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

Dunefield and Floodplain Production, Cooper Basin

30 October 2008

INTRODUCTION

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

The classification must be made on the basis of:

- The prepared EIR;
- Criteria established for classifying the level of environmental impact of regulated activities, a copy of which is found on the PIRSA Petroleum and Geothermal Group (PIRSA) web page:

  (http://www.pir.sa.gov.au/__data/assets/pdf_file/0008/27728/sigactv6.pdf; and
- Comment received from relevant Government departments in accordance with established administrative arrangements between these departments and PIRSA.

This document summarises the classification made by PIRSA on Stuart Petroleum's proposed Dunefield and Floodplain Production activities in the Cooper Basin. This classification is based on information provided in the original EIR prepared by Fatchen Environmental Pty Ltd (August 2008).

SUMMARY OF CLASSIFICATION

1) From an analysis of the environmental significance of the events and potential impacts associated with the proposed activities against the classification criteria referred to above (assessment provided as Attachment 1), these regulated activities have been classified as **low environmental impact**.
2) The majority of events associated with the proposed petroleum production operations were assessed to be of low environmental significance. This is due to the fact that appropriate management measures will be implemented by Stuart Petroleum to avoid or mitigate any potential environmental consequences.
3) For a low environmental impact classification, PIRSA is required to consult with Department for Environment and Heritage (DEH) and the Environment Protection Authority (EPA) in accordance with the administrative arrangement dated 11 November 2005 and 21 November 2005 respectively.
4) Comments received from DEH and EPA on 3 July 2008 and 15 September 2008 respectively, agreed with the low environmental impact classification.

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

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

Activity:	Significance Assessment																		
Company:	Stuart Petroleum																		
Project:	Cooper Basin Dunefield and Floodplain Production SEO																		
Assessor:	Tim Flowers																		
				ABBREVIATIONS: H = High certainty; M = Medium certainty; L = Low certainty															
				PREDICTABILITY						**MANAGEABILITY**									
REF	TYPE OF IMPACT	EVENT(S)	POTENTIAL CONSEQUENCES	SIZE	SCOPE	DURATION	FREQUENCY	STAKEHOLDERS	SIGNIFICANCE	AVOIDANCE	PROBABILITY	DURATION	SIZE AND SCOPE	CUMULATIVE EFFECTS	STAKEHOLDERS	SIGNIFICANCE	COMMENTS	**Environmental significance**
	Natural Environment Impacts																	
	Soil Impacts																	
4.10.8		Vegetation clearance due to road, easement, flowline construction	Exposure of soils to wind and water erosion	H	H	H	H	H	1	No	High	Short				2	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/borrow) stock piled for later re-spreading in the case of short-term usage, or used for remediation works elsewhere in the case of long term construction.	**LOW**
2.6.4		Movement of heavy vehicles	Soil compaction, inversion of soil profile	H	H	H	H	H	1	No	High	Short				2	Vehicles are normally kept to prepared surfaces. Follow procedures for off-road movement.	**LOW**
4.3.2		Disposal of produced formation water	Soil contamination	M	H	H	M	H	2	No	Low					1	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 interceptor pond; further residence in guard pond; disposal to prepared evaporation/infiltration site.	**LOW**
4.10.2		Spills associated with flowline failure, equipment leaks, overflow of storage tanks.	Soil contamination	M	H	M	M	H	2	No	Low					1	Procedures in place for minimising overflow and loading spill risks. Secondary fuel supplies, refuel areas and chemical storage HDPE/clay floored or equivalent and locally bunded. Regular inspections of equipment. Flowlines to follow oil well access roads where a well is distant from production facility.	**LOW**
4.10.5		Spills associated with transport of oil/condensate	Soil contamination	M	H	H	M	H	2	No	Med	Short				2	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. 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 rollovers. Spill contingency and emergency response plans in place.	**LOW**
4.10.3		Spills associated with tank load-out.	Soil contamination	H	H	H	H	H	1	Yes						1	Hard-piped to pump and loading point. Loading point with clay pad. Flexible hose with cutoffs for train loading. Attendance at equipment at all times during road tanker filling. Contaminated soil on dune, sandplain or floodplain either landfarmed in place, or in extreme cases or in lower floodplain levels removed for pit disposal.	**LOW**
Table 1, Obj 22		Disposal of domestic and chemical waste; Sewage treatment	Soil contamination	H	H	H	H	H	1	No	Low					1	Production camps and service buildings sewage disposal via permanent septic tank systems. Wastes on site confined by bins/skips. Disposal at regular intervals to EPA licensed waste disposal facilities at Moomba.	**LOW**
4.10.3		Flooding of surrounding floodplain and/or watercourses.	Soil contamination	M	M	M	M	H	2	No	Low					1	Freeform infiltration /evaporation ponds in local interdune basins where possible, otherwise on prepared floodplain area (on highest levels in active floodplain).	**LOW**
	Surface Water and Groundwater Impacts																	
Table 1, Obj 5		Construction earthworks, introduction of fill material	Disturbance of natural drainage patterns, siltation of watercourses	H	M	H	H	H	2	No	Low					1	Surface hydrology addressed in site-specific assessments and planning. Facilities and flowlines constructed to avoid water re-direction involving large water volumes. Diversions, through or around facilities, of minor channels, gutters or overland flow designed to minimise downslope active channels. Production roading constructed to allow passage of local inundation. Active stream crossings by production roading engineered to allow flows.	**LOW**

