STUART PETROLEUM LIMITED

STATEMENT OF ENVIRONMENTAL OBJECTIVES

COOPER BASIN PETROLEUM PRODUCTION OPERATIONS (DUNEFIELD AND FLOODPLAIN)

Rev. 1.06 August 2008

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1. INTRODUCTION

1.1 Purpose

This Statement of Environmental Objectives (SEO) has been prepared to meet the requirements of Sections 99 and 100 of the South Australian Petroleum Act 2000 (the Act) and Regulations 12 and 13 of the Petroleum Regulations 2000.

This SEO covers the full commercial production of oil, the construction and operation of process, storage and loading facilities, and the transport of oil in lowland environments (dunefield, floodplain and sandplain). In those environments, it is intended to replace the current Acrasia Production SEO (Stuart Petroleum, 2003) which is nearing its statutory 5-year review life. The SEO provides the environmental objectives with which production and related activities including transportation, must conform, and the criteria upon which achievement of those objectives can be assessed, for consideration under Section 101(1) of the Act. A condition of approval of production activities is that Stuart Petroleum Ltd is liable for meeting the environmental objectives and assessment criteria.

Drilling for production wells is covered by the separate Statement of Environmental Objectives for drilling and well operations (Santos October 2003) applied throughout the Cooper Basin in SA.

Environmental objectives have been developed from the existing production and production testing SEOs already in force for Stuart Petroleum's licence areas and other areas, and from the information provided in the Environmental Impact Reports and the various Environmental Risks and Compliance documents listed in Appendix 1. The location of Stuart Petroleum's current production licence areas is given in Figure 1.

The Petroleum Act broadly defines the environment to include natural, social, cultural and economic aspect. The environmental objectives outlined in the SEO incorporate all of these elements.

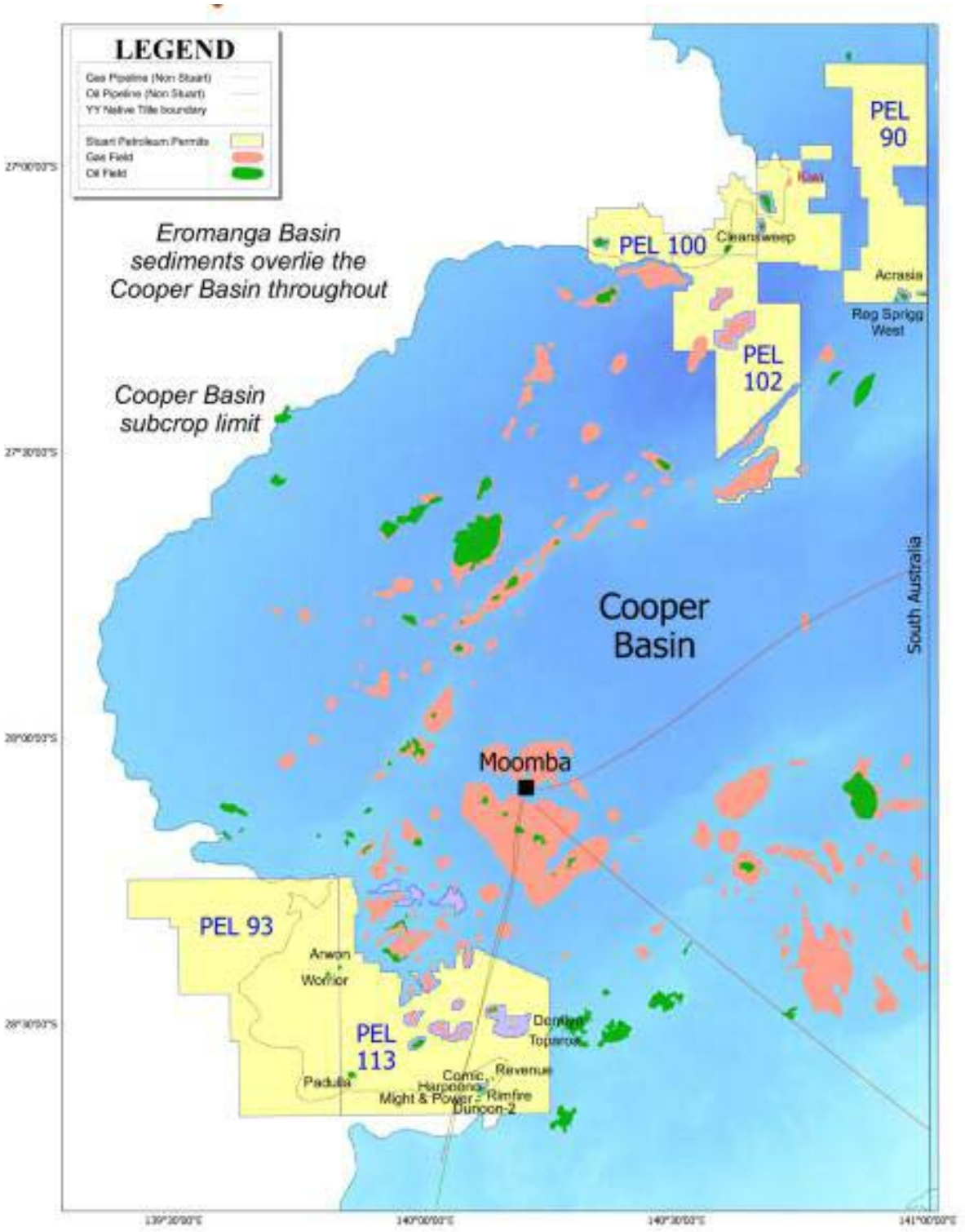

Figure 1. Stuart Petroleum licence areas and operations as at January 2008, for purposes of general illustration only. The Candra Block of PEL90, containing Acrasia Field and Reg Sprigg west, and the southern extremity of PEL102 are on gibber downs and uplands. The remainder of licence areas are in dunefield, sandplain and floodplain. Petroleum Production Licences apply at Acrasia, Worrior, Harpoono and Padulla. Facilities at Derrillyn are operated by Santos Ltd. Additional discoveries and production facilities are expected with time.

1.2 Relation to other Cooper Basin SEOs

The current SEO covers objectives which apply regardless of the extent, nature or location of oil production, processing and transportation, and accordingly has elements in common with other full production, extended production testing and initial production testing taking place in the Cooper Basin. Hence this SEO contains objectives and assessment criteria also contained in other existing SEOs.

The SEO has a layout similar to the South Australia Cooper Basin Operators Statement of Environmental Objectives: Production and Processing Operations (Santos November 2003) but also draws on the following:

- Petroleum Production SEO for Acrasia Field (Stuart Petroleum November 2003).
- Extended Production Test SEO for Acrasia Field (Stuart Petroleum February 2003)
- Cooper Basin Petroleum Production Operations SEO (Beach Petroleum November 2003)
- PEL 182 Extended Production Testing SEO (Eagle Bay Resources July 2006)
- Cooper Basin Petroleum Production Operations SEO (Victoria Petroleum 2008)

1.3 Scope

This SEO is intended to cover petroleum production by Stuart Petroleum Ltd as either lessee or operator for the range from Initial Production Testing (IPT), Extended Production Testing (EPT) through to full petroleum production within a Petroleum Production Licence (PPL) area, in the dune and floodplain systems overlying the Cooper Basin as defined in Marree Soil Conservation Board (1997) (Figure 2):

- Kertietoonga Land System (dune and sandplain)
- Marqualpie Land System (dune, sandplain, local floodplain)
- Strzelecki Land System (dune, sandplain)
- Cooper Land System (active floodplain, channels, lakes and local dunes).

