

Appendix D: Santos Risk Assessment Process

The environmental risk assessment contained in Section 5.0 was undertaken in accordance with the Santos Management System (SMS) Risk Management Standard. The risk assessment process involves:

- identifying the potential hazards or threats posed by the activities;
- categorising the potential consequences and their likelihood of occurring; and
- using a risk matrix to characterise the level of risk (Figure D1).

Control Measure Identification

Based on identified potential impacts, and the ranking of their unmitigated risk, 'Management Practices' ('Control Strategies') were identified to eliminate, prevent, reduce or mitigate consequences associated with each of the identified potential impacts. Appropriate control strategies were identified from previous activities, current Santos management practices, and through review of best practice techniques across the industry.

Determination of Severity of Consequence

The potential level of impact (consequence) was assessed and assigned in line with potential hazards and receptors, using the 'Santos Environmental Consequence Classification' (see Figure D1) from the Santos Risk Matrix. The consequence level for each risk source is documented in the risk assessment tables in Section 5.0. To describe the severity, scale and duration of potential impacts, six categories of consequence are used (as displayed in Figure D1).

Determination of Likelihood

Likelihood relates to the potential for a consequence to occur. This includes the likelihood of an event occurring and the subsequent potential consequence. This is defined using the Santos Risk Matrix (See Figure D1). To describe the likelihood of a potential environmental consequence occurring, six categories of likelihood are used. The Santos Risk Matrix is then used to characterise the resultant risk into one of five levels.

Determination of Residual Risk

Risk is expressed in terms of a combination of the consequence of an impact and the likelihood of the impact occurring. Santos uses a risk matrix (see Figure D1) to plot the consequence and likelihood to determine the level of risk.

Figure D1: Santos Risk Matrix

Santos Risk Matrix

		Santos Risk Matrix											
		Negligible Harm	Minor Harm	Moderate Harm	Severe Harm	Single Fatality OR Critical Life Threatening Injuries	Multiple Fatalities						
		No bodily damage or minimal harm or impairment (hours to days)	Short-term impairment (days to weeks)	Temporary disablement or medium term impairment (weeks to months)	Long-term impairment, altering disablement or impairment	Extensive population or community scale impact to EV(s) of conservation significance	Extensive population or community scale impact to EV(s) of conservation significance						
		No actual or potential community criticism	Minor local community criticism (< 5 weeks)	Local community criticism (5-10 weeks)	State-based community criticism or protest over multiple localisations impacted	National community criticism or large scale protest	National community criticism or large scale protest						
		No actual or potential harm to Santos sites and/or offices	No reputational impact	Local company reputation impacted	State-based company reputation impacted	Company reputation and approvals impacted	Company reputation and approvals impacted						
		< \$3pk	\$3pk to \$300k	\$300k to \$3m	\$3m to \$30m	\$30m to \$300m	\$30m to \$300m						
		Will require some staff attention over several days	Will require several days local management time	Will require head office staff and take several weeks of site management time	Will require several weeks of senior management time	Will require several months of senior management time	Will require several months of senior management time						
		No actual or potential impact to culture	Minor breach of legislation, instruments or contract	Limited number of minor breaches of legislation, instruments or contract	Systemic minor breaches (or one moderate breach) of legislation, instruments or contract	Material breaches (OR single instrument or contract)	Material breaches (OR single instrument or contract)						
		No regulatory or punitive action	Notification/report to regulator	Statutory notice from the regulator	Company charged with an offence with immediate/replicable to the regulator	Company charged with an offence with immediate/replicable to the regulator	Company charged with an offence with immediate/replicable to the regulator						
			II	III	IV	V	VI						
Likelihood	ALMOST CERTAIN (< 4 months) Occurs in almost all circumstances OR could occur within days to weeks	Low	Medium	High	Very High	Very High	Very High	Very High	Very High	Very High	Very High		
	LIKELY (6 monthly - 1 yearly) Occurs in most circumstances OR could occur within weeks to months	Low	Medium	High	High	High	High	High	High	High	High		
	OCCASIONAL (6 - 3 yearly) Has occurred before in Santos OR could occur within months to years	Low	Low	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium		
	POSSIBLE (6 - 10 yearly) Has occurred before in the industry OR could occur within the next few years	Very Low	Low	Low	Low	Low	Low	Low	Low	Low	Low		
	UNLIKELY (30 - 300 yearly) Has occurred elsewhere OR could occur elsewhere	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low		
	REMOTE (300 - 1000 yearly) Requires exceptional circumstances and is unlikely even in the long term OR only occurs as a "one in 100 year event"	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low		
Operational Risk Assessment Requirements													
Risk level	Action	Governance Mechanism			Authority for Continued Tolerance of Risk			Control Development and Timeframe			Control Ownership		
Very High	Following verification of the risk at Very High activity must stop + Activity cannot recommence until controls are implemented to reduce risk to High or lower + For incidents, a dedicated multi-disciplinary incident investigation team will be formed + Level 3 Manager or Excom member will be included in the investigation team + Assess risk to determine if it is reduced 50 For As is Reasonably Practicable (FSARP) + FSARP activities related to maintenance of controls to be prioritised and managed + For FSARP, improve existing controls and/or implement new controls + For incidents, a dedicated multi-disciplinary incident investigation team will be formed + Assess risk to determine if FSARP + FSARP activities related to maintenance of controls will be prioritised and managed + If not FSARP, improve existing controls and/or implement new controls + FSARP activities related to maintenance of controls will be prioritised and managed + If not FSARP, improve existing controls and/or implement new controls + Incidents are assessed using Mining the Diamond and investigated relative to the incident potential + Risk to be managed as stipulated by the related work processes	Controls will be governed at the Operations Committee meeting or equivalent forum + Sponsorship of incident investigation by EVP or Level 2 Manager + Controls will be governed at Divisional level meeting or equivalent forum + Sponsorship of incident investigation by Level 3 Manager + Controls will be governed at Area level meeting or equivalent forum + Sponsorship of incident investigation at Level 4, Manager + Controls will be governed at site level meeting or equivalent forum + Sponsorship for incident investigation at Level 5 Manager + Governed if required			+ CEO + EVP or Level 2 Manager + General Manager or Level 3 Manager + Level 4, Manager + Level 5 Manager			+ Intolerable Risk Level + Develop and implement controls urgently to reduce risk to High or lower as soon as practicable + Action to reduce risk level to Medium or below + Manage and monitor risk efficiently in accordance with business management plans + Manage and monitor risk efficiently in accordance with business management plans + Manage and monitor risk efficiently in accordance with business management plans			+ Level 2 Manager (e.g. Executive Vice President) + Level 3 Manager (e.g. General Manager) + Level 4, Manager (e.g. Asset or Functional Manager) + Level 5, Manager (e.g. Area Manager, Team Leader, Superintendent or equivalent) + Any individual contributor		