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4.3.2		Disposal of produced formation water	Contamination of near surface aquifers	H	M	H	M	H	2	No	Low					1	Produced water with visible oil (> 30ppm hydrocarbon) retained in containment areas. Produced water separated from oil and clean through: initial separation in dewatering tank; clarification in purpose-built interceptor pond; further residence in guard pond; disposal to prepared evaporation/infiltration site.	**LOW**
4.2		Insufficient isolation barriers set in place post-drilling	Crossflow of aquifers; Aquifer contamination	H	H	H	H	H	1	Yes						1	At producing wells monitoring programs implemented to access condition of casing and cross-flow behind casing. Risk assessment for remediation if cross-flow detected. Casing design and cementing engineered and maintained to prevent blowout and for aquifer protection. Regular testing of casing integrity.	**LOW**
4.10.2		Spills associated with flowline failure, equipment leaks, overflow storage tanks.	Contamination of surface water and/or groundwater	M	H	M	M	H	2	No	Low					1	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.	**LOW**
4.10.5		Spills into creek during transport of oil/condensate.	Contamination of surface water and/or groundwater	M	H	H	M	H	2	No	Low					1	Procedures in place for safe movement of hydrocarbo/chemical transport. No movement on wet roads or in wet conditions. Recontruction of rig roads as needed to safe haul road standard, with vehicle speed limits and procedural 'give-way' rules for rig and oil traffic. Contaminated soil from spillage at a watercourse or floodway crossing removed. Conformance with Dangerous Substances Act 1979 and Environment Protection Act 1993.	**LOW**
4.10.5		Flooding of surrounding floodplain and/or watercourses	Contamination of surface water and/or groundwater	M	M	M	M	H	2	No	Low					1	In floodplain areas, freeform infiltration/evaporation in similar local interdune basins where possible, otherwise on prepared floodplain area (on highest levels in active floodplains).	**LOW**
	Vegetation Impacts																	
4.10.8		Construction earthworks (eg. facilities, roads, flowlines)	Vegetation clearance; habitat degradation	H	H	H	H	H	1	No	High	Med	Confined			3	Environmental impact of alternative routes and placement considered during planning phase. Proposed facilities, flowlines, new access and borrow areas assessed for rare vulnerable and endangered species before construction. No clearing of category 1 trees. Minimise removal of tall shrubs or small trees > 1.5 m both on access and at facility. Separate stockpiling of surface soil and debris from site levelling and cuts (sumps, pits) for use in rehabilitation not necessarily at the immediate site.	**LOW**
Table 1, Obj 9		Introduction of fill material during road construction	Introduction/spread weeds	H	M	M	M	H	2	No	Low					1	Ensure that vehicles and equipment are cleaned prior to entry and movement off construction sites and easements is minimised. In active floodplain areas, borrow sourcing can result in the spread of weeds also. Therefore borrow sources should be in areas free of weed species. Conduct routine checks for the appearance of pest species. Implement control measures for new imports as necessary.	**LOW**
Table 1, Obj 5		Flooding of surrounding floodplain and /or watercourse	Spread of contamination to vegetation	M	M	M	M	H	2	No	Low					1	New access and facilities off-floodplain in more widespread dunefield sites where possible. And if on the floodplain should be located on the upper levels of active floodplain or on inactive floodplains.	**LOW**
Table 1, Obj 7		Access and activity of personnel outside designated facility area / work areas	Damage to vegetation and habitats	M	M	M	M	H	2	No	Med	Short				2	Inductions emphasising minimisation of damage to vegetation and habitat. Controls on movement of vehicles and people off prepared site.	**LOW**
4.10.4		Explosion or fire at the production facility	Burning of vegetation and habitat	M	M	M	H	H	2	No	Low					1	Containment and isolation of fires. Maintenace of separation distances of facilities to avoid escalating events and to allow manual shutoff/isolation of fuel. Manned attendance during road tanker loading. Gas flared in cleared areas with appropriate shield. Bunding for containment. First attack extinguishers present, including at pumps and tanker loading. Emergency response plan in place. Fire inductions and procedures.	**LOW**