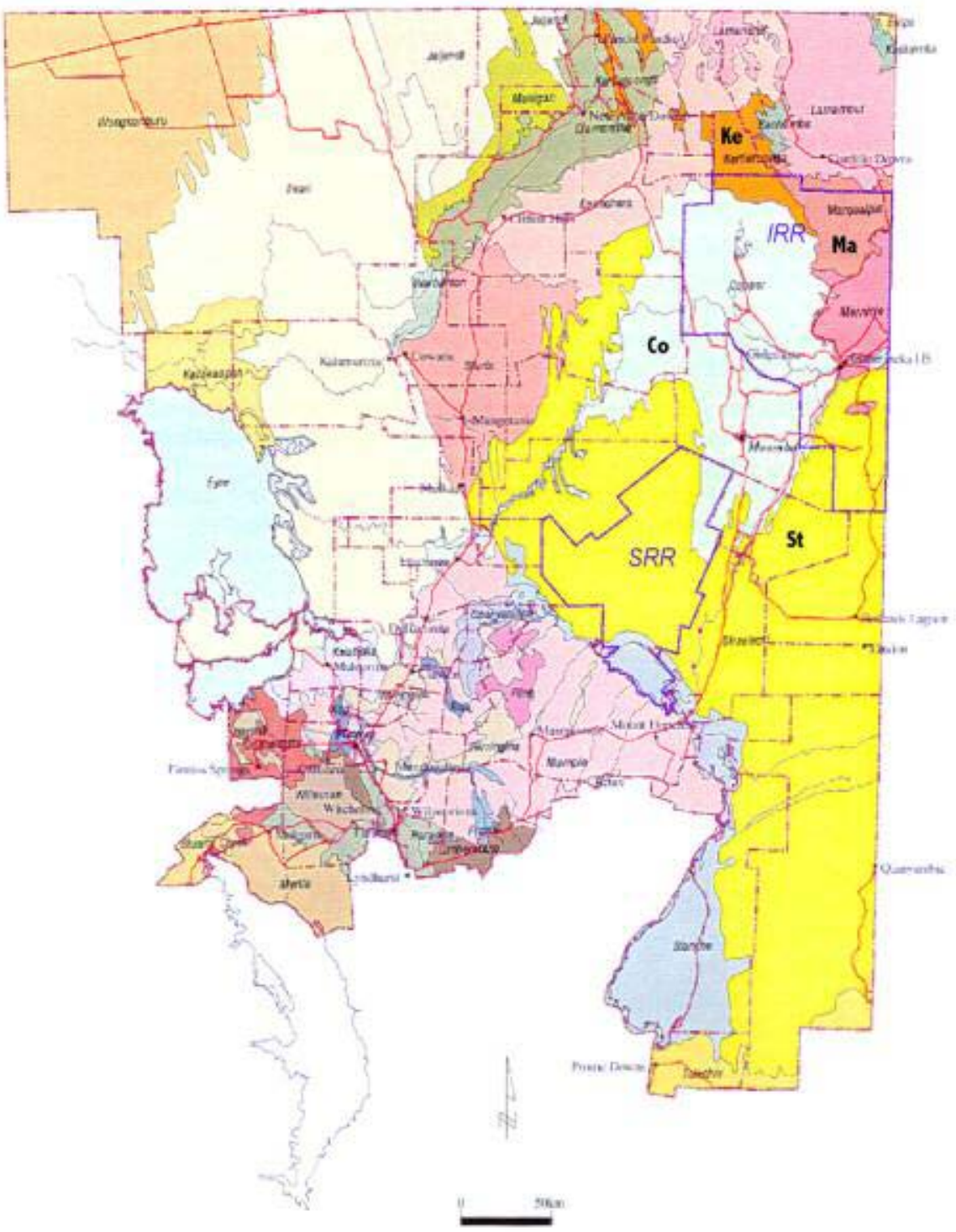

Figure 2. Land systems map including the Cooper Basin (Marree Soil Conservation Board 1997). Co: Cooper Land System (primarily floodplain) Ke: Kertietoonga Land System (primarily dune and sandplain); Ma: Marqualpie Land System (primarily dunefield); St: Strzelecki Land System (primarily dunefield). Regional Reserve boundaries shown blue: IRR: Innamincka Regional Reserve; SRR: Strzelecki Regional Reserve.

2. ENVIRONMENTAL OBJECTIVES

2.1 Objectives

The objectives of the Act include:

- to minimise environmental damage from activities involved in exploration for, or the recovery or commercial utilization of, petroleum and other resources
- to minimise environmental damage from activities involved in drilling and well operations.

Environmental objectives for petroleum production up to the level of an Extended Production Test are:

1) Minimise public and third party risks
2) Minimise fire risk at facility and prevent the spread of any fires to wellheads
3) Avoid disturbance to sites of Aboriginal and non-indigenous heritage significance
4) Avoid impacts on high biological value or wilderness value areas, including lowest active floodplain levels
5) Avoid significant drainage alterations and minimise minor alterations
6) Minimise soil impacts both of construction and of routine use: maintain soil integrity
7) Minimise disturbance to vegetation and habitat
8) Avoid disturbance to rare, endangered, and/or vulnerable species [1]
9) Prevent introduction of pest plants and animals
10) Avoid storage and loading facility spills
11) Undertake rapid cleanup and impact amelioration following spills
12) Avoid transportation spills
13) Minimise the likelihood of spread of a transportation spill
14) Minimise impacts of fire from any transportation spill
15) Avoid contamination of surface waters and groundwater
16) Minimise visual impacts
17) Prevent cross-connection between aquifers, and between aquifers and reservoirs
18) Minimise air pollution and greenhouse gas emissions
19) Minimise adverse impact on Regional Reserve operations
20) Minimise adverse impact on livestock
21) Avoid contamination of stockwaters with hydrocarbons
22) Minimise waste handling and disposal impact

[1] As defined in the National Parks and Wildlife Act 1972

23) Remediate and rehabilitate construction impacts, abandoned surface facilities and access or suspended wellsite and access

24) Undertake long-term planning for rehabilitation for producing wellsite/wellfields

25) Maintain partnerships in community

2.2 Assessment Criteria

The criteria for measuring the achievement of these environmental objectives are given in Table 1. Criteria generally can be split into the following forms:

1) Defined conditions. Defined conditions apply where the achievement of an objective can be judged through ensuring that those particular conditions are met or carried out. Examples are:

   • Prohibitions of specific actions where the prohibition directly eliminates potential impacts. The best example is the objective "Avoid disturbance to sites of Aboriginal and European heritage significance", for which one assessment criterion is compliance with the Aboriginal Heritage Act 1988 and with Stuart Petroleum's Native Title agreements.

   • Requirements to undertake actions in accordance with approved procedures or industry accepted standards. For example, multiple aspects of the construction and operation of production, storage and loading facilities, and the safe transportation of oil are required to meet stated Australian Standards.

   • Requirements to undertake actions or develop procedures to actively limit particular risks or minimise impacts where they do occur.

2) Goal Attainment Scaling (GAS) criteria. GAS criteria are applied where assessment has to deal with a range of outcomes rather than the relatively straightforward "yes/no" assessment possible in dealing with defined conditions, and where uncertainties of subjective judgement are involved. Examples are visual assessments of minimisation of disturbance to vegetation and soil, where the level of disturbance may range from major to nil, and assessments of the level of success of well site and track rehabilitation.

In this SEO, many of the objectives of most importance can be assessed using Defined Conditions, and Defined Conditions are preferred where possible. However, some aspects including development of access cannot be assessed on a yes/no basis: equivalent GAS scales to those in the basin-wide drilling SEO (Santos November 2003) are given in Tables 2 to 5, with modifications appropriate to the dunefield, sandplain and floodplain landscapes.

3) Monitoring and/or studies - In some cases the assessment of the environmental objectives may not be possible in the shorter term and may require longer term monitoring and scientific evaluation. In such cases, the assessment criteria may be in the form of longer-term data and information gathering.

3. AUSTRALIAN STANDARDS

The following Australian Standards are applicable to the proposed operation. Their application also has some bearing on environmental risks and hazards.

AS 1271	Safety Valves for Boilers and Unfired Pressure Vessels
AS 1692	Tanks for Flammable and Combustible Liquids
AS 1940	The Storage and Handling of Flammable and Combustible Liquids
AS 2381	Electrical equipment for Explosive Gas Atmospheres
AS 2430	Classification of Hazardous Areas
AS 2885	Pipelines Gas and Liquid Petroleum – Design and Construction
AS 3000	SAA Wiring Rules
AS 4041	Pressure Pipes
AS 4360	Risk Management
ANSI B31.3	Chemical and Petroleum Refinery Piping

4. INCIDENTS

4.1 Serious incidents

Section 85(1) of the Act defines "serious incident" to mean:

"an incident arising from activities conducted under a licence in which-

(a) a person is seriously injured or killed; or

(b) an imminent risk to public health or safety arises; or

(c) serious environmental damage occurs or an imminent risk of serious environmental damage arises; or

(d) security of natural gas supply is prejudiced or an imminent risk of prejudice to security of natural gas supply arises."

