental Objectives
SHI	Soil Health Index
SIMP	Santos Incident Management Plan

15. APPENDICES

Appendix 1	DMITRE Meetings - 2011
Appendix 2	Well Workover Summary
Appendix 3	List of geological reports and data

Appendix 1 DMITRE Meetings – 2011

Over and above the significant reporting requirement to DMITRE associated with the conduct of operations in the Cooper Basin under the Petroleum and Geothermal Energy Act (2000) and Petroleum and Geothermal Energy Regulations (2000), a series of regular meeting are held with DMITRE at quarterly intervals, to review performance.

These meetings included the following:

Quarterly Santos / DMITRE Performance Meeting

4 th Quarter, 2010	-	18 February 2011
1 st Quarter, 2011	-	6 May 2011
2 nd Quarter, 2011	-	5 August 2011
3 rd Quarter, 2011	-	4 November 2011

2011 Development Plan & Operational Review

-	19 May 2011
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Appendix 2 Well Drilling and Workover Activity Summary

Well Drilling Lease Scout, Construct, Backfill and Restoration Activity – 2011

PPL 225

#	Well Name	Well No.	Scout Date	Construct Commence	Well Status	Borrow Pits	Number Restored	Lease Restored	Photos Taken	Road Km	Road Restored	Lease Backfill
1	Stimpee	3	22/06/2007	28/06/2007	Oil	1	0	No	No	0.05	No	No
2	Stimpee	5	18/12/2008	29/01/2009	Built	1	0	No	No	0.9	No	No
3	Stimpee	4	22/12/2008	29/01/2009	Oil	1	0	No	No	0.14	No	No

PPL 226

#	Well Name	Well No.	Scout Date	Construct Commence	Well Status	Borrow Pits	Number Restored	Lease Restored	Photos Taken	Road Km	Road Restored	Lease Backfill
1	Teringie	2	1/09/11	28/10/11	Oil	1	0	No	No	1.5	No	No

Wells Drilled – 2011

PPL 226

#	Well name	License	Well type	Target	Spud date	Rig release	Td (m)	Status
1	Teringie 2	PPL 226	Explt (App)	Oil	14/11/11	20/11/11	1342	C&S Oil

Well Workover Summary

PPL 227

#	WELL	WELL #	START DATE	END DATE	WORKOVER ACTIVITY	FRACTURE STIMULATION
1	STIMPSON JAY	1	24/01/2011	24/01/2011	LRP Repair	NO

Appendix 3 2011 Reports, including Geological and Reserves Reports

Reg #	Routine Yes / No	Report Title	Comment
33 (2) e	Yes	Proved + Probable Reserves Data, YE 2010.	
34	Yes	Geophysical Progress Report	
38	Yes	Daily Drilling Reports	
39	Yes	Wireline Logs – Drilling	
	Yes	Wireline Logs – completions	
40	Yes	Well Completion Reports	
41	Yes	Quarterly Cased Hole report	
42	Yes	Well Test Analysis Report	
43	Yes	Petroleum Reservoir Fluid Analysis Report	
44	Yes	Downhole Diagrams	
45	Yes	Production Reports	

2011 Reports In Accordance With Reg 33 (2) (e)

Reg #	Routine Yes / No	Report Title	Comment
33 (2) e	Yes	Proved + Probable Reserves Data, YE 2010.	

PIRSA will be satisfied that Regulation 33 (2) (e) has been complied with if a list of all technical geological reports and data (including those reports required by Regulations 34 to 45) is submitted. This list should include all interpretive geological and reserve reports. This arrangement may be reviewed at any time by PIRSA, but no change will be required unless at least 2 months notice has been given prior to the required submission date for the Annual Report. A copy of this Statement indicating the limitation to the listing should be included in the relevant section of the Annual Report. (From PIRSA correspondence dated 16.8.02).