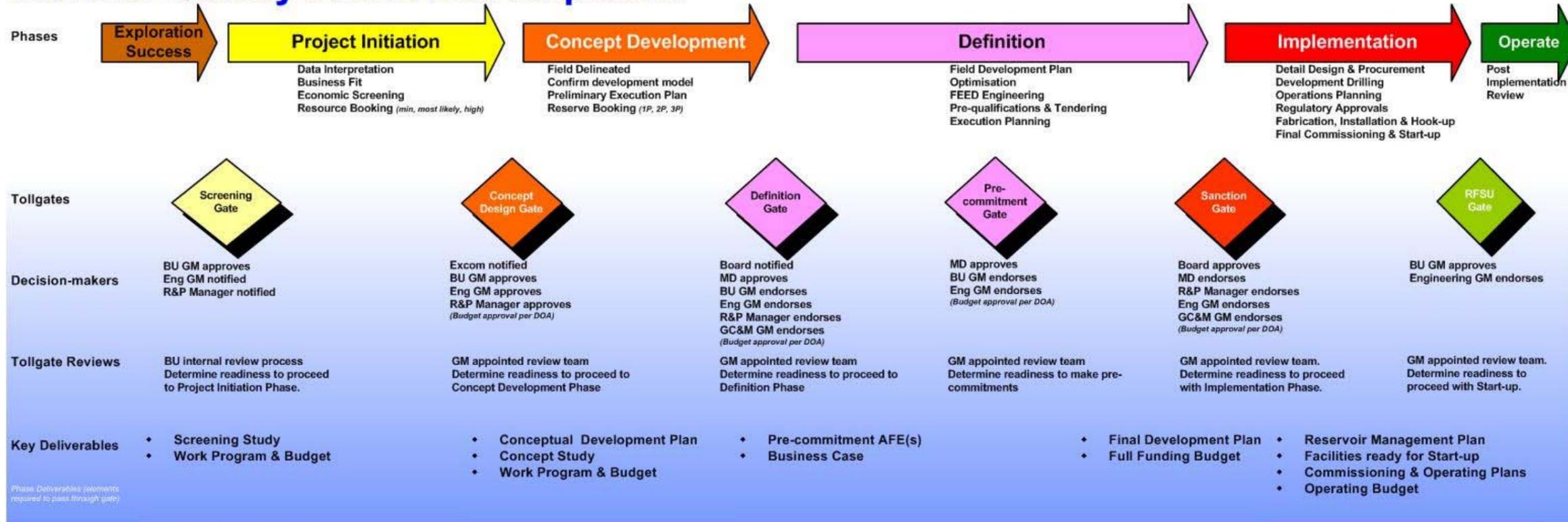


# Santos Quality Asset Development

SQAD-RV02  
Last Update: 07/07/20



<b>Sub-surface Technical Definition</b>	Opportunity description (summary of facts & data) Interpretation of acquired data (seismic, logs, fluids, tests) Identify key technical issues Critical data requirements for next phase (seismic, coring, delineation, testing) Risk & uncertainty distribution Resource distribution with maps Initial well & field production rate forecasts	Reserve / resource distribution with supporting G&G modeling Appraisal drilling & data acquisition reservoir performance sensitivity analysis alternate field development plans (well no., type, production profiles) Conceptual well designs Production system models Preliminary well & field production rate forecasts Key technical risks & mitigation strategies		Reservoir Management Plan Development Drilling Plan Final Field Development Plan Final risked reserves Well & completion design Subsurface Development Plan Reservoir surveillance & management plan Final well and field rate forecasts		Refine Reservoir Management Plan Well proposals Drilling program Drill & Complete Wells
<b>Surface Technical Definition</b>	Identify surface facility concepts Develop broad facility scope Evaluate facility concepts Block diagram Screening Study Memorandum	Process Flow Diagrams Utility Flow Diagrams Preliminary layout drawings Project Definition Memorandum Select single facility concept	Early engineering for long lead materials & contracts	FEED Finalise project scope Develop P&IDs Equipment data sheets Key engineering documents Obtain metocean, geotechnical & geophysical data	Design Basis Memorandum	Complete detail design Complete engineering documentation Commissioning Plan & Start-up Plan Vendor documentation Commissioned facilities ready for start-up Specify spares
<b>Risk Management</b>	Initial risk assessment	Risk Management Plan Cost & schedule risk analysis Hazard Studies 1&2		Update Risk Management Plan Cost & schedule risk analysis Hazard Study 3 (HAZOP)		Hazard Studies 4&5 HSE / Safety Case
<b>Economics, Commercial &amp; Strategic</b>	Corporate strategic fit Portfolio Management JV assessment & strategy (farm in / farm out) Permit acquisition / bidding strategy Understanding fiscal arrangements Commercial & operating context Economic value Investigate market opportunities	Joint Venture Operating Agreement Business plan Commercial strategy Economic distribution to support reserves assignments Risked NPV distribution & stress testing Develop marketing agreement(s)	Pre-commitment proposal for long lead materials & contracts		Detailed business & economics Finalise Marketing Agreement(s) Sanction proposal	OPEX Budgets & AFE's
<b>Organisation</b>	Establish subsurface development team Identify potential future needs & skills Establish Concept Screening team	Establish subsurface development team Identify potential future needs & skills Project Manager identified Preliminary development team planning Appoint Manager Field Development Operators & Maintenance Philosophy		Project Manager in place Operations & Maintenance Plans Organisation & Manpower Plans Man-up project & development teams Appoint Development Team Leader Appoint Operations Manager		Operating manuals & training Commissioning & start-up procedures Man-up operation team Organisational plan & manpower plan Recruitment of project & site teams Industrial Relations (IR) plan
<b>Execution</b>	Assessment / Delineation Plan	Assessment / Delineation Plan Preliminary Project Execution Plan Draft Construction Plan Draft Approvals Plan Early HSE Management Plans Early QA/QC Plan		Update Project Execution Plan Construction Plan HSE Management Plans QA/QC Plan Approvals plan Change management process External Affairs Plan Permit management Environmental submissions Production Licence application		Environmental plan Consent to use facility & all precedent consents & approvals Joint Operating Agreement Regulatory approvals Certification, verification & classification of facilities Permit management Project close-out
<b>Procurement / Contracting</b>		Contracting strategy Procurement strategy	Pre-qualification & tendering (long lead items) Recommendations for award (long lead items)		Final contracting strategy Final Procurement strategy Bids received for major POs & contracts Actionable POs & contracts in hand	Contract administration & variation control Operations support contracts Pre-qualification & tendering for remaining POs & contracts Bids received for remaining POs & contracts Actionable POs & contracts in hand Award remaining POs & contracts
<b>Cost &amp; Schedule</b>	Screening cost estimate (CAPEX & OPEX) +40/-25% Screening schedule	Class 1 cost estimate (CAPEX & OPEX) +25/-15% Class 1 schedule Work Breakdown Structure development		Class 2 cost estimate (CAPEX & OPEX) +15/-10% Class 2 schedule Project controls plan		Class 3 cost estimate (CAPEX & OPEX) +10/-5% Class 3 schedule Cost control

Enclosure 8.1.2-a: Overview of SQAD Process