Pursuant to Regulation 12(2) of the Act, the incidents listed below are considered to be those which could arise and, if not properly managed or avoided, cause a serious incident:

- Explosion or fire at wellheads, or at production, storage, loading and ancillary facilities, including flowlines;
- Failure of containment systems at any stage of production or processing, including containment systems at storage and loading facilities;
- Spills of hydrocarbons outside bunded and other defined areas intended to contain spillages within Special Management Zones in Regional Reserves.[2].
- Any hydrocarbon spillage and/or consequent fire extending into active channels of the following lowland creek systems in dunefield or active floodplain: Cooper Creek, Montecleary-Dripie-Candradecka-Patchawarra Creek and Strzelecki Creek systems.
- Transportation or flowline accident resulting in injury or death;

[2] Special Management Zones are currently (December 2008) defined for Innamincka Regional Reserve only, in PEL182. Stuart Petroleum does not hold or operate within that licence area. The objective is included for completeness.

- Transportation or flowline accident involving oil spillage;
- Transportation or flowline accident resulting in fire;
- Failure of the produced water handling and cleaning system resulting in the release of uncleaned water (>30ppm hydrocarbons);
- Disturbance to sites of Aboriginal and non-indigenous heritage significance;
- Removal of rare, vulnerable or endangered flora and fauna species without appropriate permits and approvals.

4.2 Reportable incidents

Pursuant to Regulation 12(2) of the Act, the incidents listed below are considered to be reportable incidents under Section 85(1) of the Act.

- Non-compliance with procedures defined or developed to implement environmental objectives
- Spills of hydrocarbons outside bunded and other defined areas intended to contain spillages; in areas other than Special Management Zones of Regional Reserves.[3]
- Failure of the produced water handling system which results in the release of cleaned water (<30ppm hydrocarbons) outside recognised and approved disposal areas;
- Failure of the produced water cleaning system resulting in evidence of oil in disposed formation water
- Jet pump fluid releases or line breaks resulting in biocide, emulsion breakers and/or other chemicals being released beyond drill pads or processing facility boundaries;
- Transportation accidents other than those listed under "Serious incidents".
- Other non-compliance with SEO objectives as indicated by assessment criteria in Table 1.
- Any detected unauthorised access to production and processing facilities and associated infrastructure.

In order to expand on Section 85(1)(e) and Regulation 32(1)(b), the Energy Resources Division of the Department for Manufacturing, Innovation, Trade, Resources and Energy (DMITRE) has developed the following set of incident definitions (Table 1) relative to operation (facility and pipeline) activities.

[3] See preceding footnote.

Table 1: Incident definitions for operation (facility and pipeline) activities

Serious Incidents	Reportable Incidents
1. A person is seriously injured[1] or killed. 2. An imminent risk to public health or safety arises. 3. Serious environmental damage occurs or an imminent risk of serious environmental damage arises. For example: a) Disturbance to sites of cultural and/or heritage significance without appropriate permits and approvals[2]. b) An escape of petroleum, process substance, a chemical or a fuel to a water body, or to land in a place where it is reasonably likely to enter a water body by seepage or infiltration, or onto land that affects the health of native flora and fauna species. c) Detection of a declared weed, animal/plant pathogen or plant pest species that has been introduced or spread as a direct result of activities. d) Any removal of rare, vulnerable or endangered flora and fauna without appropriate permits and approvals[3]. 4. Security of natural gas supply is prejudiced or an imminent risk of prejudice to security of natural gas supply arises[4]. 5. An event that results in a rupture of a pressure containing asset or facility. 6. A regulated activity[5] being undertaken in manner that involved or will involve a serious risk to the health or safety of a person emanating from an immediate or imminent exposure to a hazard[6]. 7. Activity on a pipeline easement where the pipeline is contacted and repair action is required[7]. 8. An uncontrolled gas release resulting in the activation of emergency response and/or evacuation procedures of an area in or adjacent to the gas release, and/or fire or explosion.	1. An escape of petroleum[8], processed substance, a chemical or a fuel that affects an area that has not been specifically designed to contain such an escape[9] (other than a serious incident). 2. An event that has the potential to compromise the physical integrity of an asset or facility. For example: a) Activity on a pipeline easement with equipment that has been identified7 as exceeding the pipeline's penetration resistance, determined in accordance with Australian Standard (AS) 2885. b) Identification of a through-wall defect on a pipeline[10] or plant component (other than a serious incident). c) Identification[11] of a partial through-wall defect (e.g. through visual inspection, inline inspection, non-destructive testing) that requires repair or replacement action, or a reduction of the Maximum Allowable Operating Pressure, to maintain safe operation (other than a serious incident). d) Activity on a pipeline easement with equipment or vehicles that have been identified7 as exceeding allowable stress limits, determined in accordance with AS2885. e) An unapproved[12] excursion outside of critical design or operating conditions/parameters. f) Failure of a critical procedural control in place to reduce a credible threat to low or as low as reasonably practicable (ALARP).[13] 3. Unauthorised activity on a pipeline easement where the pipeline is contacted but repair action is not required. 4. Malfunction or failure of critical plant or equipment that had (or still has) potential to cause a serious incident. 5. Any non-compliance with SEO objectives.

[1] As per the definition in Section 36 of the *Work Health and Safety Act 2012*.
[2] Pursuant to *Aboriginal Heritage Act 1988* and *Heritage Places Act 1993*
[3] Pursuant to *Native Vegetation Act 1991* (flora) and *National Parks and Wildlife Act 1972* (fauna).
[4] That is, after taking into account relevant factors on a day and rights and obligations under contracts, a significant curtailment of firm service that detrimentally impacts or is likely to impact upon the security of electricity supply to South Australia or to gas supplies to a significant number of commercial and/or domestic gas users in SA
[5] Regulated activity as defined in Section 10 of the *Petroleum and Geothermal Energy Act 2000*.
[6] Resulting in the issuing of a prohibition notice by SafeWork SA pursuant to Section 195 the *Work Health and Safety Act 2012*.
[7] For the case where a detailed assessment is required to determine this, DMITRE recommends the incident be reported initially and amended at a later date if required.
[8] In gaseous, liquid or solid state, as per *Petroleum and Geothermal Energy Act 2000* definition.
[9] An area assigned during a Hazard and Operability Process (HAZOP) study as a hazardous area for the purpose of gas venting, and designed as such, is considered to be an area specifically designed to contain a gas escape.
[10] As per *Petroleum and Geothermal Energy Act 2000* definition, the term 'pipeline' includes tanks, machinery and equipment necessary for, or associated with, operation of the pipeline.
[11] For reporting purposes, the incident is considered to have occurred at the time that a decision is made to repair or replace the defect, or reduce the Maximum Allowable Operating Pressure.
[12] "Approval" as per AS2885 definition. Note that there may be situations where excursions are allowable under AS2885.
[13] As per the Safety Management System process articulated in AS 2885.1-2012, or similar risk assessment process.

5. REFERENCES

Beach Petroleum Ltd (November 2003) “Statement of Environmental Objectives: Cooper Basin petroleum production operations”. Prepared for Beach Petroleum Ltd, Glenside, SA by Ecos Consulting (Aust) Pty Ltd, Wayville, SA.

Eagle Bay Resources NL (July 2006) “Statement of Environmental Objectives: Extended Production Testing in PELI182” Eagle Bay Resources NL, West Perth WA, July 2006. Rev 1.1

Marree Soil Conservation Board (1997) "Marree Soil Conservation Board District Plan" ISBN073084203 7

Santos (October 2003) "South Australia Cooper Basin Operators Statement of Environmental Objectives: Drilling and Well Operations." Santos Ltd, Adelaide.

Santos (November 2003) "South Australia Cooper Basin Operators Statement of Environmental Objectives: Production and Processing Operations." Santos Ltd, Adelaide.