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4.10.5		Spills associated with transport of oil/condensate	Contamination of vegetation	M	M	H	M	H	2	No	Low					1	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. 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 rollovers. Spill contingency and emergency response plans in place.	**LOW**
4.10.3		Spills associated with tanker load-out	Contamination of vegetation	H	H	H	H	H	1	Yes						1	Loading point with clay pad. Flexible hose with cutoffs for train loading. Attendance at equipment at all times during road tanker filling. Contaminated soil on dune, sandplain or floodplain either landfarmed in place, or in extreme cases or in lower floodplain levels removed for pit disposal.	**LOW**
4.10.2, 4.10.3		Spills associated with flowline failure, equipment leaks, overflow storage tanks.	Contamination of vegetation	M	M	M	M	H	2	No	Low					1	Procedures in place for minimising overflow and loading spill risks. Secondary fuel supplies, refuel areas and chemical storage HDPE/clay floored or equivalent and locally bunded. Regular inspections of equipment. Flowlines to follow oil well access roads where a well is distant from production facility.	**LOW**
4.3.2		Disposal of produced formation water	Contamination of vegetation	M	M	M	H	H	2	No	Low					1	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. Disposal to prepared evaporation/infiltration site.	**LOW**
	Fauna Impacts																	
4.8		Construction Activities	Habitat loss due to vegetation clearance	H	H	H	H	H	1	No	High	Med	Confined			3	Proposed facilities, flowlines, new access and borrow areas assessed for rare, vulnerable and endangered species before construction. Inductions emphasising minimisation of damage to vegetation and habitat.	**LOW**
4.10.2		Spills or leaks associated with flowline failure, equipment leaks, overflow of storage tanks	Access to contaminants by stock and wildlife	M	H	M	M	H	2	No	Low					1	No oil released outside containment areas. Stock proof fencing around facility and water disposal.	**LOW**
		Flooding of surrounding floodplains/watercourses	Access to contaminants by stock and wildlife	M	M	M	M	H	2	No	Low					1	Contaminated soil from spillage at a watercourse or floodway crossing removed. Spill contingency and emergency response plans in place.	**LOW**
4.10.3		Spills associated with tanker load-out	Access to contaminants by stock and wildlife	H	H	H	H	H	1	Yes						1	Spill contingency and emergency response plans in place. Conformance with Dangerous Substances Act 1979 and Environment Protection Act 1993.	**LOW**
4.10.5		Spills associated with transport of oil/condensate	Access to contaminants by stock and wildlife	M	M	H	M	H	2	No	Low					1	Spill contingency and emergency response plans in place. Conformance with Dangerous Substances Act 1979 and Environment Protection Act 1993.	**LOW**
4.3.2		Storage and disposal of pond formation water	Access to contaminants by stock and wildlife	M	H	M	M	H	2	No	Low					1	Stock proof fencing around facility and water disposal.	**LOW**
Table 1, Obj 7		Presence of borrow pits	Entrapment of fauna in borrow pit leading to injury or death	H	H	H	H	H	1	No	Med	Med	Confined			3	Borrow pits 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.	**LOW**
	Sensitive Area Impacts																	
3.1, 4.10.7, 5		Disturbance to Ramsar wetlands of international importance,	Loss of conservation value	H	H	H	H	H	1	Yes	Low	Long	Confined			3	Some of Stuart's facilities are (and future facilities may be) within the Ramsar wetlands of international importance. Production facilities located outside any Reserve Special Management Zones and off frequently inundated floodplains, preferably in interdune areas of adjoining dunefield or on inactive former floodplain. Affected parties notified and consulted on proposed activities. Removal of redundant camp and facilities and rehabilitate if no further petroleum exploration likely.	**LOW**