Stuart Petroleum Ltd (November 2003) "Statement of Environmental Objectives: Petroleum production at Acrasia Field, Cooper Basin". Stuart Petroleum Ltd, Adelaide, November 2003.

Victoria Petroleum NL (2008) ‘Cooper Basin Petroleum Production Operations: Statement of Environmental Objectives’ Victoria Petroleum NL, Perth/RPS Ecos Adelaide.

Table 2: Environmental objectives and assessment criteria

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
1	Minimise public and third party risks	Production and processing risks arise where third parties can detect and access facilities, including flowlines, wells and production sites. All current Stuart Petroleum production sites are distant from public access routes, but there is no means for "hiding" the good-quality oil haul roads leading to them. Transportation risks arise through combination and potential conflict of public and rig or oil transport moves on the same road. There are additional hazards at the "choke points" represented by the one-lane Cooper Ck causeway at Innamincka and the wider causeway at Strzelecki Crossing Facility failures and industrial safety issues may affect third parties.	• Signage on haul road/public road intersections prohibiting entry, warning against trespassing, and warning of danger associated with petroleum activity and truck movements. • Local signage on approaches to production facilities prohibiting entry, warning against trespassing, and warning of truck movements. • Procedural "give-way" rules for rig and oil traffic at major stream crossing "choke points" (currently, Innamincka Causeway and Strzelecki Crossing) • At wellsites, regular integrity testing. Firefighting extinguishers for loading areas and pump bunded areas. • Communication with DEH regional officers where third party access issues arise in Regional Reserves	• No public or third party incidents • Procedures exist for trucking movements including give-way procedures at Innamincka Causeway. • Signage present, including speed limits • Logs exist of integrity testing at wellheads • Extinguishers present at loading areas • Installations meet appropriate Australian Standards
2	Minimise fire risk at facilities and prevent the spread of any fires to wellheads	Fire risks from the combination of spillage with ignition sources; OH&S considerations, potential loss of resource	• Containment and isolation of fires. • Maintenance of separation distances of facilities to avoid escalating events and to allow manual shutoff/isolation of fuel. • Manned attendance during road tanker filling/loading • Bunding for containment. • First attack extinguishers present. • Emergency response plan in place. Fire inductions and procedures. • Gas flare in cleared area with appropriate flare shield. • Minimisation of ignition potential through earthing facility and tanker in accordance with AS3000. • Tank fires, or fires where first attack failed, allowed to burn out (approval will be sought under AS1940)	• No wellhead fires • An Emergency Response Plan exists for the operation of each production facility • Minimum separation distances observed • Extinguishers present • Bunding, earthing meet appropriate Australian Standards

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
3	Avoid disturbance to sites of Aboriginal and non-indigenous heritage significance	Intrusion or physical site damage to areas of Aboriginal and non-indigenous heritage significance can result from access and pad construction, vehicle and people movement.	• Facility, camps and structure sites, access, flowline, borrow and water disposal areas inspected; any areas elsewhere requiring remediation also inspected • Inspections by or in association with signatories to indigenous heritage agreements for the licence area • Heritage report forms completed and lodged for any sites or artifacts identified • Survey records kept and available for audit • Consultation with Heritage Branch where non-indigenous heritage issues arise	• Proposed wellsites, access and ancillary areas have been surveyed and any sites of Aboriginal and non-indigenous heritage identified. • Any identified cultural and heritage sites have been avoided or otherwise appropriately cleared and managed

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
4	Avoid impacts on high biological value or wilderness value areas; minimise impacts on lowest active floodplain levels	Direct physical impact on high biological or wilderness value areas including off-road movement; fires started at pad; oil contamination; fires originating from oil spillages extending into high value areas; alterations resulting from process water disposal Biophysical "High value" areas currently are only formally defined by the Special Management Zones associated with Coongie Lakes in Innamincka Regional Reserve. Environmental assessments (professional opinion with observational support, including research studies already published) are necessary for establishing significance or otherwise of localities. The Ramsar wetland boundary is an administrative convenience, covering as it does extensive non-wetland areas. Regularly inundated wetlands associated with main stream flows of Cooper Creek, and their riparian fringe and associated drainage sumps, are all likely to possess high biological conservation values.	• Facility locations evaluated in environmental risk assessment for biological and wilderness values. • Extended testing and permanent production facilities including storage loading and water disposal located outside any Reserve Special Management Zones and above lower levels of frequently inundated floodplains, preferably in interdune areas of adjoining dunefield or on inactive former floodplain • Water disposal areas in closed interdune catchments where feasible; disposal on inactive floodplain or highest level of active floodplain where not. • Main oil haulage roads constructed outside any Reserve Special Management Zones and off active floodplains as far as possible. • Facility design and transport operations and procedures to prevent spills; procedures in place to minimise spill risks in wet conditions; procedures to limit the spread of fires associated with spills, and fire safety included in inductions; limitation of movement to appropriately prepared access; minimised borrow use and utilisation of local borrow to minimise visual impact from permanent colour contrasts; prohibition of public access on dedicated haul road • Haul roads and facilities out of visitor sight as much as possible to maintain some wilderness attributes. • Total prohibition on oil and rig movement through Walkers Crossing when water is over the road formation at the Crossing.	• Facility locations assessed for biological and wilderness value and assessment documented in site-specific information • Flooding risk indicated in site-specific documentation • Extended and permanent production facilities located above frequently flooding floodplains • Spills, fires as assessed under other objectives • No unauthorised off-road movement evident • Generally, impacts on high biological/wilderness value areas and lowest floodplains demonstrated to be unavoidable.

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
5	Avoid significant drainage alterations and minimise minor alterations	Greatest risks are associated with access and facility construction, including flowlines, crossing floodplain and channels, and either impeding, blocking or redirecting water flows. Blocking or redirection of channels can have major repercussions on downstream habitat. Even minor changes to microtopography on floodouts may result in major redirection of water films and consequent redistribution of vegetation and habitat. Track construction and wellsite selection should aim to minimise impacts by avoiding sensitive areas where possible and by appropriate construction methods.	• Extended testing and permanent production facilities, including storage loading and water disposal, located above lower levels of frequently inundated floodplains • Facilities and flowlines constructed to avoid water re-direction involving large water volumes, as in secondary active channels. • Diversions, through or around facilities, of minor channels, gutters or overland flow designed to minimise downslope flow alterations • Production roading constructed to allow passage of local inundation • Active stream crossings by production roading engineered permit flows (eg by culverting, crossings at grade, sacrificial formation	• Flooding risk indicated in site-specific documentation • Extended and permanent production facilities located above frequently flooding floodplains • Facility including flowlines and access located and constructed to maintain pre-existing water flows • 0, +1 or +2 GAS criteria are attained for drainage-related objectives as listed in Tables 2 and 3, during facility, flowline and access site selection, construction and rehabilitation. • No overt downstream changes consequent on placement of facilities

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
6	Minimise soil impacts both of construction and of routine use: maintain soil integrity	Access, hardstand, pad construction including borrow development, and clearing or trenching for flowlines, can lead to expanding soil erosion or alteration impacts, particularly from water erosion and/or ponding, sand drift and dust generation. Road formations need upgrading for safety of vehicle movement, to minimise risk of transportation spills, but also to limit dust generation and widening of the right of way by vehicles avoiding dust. Maintenance of the formation will be necessary to avoid recurrence of major dust formation. Flowline patrol tracks may need formation constructed to avoid braiding and widening. Flowlines need clear easements and a degree of soil destabilisation is inevitable particular on dune crossings. Off-road driving on sand surfaces will lead to drift and on clay surfaces to dust nuisances: both have the capability of expanding while the source of disturbance remains and hence off-road driving needs curtailing. Some off-road driving will always be necessary: roads/tracks should not be built for one-off or rare uses.	• New construction subject to route selection, heritage and environmental planning, clearances and procedures. • Minimise scraped and clayed access and pad areas consonant with engineering and safety requirements • Topsoil and plant detritus from cleared areas—pads and borrow--stockpiled for later re-spreading in the case of short-term usage, or used for remediation works elsewhere in the case of long term construction • Permanent access widened and straightened where needed both for safety and for reduction of dusting, wear and replacement borrow demands • Redundant access rehabilitated • Formation built and maintained on oil haulage routes and other access to minimise dust generation. • Provision on access roads for cross-drainage in active and larger inactive floodplains. • Formation (clay) laid on dune crossings • Vehicles normally kept to prepared surfaces • Borrow taken from level or near-level areas.	• 0, +1 or +2 GAS criteria are attained for soil impact aspects given in Tables 2-5 • Local erosion rates are not obviously accelerated above those of surrounding land. • No unauthorised off-road driving of creation of short cuts. • Surface soil and plant detritus stockpiles evident in new construction. • No downslope or upslope erosion associated with borrow pits. • Natural drainage line flows are not impeded by road crossings or other construction.

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
7	Minimise disturbance to vegetation and habitat	Physical damage to soils, vegetation and habitat generally through access and facility construction, including flowlines; fires at facilities or in transit resulting in wildfire; spillages and spread of spilled oil Alterations brought about by disposal of process water	• Environmental impact of alternate routes and placement considered during planning phase • Location and development of facilities, new access, and borrow sources subject to environmental inspection and evaluation as part of the route selection process. • Assessment records are kept and are available for auditing. • Minimised route distances for new or upgraded access. • No clearing of Category 1 trees, minimised removal of tall shrubs or small trees >1.5m both on access and at facility. Flagging of trees/groves for avoidance where appropriate • Borrow pits, trenches and similar designed and constructed as far as practicable to minimise fauna entrapment. • Borrow pits are restored to minimise water holding capacity, where agreements are not in place with stakeholders • Separate stockpiling of surface soil and debris from site levelling and cuts (sumps, pits) for use in rehabilitation not necessarily at the immediate site. • Maintenance of access to minimise dusting, gullying or collapse of dunes under additional traffic; limitation of off-easement vehicle movement. Borrow for maintenance taken from pits with low erosion hazard. • Sumps, pondages, facilities fenced as appropriate to minimise access by larger wildlife and feral stock, other grazers. • Inductions emphasising minimisation of damage to vegetation; controls on movement of vehicles and people off prepared sites; fire procedures in place. • Procedures in place to limit and rehabilitate spill damage (see "Avoid spills" below)	• There is an environmental and heritage assessment performed for new facility construction • 0, +1 or +2 GAS criteria are attained for vegetation-related objectives as listed in Tables 2 to 5, during facility and access track site selection, construction and rehabilitation. • 0, +1 or +2 GAS criteria are attained for vegetation-related objectives as listed in Tables 2 to 5, during borrow pit site selection, and restoration. • No unauthorised off-road driving or creation of short cuts, or other unauthorised activities outside access and work areas.

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
8	Avoid disturbance to rare, endangered and/or vulnerable species	Physical removal of rare, endangered, vulnerable species through construction, oil contamination. Animal species of significance particularly birds will be present intermittently in wet floodout areas associated with regular flows of Coopers Creek and flooding of Montecleary Creek and tributaries, and may penetrate in wet periods to isolated floodout or swampy areas in dunefield not normally connected to creek flows . Cooper Creek itself a significant wildlife corridor, whether wet or dry. High probability of plant species of significance also being in wetter floodout areas and along major creeks: Montecleary Creek and tributaries, Cooper Creek.	• Proposed facilities, flowlines, new access and borrow areas assessed for rare, vulnerable and endangered species before construction • New access and facilities off-floodplain in more widespread dunefield sites where possible; if on floodplain then on upper levels of active floodplain or on inactive floodplains. • Inductions emphasising minimisation of damage to vegetation and habitat; controls on movement of vehicles and people off prepared sites; fire procedures in place.	• Sites with rare, vulnerable and endangered flora and fauna present or potentially present have been identified. • Identified sites have either been avoided or subject to formal impact minimisation design.
9	Prevent introduction of pest plants and animals	Activity associated with facility and access construction, particularly movement of vehicles and equipment, is a potential source of weed or disease introduction and spread. The most effective prevention technique is to ensure that vehicles and equipment are cleaned prior to entry and movement off construction sites and easements is minimised. Especially in active floodplain areas, borrow sourcing can result in spread of weeds also. Borrow sources should be in areas free of weed species.	• Requirement for contractor/other vehicles to be clean prior to entering. • Control measures implemented for new imports as necessary • Securing of food wastes to avoid encouraging feral animals • Borrow areas, including pre-existing, checked for presence of pest species • Routine checks for appearance of pest species	• No borrow pits developed or used in areas of observed weed infestation. • No new weeds or feral animals introduced to operational areas or along associated access. • Presence of weed species consistent with or less than adjacent land

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
10 11	Avoid storage and loading facility spills; Undertake rapid cleanup and impact minimisation following spills	Facility spills from oil flowlines, storage, pumping, loading facilities can arise through physical disruption, overpressure, corrosion. Chemical transport and storage spills present a further risk. Spills can arise from vehicle and plant refuelling.	• All production facilities and flowlines designed and constructed to relevant Australian standards. • Flowlines to follow oil well access roads where a well is distant from production facility, to avoid development of multiple parallel corridors and allow ease of inspection, except where safety requires separation of flowline and roading. Flowlines laid and supported above ground where saline or sodic soils present a serious corrosion risk. Allowance for corrosion and subject to regular maintenance. Regular inspections. • Vehicle movement directed away from unprotected pipes. Signs and barriers at production facilities to avoid vehicles damaging pipework. Operational procedures for special vehicle use within facilities or when need arises to cross flowlines elsewhere. • No flowlines alongside regular public access routes. • High containment integrity systems complying with AS4041 Pressure Piping. Piping pressure tested to the highest forecast production operating pressures and production conditions. Tanks with bunds sufficiently large to provide for catastrophic tank failure. Pumps and manifold separately bunded against local failure. • Hard-piped to pump and loading point (threaded or hammer union connections). Loading point with clay pad. Flexible hose with cutoffs for train loading; any minor spillages at loading point to be left to evaporate and bio-remediate. Landfarming in place or pit disposal of seriously contaminated soils . • Procedures in place for minimising overflow and loading spill risks, integrity management and recording of spills. Attendance at equipment at all times during road tanker filling. Filling systems, storage tank operation and tanker procedures in accordance with AS1940 The Storage and Handling of Flammable and Combustible Liquids • Secondary fuel supplies, refuel areas and chemical storage HDPE/clay floored or equivalent and locally bunded.	• No production or process fluid, or fuel or chemical spills or leaks outside areas designed to contain them. • No release of production fluid onto active floodplain, floodouts or channels. • Facilities conform to Australian Standards • Compliance with the Environment Protection Act 1993 • Levels of hydrocarbon continually decreasing in the case of in situ remediation of spills.

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
12 13 14	Avoid transportation spills Minimise the likelihood of spread of a transportation spill Minimise impacts of fire from any transportation spill	There is a severe risk of pollution and impact on soils, vegetation and fauna, where spills occur in periods or locations where oil can be easily spread, particularly wet areas and flowing watercourses. The same conditions conducive to high pollution risk are also conducive to road crashes, rollovers, boggings and similar accidents. The key risk minimisation is also a practical one: simply not to move during periods of high hazard. Fires from transportation accidents have less pollution issues but potentially major impact if conditions are appropriate for spread of wildfire.	• Procedures in place for safe movement of hydrocarbon/chemical transport • No movement on wet roads or in wet conditions • No "wet wheel" fording of flowing watercourses other than sealed floodways with depth markers. Fording depth limit as set by regulatory authorities. • Reconstruction of rig roads as needed to safe haul road standard, with vehicle speed limits and procedural “give-way” rules for rig and oil traffic • Dune crossings designed to minimise risk of collision and of rollovers. • Contaminated soil on dune, sandplain or floodplain either landfarmed in place, or in extreme cases or in lower floodplain levels removed for pit disposal out of lower floodplains. • Contaminated soil from spillage at a watercourse or floodway crossing removed • Spill contingency and emergency response plans in place. • Conformance with Dangerous Substances Act 1979 and Environment Protection Act 1993 • Actual transportation fires permitted to burn out. Earthmoving equipment brought in if necessary to contain secondary fires.	• No production or process fluid, or fuel or chemical spills or leaks outside areas designed to contain them. • No release of production fluid onto active floodplain, floodouts or channels. • Levels of hydrocarbon continually decreasing in the case of in situ remediation of spills. • Remediation to accepted Soil Health Index levels • Procedures exist for safe movement of oil haulage and are adhered to.