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3.1, 4.10.7, 5		Disturbance to Strzelecki Regional Reserve	Loss of conservation value	H	H	H	H	H	1	Yes	Low	Long	Confined			3	The Worrior, Padulla, Harpoono and Derrylin facilities are within the Strzelecki Regional Reserve. Affected parties notified and consulted on proposed activities. Liaision with Park management maintained. Rehabilitation of redundant access if no further petroleum exploration likely.	**LOW**
3.1, 4.10.7, 5		Disturbance to Innamincka Regional Reserve	Loss of conservation value	H	H	H	H	H	1	Yes	Low	Long	Confined			3	The Beeville facility (not in production) is located within the Innamincka Regional Reserve. Affected parties notified and consulted on proposed activities. Liaision with Park management maintained. Rehabilitation of redundant access if no further petroleum exploration likely.	**LOW**
	Air Impacts																	
Table 1, Obj 18		Venting of gases (combustion by-products, particulates, flared or vented hydrocarbon release)	Atmospheric pollution	M	H	M	M	H	2	No	Low					1	Production operations in accordance with appropriate industry and legislative standards. Maintenance of motorised equipment. Exploration of alternative power sources with regard to emissions as well as fuel efficiency.	**LOW**
	Social Environment																	
	Community Resource Impacts																	
4.4.3, 4.10.7		Change in visual appearance of the area due to construction and long-term persistence of facilities and access	Reduction in aesthetic value	H	H	H	H	H	1	No	High	Long	Confined			3	Haul roads and facilities will be located out of visitor sight as much as possible to maintain some wilderness attributes. No flowlines alongside regular public access routes. Minimised borrow use and utilisation of local borrow to minimise visual impact from permanent colour contrasts.	**LOW**
4.10.6		Use of public roads	Degradation of public roads through heavy vehicle use	H	H	H	H	H	1	No	High	Long	Confined			3	Signage on haul road/public road intersections prohibiting entry, warning against trespassing, and warning of danger associated with petroleum activity and truck movements. Procedural 'give-way' rules for rig and oil traffic at major stream crossing 'choke points' (currently, Innamincka causeway and Strzelecki Crossing). Total prohibition on oil and rig movement through Walkers Crossing when water is over the road formation at the Crossing.	**LOW**
	Cultural & Heritage Impacts																	
4.4		Construction earthworks, movement of heavy machinery and vehicles	Disturbance to cultural heritage sites	M	M	H	H	H	2	Yes						1	Facility, camps, structure sites, access corridors, flowline, borrow sources including along haul roads, and water disposal areas, together with other areas which may require remediation, to be inspected and cleared for aboriginal heritage prior to operations. Inspections by or in association with signatories to indigenous heritage agreements for the licence area.	**LOW**
4.4, 4.8		Access and activity of personnel outside designated facility area/work area	Disturbance to cultural heritage sites	M	M	H	H	H	2	No	Low					1	Control of vehicle and personnel movement off facilities, access and associated infrastructure. Induction procedures devised and implemented.	**LOW**
	Community Health & Safety																	
4.11		Explosion or fire at the production facility	Danger to health and safety of employees, contractors and the public	M	M	M	M	H	2	No	Low					1	Regular integrity testing of wellheads, flowlines and production facility tankage, collection, distribution, loading and other facilities. Protection of wellheads by cutoff valves. Firefighting provisions (extinguishers) for loading areas and pump bunded areas. Separation of wellhead, pump, tanks and loading sufficient for isolating major fires. Fully earthed storage and loading facilities.	**LOW**
Table 1, Obj 22		Storage of domestic waste at camps, burning and transport to landfill	Scavenging by native and pest species, pest outbreaks and odorous emissions	H	H	H	H	H	1	No	Med	Short				2	Securing of food wastes to avoid encouraging feral animals. Domestic wastes disposed in accordance with EPA licensing.	**LOW**

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	Economic Environment																	
	Existing Land Use Impacts																	
Table 1, Obj 20		Construction and operation activities.	Disturbance to land use (eg. grazing and recreation)	H	H	M	M	H	2	No	Low					1	Timber fenceposts and flowline support sleepers may be creosoted but not CCA-treated, to comply with 'green-beef' certification requirements. Proposals to reduce public risk and minimise impact on visitors.	**LOW**