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
15	Avoid contamination of surface waters and groundwater	Pollution of surface or groundwaters can result from spills already discussed and from formation water disposal with hydrocarbons present polluting surface water	• All preceding spill avoidance measures • Produced water with visible oil (>30ppm hydrocarbons) retained in containment areas. Produced water separated from oil and cleaned through --Initial separation in dewatering tank --clarification in purpose-built lined interceptor pond with takeoff via a breaker siphon or equivalent to a purpose-built guard pond --further residence in guard pond --disposal to prepared evaporation/infiltration site • In dunefield, freeform infiltration/evaporation in prepared basin at lower level than facility • In floodplain, freeform infiltration/evaporation in similar local interdune basins where possible, otherwise on prepared floodplain area (on highest levels in active floodplains) • In floodplain, production operations to cease with approaching flooding. Flowlines and any tankage on flooding surfaces purged and water-filled to limit buoyancy. Local fuel tanks drained and any hydrocarbons (eg lubricant drums) removed to above-flood or offsite. Fencing of evaporation area dependent on discussion with local land managers.	• No production or processing fluid spills or leaks outside areas designed to contain them • No produced water released from containment areas with visible oil present (>30 mg/L) • No produced water released into flowing stream channels or waterholes • Interceptor pondages are protected from external flooding
16	Minimise visual impacts	Visual impacts arise through obtrusive access and facility development and/or visible long-term persistence of pad and access. Regular outlines, obtrusive man-made landforms and colour contrasts between borrow and surface soil increase impacts.	• Siting of production facilities to minimise visibility from public access where feasible	• Visual impacts considered in site planning and development • 0, +1 or +2 GAS criteria are attained for visual impact related objectives as listed in Tables 3, 4 or 5

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
17	Prevent cross-connection between aquifers, and between aquifers and reservoirs	This objective is to protect water quality and water pressure of aquifers that are potential water supplies, and to maintain pressure in sands that might host petroleum accumulations elsewhere.	At producing wells: • Monitoring programs implemented to assess condition of casing and cross-flow behind casing. • Risk assessment for remediation if crossflow detected.	• No cross-flow behind casing between aquifers, and between aquifers and hydrocarbon reservoirs unless approved by DWLBC.
18	Minimise air pollution and greenhouse gas emissions	Combustion by-products, particulates, flared or vented hydrocarbon release; generation, pump engines, other power sources	• Production operations in accord with appropriate industry and legislative standards • Maintenance of motorised equipment • Exploration of alternative power sources with regard to emissions as well as fuel efficiency	• Compliance with regulatory legislative requirements
19	Minimise adverse impact on Regional Reserve operations	Interference with reserve management; interference with visitors associated with operations and vehicle movements. Some impact on visitor use inevitable due to increased vehicular movement on major Park access	• Liaison with Park management maintained. • Proposals to reduce public risk also minimise impact on visitors (see Public Risk, 1 above).	• No unresolved reasonable complaints
20 21	Minimise adverse impact on livestock Avoid contamination of stockwaters with hydrocarbons	Problems can arise from interference with normal pastoral operation, direct interference to stock, pollution of stock water by spills or formation water or brines disposal with hydrocarbons present polluting stock water	• Stock proof fencing around facility and water disposal • Timber fenceposts and flowline support sleepers may be creosoted but not CCA-treated, to comply with "green beef" certification requirements. • No oil released outside containment areas • Production water cleaned to no visible hydrocarbons (<30ppm) before disposal to infiltration/evaporation. Disposal not on floodplain or channels, or near stockwaters	• Facility and water disposal are fenced • No production or processing fluid spills or leaks outside areas designed to contain them • No produced water released from containment areas with visible oil present (>30 mg/L) • No CCA-treated fencing or flowline supports.

Table 2: Environmental objectives and assessment criteria (cont…)

	Environmental objective	Comment	Means for achieving objectives	Assessment Criteria
22	Minimise waste handling and disposal impact	Creation of wastes: sewerage, litter, overflow and spillage	• Generally, domestic wastes disposed in accordance with EPA licensing, with waste hierarchy model separation applied for manned production facilities. • Production camps' and service buildings' sewerage disposed via permanent septic tank system. • Wastes on site confined by bins/skips with segregation of recyclables. Disposal at regular intervals to EPA-licensed waste disposal facility at Moomba. • Chemicals and fuel oils purchased in bulk; adequate storage and tankage provided at facilities. • Litter cleanup and ongoing management	• No Environment Protection Act infringements • No spills or leaks from sewage disposal system • No litter remaining on or around sites • Attainment of GAS criteria for "Site left in clean, tidy and safe condition after final clean-up" objective during well site restoration (Table 3). • Attainment of GAS criteria for "Site left in clean, tidy and safe condition" objective during borrow pit restoration (Table 5).
23	Remediate and rehabilitate construction impacts, abandoned surface facilities and access or suspended wellsite and access	Construction will result in some impact which can be rehabilitated post-construction, even though the facility is operating. Also, wells will cease production and flowlines and access become redundant.	• Wellsite cleanups as for unsuccessful drilling outcomes. • Removal of flowlines. • Removal of redundant camp and facilities, including sewerage system for disposal at EPA facility. • Rehabilitation of redundant access if no further petroleum exploration likely; interim disguising of access entry points pending final rehabilitation.	• 0, +1 or +2 GAS criteria are attained for all objectives listed in Tables 2 to 5, during facility and access track site selection, construction and rehabilitation. • 0, +1 or +2 GAS criteria are attained for all objectives as listed in Tables 2 to 5, during borrow pit site selection, and restoration.
24	Undertake long-term planning for rehabilitation for potential producing wellsite/wellfields	Isolated small producing fields may cease to warrant production, and will require cleanup. Major centres (equivalent to Santos satellites) may remain viable through discovery of other fields reachable by flowline.	• Development of rehabilitation plans included in production management.	• Planning completed and rehabilitation objectives developed prior to facility abandonment.
25	Maintain partnerships in community	Liaison with local Cooper Basin community and information to other stakeholders		• Affected parties notified and consulted on proposed activities. • EIR and SEO process in place • No unresolved reasonable complaints

Table 3: GAS criteria for assessing facility location and construction

	Reduce disturbance to drainage patterns	Minimise impacts on soil	Minimise impact on vegetation
	No obstruction of water flows	Access and facility construction	Minimise perennial vegetation clearance
-2	Water flows in major channels and active floodplain pathways obstructed as a result of earthworks (other than containment bunding to prevent polluted runoff) or other facility development.	New road, facility or right of way construction and/or borrow sourcing in any Reserve Special Management Zone prohibiting construction. Major accelerated erosion associated with road, facility, right of way and/or borrow pits.	Trees of priority 1 removed in area where could have been avoided.
-1	Major water pathways diverted for flow maintenance, but minor channels and/or water pathways including active floodplain obstructed as a result of earthworks (other than containment bunding to prevent polluted runoff) or other facility development.	Borrow materials taken from outside approved areas. Minor accelerated wind or water erosion associated with road, facility, right of way or borrow areas	Vegetation of priority 2 or 3 removed in area where could have been avoided.
0	No major water pathways obstructed or diverted, minor channels or other water pathways are diverted around facility if required (other than containment bunding to prevent polluted runoff); some local disruption of active floodplain water flow remains.	No accelerated erosion associated with road, facility or right of way, minor water erosion on operating pits.	Trees and vegetation removed in area where unavoidable
1	No major water pathways obstructed or diverted, minor channels or other water pathways are diverted around facility if required; no local disruption of active floodplain water flow	No accelerated erosion on any of road, facility, right of way or pits	No trees removed, only vegetation of priority 4 cleared.
2	No obstruction to any water flow pathway.	No erosion evident on or immediately adjoining roads, facility, right of way or pits	No trees or vegetation removed.

Table 4: GAS criteria for assessing well and other facility site restoration

	Minimise residual impacts on drainage	Minimise visual impact of abandoned well and facility sites, flowlines and access tracks			
		Flowlines	Interdune and floodplain sites	Sites on dunes	Access tracks assessed from the main track
-2	Site or access permanently blocks drainage	Flowline remains on surface, access track or ROW unrehabilitated	The site remains as a prominent consolidated surface with a distinct edge.	Extensive gully erosion down the face of the dune and/or a steep site edge is prominent.	The track is prominent because of a scraped surface, windrows along its edges or gully erosion.
-1	Site or access permanently impedes and/or diverts drainage	Flowline and ancillary equipment (sleepers, fittings) removed but access/ROW unrehabilitated	The site surface and edge have been contoured into the surrounding landscape, but the colour of foreign material contrasts with the surroundings.	The edge of the site has been restored into the natural contour of the dune, but the colour of foreign material contrasts with the surroundings.	The track surface has been contoured into the surrounding landscape, but the colour of foreign material contrasts with the surroundings.
0	Site or access has minor drainage influence or redirection	Flowline removed, access/ROW treated but the earthwork disturbance (eg. ripping, rolling or respreading of original material) is still prominent.	The site contours and colour blend with the surroundings; but earthwork disturbance (eg ripping or respreading of original material) is still prominent.	The edge and colour of the site blend with the surroundings. The site contours are visible only when viewed from the top of the dune. They cannot be seen from the base. Erosion gullies are present down the face of the dune but they are not extensive or prominent.	The track contours and colour blend with the surroundings, but the earthwork disturbance (eg. ripping, rolling or respreading of original material) is still prominent.
+1	Site or access has no apparent influence on drainage	Flowline removed. Track/ROW contours and colour blend with the surroundings and the earthwork disturbance is beginning to blend also.	The earthwork disturbance is beginning to blend into the surroundings.	The edge and colour of the site blend with the surroundings. The site contours are visible only when viewed from the top of the dune. They cannot be seen from the base. There are no erosion gullies down the face of the dune.	The track contours and colour blend with the surroundings and the earthwork disturbance is beginning to blend also.
+2	[Site or access cannot affect drainage regardless of construction— may apply for dunefield areas]	No evidence of flowline. Track/ROW contours and colour blend with the surroundings and the earthwork disturbance is indistinguishable	The site contours and colour blend with the surroundings and the earthwork disturbance is indistinguishable from the surroundings.	The edge and colour of the site blend with the surroundings. The site contours are indistinguishable, whether viewed from the top or base of the dune.	The track contours and colour blend with the surroundings and the earthwork disturbance is indistinguishable.

Table 4: GAS criteria for assessing well and facility site restoration (Cont…)

	Re-establish natural vegetation on abandoned well, facility, flowline sites and access tracks		Site to be left in a clean and safe condition	
	Less than 5 years since restoration	More than 5 years since restoration	Backfilling and marking	Rubbish removed
-2	The site remains as a consolidated surface.	No revegetation evident.	Incomplete filling of sumps, cellars, ramps	Large items of litter present across site, eg. drums, pieces of casing and cables etc.
-1	The colour of foreign material contrasts with the surroundings.	The revegetation mostly consists of annuals and biennials. In contrast to the surroundings, there are few perennials.	Cellar backfilled but no marker erected.	Small items of litter spread over more than 50% of the site, eg. tin cans, nuts and bolts, rags, small pieces of cable and wood etc.
0	The site surface has been appropriately restored to facilitate revegetation (eg. ripping or respreading of original material).	The revegetation consists of annuals, biennials and perennials, but there are some bare patches which are inconsistent with the surroundings.	Cellar backfilled and marker erected.	No evidence of litter on site.
+1	The revegetation is extensive and consists of annuals and biennials. In contrast to the surroundings, there are no perennials.	The revegetation, mostly perennials, is consistent with the surroundings, but there is contrast in maturity between them.		
+2	The revegetation is extensive and mostly consists of annuals and biennials. Perennials which are consistent with the surroundings are beginning to establish.	The revegetation type, density and maturity are indistinguishable from the surroundings.		

Table 5: GAS criteria for assessing borrow pit siting and construction

	Minimise impacts on vegetation	Protect unknown sites of natural, scientific, or heritage significance	Minimise visual impacts
	Perennial vegetation clearance minimised	Avoid sites	Site pit appropriately
-2	Trees of priority 1 in Field Guide [4] removed in area where could have been avoided.	Sites disturbed.	Borrow pit less than 20m from road.
-1	Trees of priority 2 or 3 in Field Guide[1] removed in area where could have been avoided.		Borrow pit less than 50m from road.
0	Trees and vegetation removed in area where could not have been avoided.	Sites identified, flagged and avoided.	Borrow pit more than 50m from road. Visible from road due to lack of screening vegetation.
+1	No trees removed, only vegetation of priority 4 in Field Guide[1] cleared.		Borrow pit shielded from road by utilising screening vegetation or landform.
+2	No trees or vegetation removed.	Sites identified, flagged and avoided by 100m.	Borrow pit not visible from road.

[4] Field Guide refers to the Field Guide to the Common Plants of the Cooper Basin – South Australia and Queensland (SEA Pty Ltd 1997)

Table 6: GAS criteria for assessing borrow pit restoration

	Minimise impact on vegetation	Minimise impact on soil	Minimise visual impacts	Site to be left in a clean and tidy condition
	Acceptable revegetation after rainfall	Minimise erosion	Borrow pit effectively recontoured and ripped	Rubbish removed
-2	No revegetation evident.	Severe erosion evident.	No recontouring of pit has occurred – pit sides are very steep. Topsoil and vegetation not respread.	Litter present on site.
-1	Revegetation localised on the base of the pit but none or very little on the sides of the pit.	Moderate erosion.	Pit sides battered but not ripped.	
0	Perennial grasses and shrubs revegetated and type consistent with surroundings. Some bare patches still present. Vegetation cover is uniform over base and sides of pit.	Minor erosion along the sides of the pit.	Pit sides battered and ripped along the contour, but are still highly visible. Topsoil and vegetation respread over disturbed area.	No litter present on site.
+1			Pit contours blend well into surrounding landscape, although still evident.	
+2	Vegetation type and density indistinguishable from surrounding landscape.	No erosion anywhere on the pit.	Pit contours indistinguishable from surrounding landscape. Access ripped.	

APPENDIX 1

STUART PETROLEUM ENVIRONMENTAL RISK AND COMPLIANCE DOCUMENTS FOR DUNEFIELD AND FLOODPLAIN

Documents already provided in support of notifications or for regulatory overview.

Cooper active floodplains

Fatchen, TJ (April 2004) "Draft Environmental Risks and Compliance: proposed petroleum exploration drilling and initial production testing by Stuart Petroleum Ltd in PEL 105 at Beeville 1 (27º 38' 24" S 140º 18' 56" E)." Prepared for Stuart Petroleum Ltd as Operator for PEL105 Joint Venture by Fatchen Environmental Pty Ltd, Adelaide, March-April 2004. SP-04-11 Rev. 0

Fatchen TJ (November 2006) "Rehabilitation progress, Beeville #1, PEL 105" Prepared for Stuart Petroleum Ltd as Operator for PEL 105 Joint Venture by Fatchen Environmental, Adelaide, November 2006 Rev 0.

Derrilyn production area

Fatchen TJ (March 2006) "Environmental Risks and Compliance: proposed petroleum exploration drilling, initial production test and extended oil production test by Stuart Petroleum Ltd in PEL 113 At Light Fingers (28º 32' 40" S 140º 13' 32" E)" Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd. Adelaide, March 2006. STU-06-34 Rev. 0.2

Fatchen TJ (March 2006) "Environmental Risks and Compliance: proposed extended oil production test by Stuart Petroleum Ltd in PEL 113 at Toparoa 1 (28º 31' 27" S 140º 14' 40" E)" . Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, March 2006. SP-06-33 Rev. 2

Fatchen TJ (January 2006) "Environmental Risks and Compliance: proposed petroleum exploration drilling and initial production testing by Stuart Petroleum Ltd in PEL 113: Toporoa "A" (28º 31' 18" S 140º 14' 45" E) Toporoa "B" (28º 31' 27" S 140º 14' 40" E) Toporoa "C" (28º 31' 32" S 140º 14' 40" E) Toporoa "D" (28º 31' 42" S 140º 14' 41" E)" . Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, January 2006. STU-05-30 Rev 1

Harpoono production facility

Fatchen TJ (October 2006) "Environmental risks and compliance: Proposed exploration drilling and extended production testing by Stuart Petroleum Ltd in PEL 113. Dunoon "A","B","C","D". Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, October 2006. SP-06-40 Rev 0

Fatchen TJ (March 2006) "Environmental risks and compliance: proposed development drilling and extended production testing by Stuart Petroleum Ltd in PEL 113. Harpoono 2, 3; Harpoono South "A","B","C","D"; Harpoono East "A","B","C","D" Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, March 2006 SP-06-35 Rev 1

Fatchen TJ (5 November 2004) "Proposed changes to water disposal associated with permanent facilities at Harpoono #1 Extended Production Test". Support document for notification to PIRSA for alterations to Harpoono EPT facility.

Fatchen TJ (2004) "Environmental risks and compliance: proposed extended oil production test by Stuart Petroleum Ltd in PEL 113 at Harpoono 1 (28º 37' 02" S 140º 06' 47" E)." Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, August 2004. SP-04-13 Rev. 3

Fatchen TJ (November 2004) "Environmental risks and compliance: proposed development drilling, initial production test and extended oil production test by Stuart Petroleum Ltd in PEL 113 at Jezabeel 1 (28º 37' 46.4" S 140º 05' 38.8" E)". Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, October/November 2004. SP-04-17 Rev. 0.1

Fatchen TJ (March-April 2004) "Environmental Risks and Compliance: proposed petroleum exploration drilling and initial production testing by Stuart Petroleum Ltd in PEL 113 at Saintly 1 (28º 33' 46" S 140º 13' 14" E) & Harpoono 1 (28º 37' 02" S 140º 06' 47" E)" Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, March-April 2004, SP-04-10.

Marqualpie, Kertietoonga Land Systems

Fatchen TJ (November 2007) "Proposed extended oil production test by Stuart Petroleum Ltd at Cleansweep #1 (27° 09' 22.4"S 140° 36' 24.8" E) PEL 100, Cooper Basin." Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, November 2007. STU-07-52 Rev. 1.01

Fatchen TJ (2007) "Environmental risks and compliance: proposed petroleum exploration drilling and initial production testing by Stuart Petroleum Ltd at Cleansweep #1 (27° 09' 22.4"S 140° 36' 24.8" E) PEL 100, Cooper Basin." Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, June 2007. STU-07-47 Rev. 0

Fatchen TJ (October 2005) "Environmental risks and compliance: proposed petroleum exploration drilling and initial production testing by Stuart Petroleum Ltd in PEL 90 at Haricot 1 (27º 09' 49.9" S 140º 47' 32.0" E)" Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, September-October 2005. STU-05-22 (well subsequently drilled as Harry 1)

Fatchen TJ (September 2003) "Environmental risks and compliance: proposed petroleum exploration drilling and initial production testing by Stuart Petroleum Ltd in PEL 90 - Maribu Block at Kiwi 1 (27º 02' 13" S 140º 43' 43" E) ". Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, September 2003. SP-03-07

Padulla production facility

Fatchen, TJ (August 2007) "Environmental risks and compliance: proposed exploration drilling and extended production testing by Stuart Petroleum Ltd in PEL 93 at Patron 1 (28° 34' 04.8" S 139° 49' 18.42" E)" Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, August 2007. STU-07-51 Rev 1.1 (well drilled as Patronus 1)

Fatchen TJ (January 2006) "Environmental risks and compliance: proposed extended oil production test by Stuart Petroleum Ltd in PEL 113 at Padulla 2 (28º 35' 43" S 139º 51' 23" E)" Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, November 2005. SP-05-26, Rev 1.2 January 2006.

Fatchen, TJ (October 2005) Environmental risks and compliance: proposed exploration drilling and initial production test by Stuart Petroleum Ltd in PEL 113 at Padulla 2 (28º 35' 43.4" S 139º 51' 23.8" E) Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, September/October 2005. SP-05-24

Fatchen, T.J (October 2005b) “Environmental risks and compliance—proposed exploration drilling and initial production test by Stuart Petroleum Ltd in PEL 113 at Hiraji 1 (28º 35' 17.8" S 139º 54' 8.8" E)” Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, October 2005. SP-05-25, Rev 2

Fatchen TJ (January 2006) “Environmental risks and compliance: proposed development drilling and extended production testing by Stuart Petroleum Ltd in PEL 113: Padulla Field; Dalray 1” Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, January 2006. SP-06-28 Rev 1

Worrior production facility area and surrounds:

Fatchen, TJ (July 2007) “Environmental risks and compliance: proposed development drilling initial production test and extended oil production test by Stuart Petroleum Ltd in PPL 207 at Worrior 6 (28° 25' 4.3" S, 139° 48' 34.3" E) “ Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, July 2007. STU-07-50 Rev. 0

Fatchen, TJ (June 2007) “Environmental risks and compliance: proposed development drilling. Initial production test and extended oil production test by Stuart Petroleum Ltd in PPL 207 at Worrior 5 (28° 24’ 52.4" S, 139° 47’ 6.7" E)” Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, June 2007. STU-07-46 Rev. 0

Fatchen, TJ (April 2007) “Environmental risks and compliance: proposed exploration drilling and extended production testing by Stuart Petroleum Ltd in PEL 93 at Rainbird1 (28° 29’ 09.7" S 139° 46’ 23.6" E)” Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, April 2007. STU-06-42 Rev 0.

Fatchen, TJ (August 2006) Environmental risks and compliance: proposed exploration drilling and initial production testing by Stuart Petroleum Ltd in PEL 93 at Tawriffic East 1 (28° 18' 06" S, 139° 44' 40" E)” Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, August 2006. STU-06-38 Rev 1.

Fatchen, TJ (April 2006) “Report on may 2004 inspections of landform and vegetation about proposed oil pipelines and associated transport corridors between Worrior EPT, Wancoocha Oil Facility and the Adelaide-Moomba Road.” Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, November 2005/April 2006. SP-04-11

Fatchen, TJ (January 2006) “Environmental risks and compliance: proposed development drilling, initial production test and extended oil production test by Stuart Petroleum Ltd in PEL 93 at Worrior 4 (28° 25' 03.9" S, 139° 48' 54.4" E)” Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, January 2006. SP-05-32

Fatchen TJ (September 2005). “Environmental risks and compliance: proposed development drilling, initial production test and extended oil production test by Stuart Petroleum Ltd in PEL 93 at Worrior 3 (28º 24' 51.5" S 139º 48' 32.2" E)” Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd. Adelaide, September 2005. SP-04-13

Fatchen, TJ (August/September 2004) “Environmental risks and compliance: proposed development drilling, initial production test and extended oil production test by Stuart Petroleum Ltd in PEL 93 at Arwon 1 (28º 24' 20.4" S 139º 50' 1.5" E)”. Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, August/September 2004. SP-04-14, Rev. 0-1

Fatchen TJ (August 2004) "Environmental Risks and Compliance: proposed development drilling. Initial production test and extended oil production test by Stuart Petroleum Ltd in PEL 93 at Worrior 2 (28º 24' 59.1" S 139º 48' 40.3" E)" Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, August 2004. SP-04-13 Rev. 2.

Fatchen TJ (31 January 2004) "Proposed changes to water disposal at Worrior #1 Extended Production Test" Memorandum, Fatchen Environmental Pty Ltd, provided with notification under Reg. 20 (1)

Fatchen, TJ (2003) "Environmental risks and compliance: proposed extended oil production test by Stuart Petroleum Ltd in PEL 93 at Worrior 1 (28º 25' 07" S 139º 48' 43" E)" Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd, Adelaide, October 2003, SP-03-08, Rev. 1

Fatchen, TJ (September 2002) Environmental risks and compliance: proposed petroleum exploration drilling and initial production testing by Stuart Petroleum Ltd in PEL 93 at Carbine 1 (28º 25' 55.4" S 139º 47' 06.7" E) & Warrior 1 (28º 25' 07" S 139º 48' 43" E) " Prepared for Stuart Petroleum Ltd by Fatchen Environmental Pty Ltd Adelaide, September 2002. SP-02-03