



MICROALLOYING

Offshore Pipeline Projects

Operator	Project	Application	Installation Method	Material Specs	ECA Analysis	Weld Procedure Qual	AUT Qual	Testing
ExxonMobil	Erha	Clad SCRS & Flowlines	S-Lay		√		√	Sour Service Fatigue & Fracture Tests
	Angola LNG	Onshore / Offshore Pipeline	S-Lay, J-Lay	√	√	√		Sour Service Fatigue & Fracture Tests
	Golden Pass LNG	Onshore / Offshore Pipeline	S-Lay	√	√	√	√	
	PNG	Offshore Pipeline	S-Lay		√	√	√	
	Rasgas	Offshore Pipeline	S-Lay		√	√		Sour Service Fracture Tests
	Qatargas	Offshore Pipeline	S-Lay		√	√	√	
	Kashagan	Clad Pipeline	S-Lay		√			
BP	Thunderhorse	Flowlines & SCRs	Reeled		√			Full Scale Fatigue Testing
	Atlantis	Offshore Flowlines	Reeled		√			Sour Service Fatigue Crack Growth & CTOD Tests
	Dorado	SCR and Flowline	Reeled		√	√		
	Angola LNG	Onshore / Offshore Pipeline	S-Lay		√			
	King South	Flowline Reeled0	Reeled		√			
Marathon	Droshky	Flowline (Reeled)	Reeled		√	√	√	
CNOC	Panyu	Offshore Pipeline	Reeled		√			Sour Service Fracture Toughness Tests
Anadarko	Indepence Hub	SCRs	J-Lay		√			
BHP	Shenzi	SCRs and Flowlines	Reeled	√	√	√	√	
Murphy	Thunderhawk	SCRs and Flowlines	S-Lay		√			
	Kikeh	GAP Flowline System	S-Lay	√	√		√	
PEMEX	PEMEX-36	Offshore Pipeline	S-Lay		√			
	Kuzama J	Offshore Pipeline	S-lay		√			
Amareda Hess	Okume	Offshore Pipeline	Reeled	√	√	√	√	
Petrobras	Camarupim	Offshore Pipeline	S-Lay		√	√	√	Sour Service Fracture Toughness Tests
	Cascade	Offshore Flowline	Reeled		√			Sour Service Fatigue Crack Growth Tests
	Chinook	Offshore Flowlines	J Lay	√	√	√	√	Sour Service Fatigue Crack Growth Tests
Total	Angola LNG	Onshore / Offshore Pipeline	S-Lay	√	√			
Chevron	Tengiz	High Pressure Injection Line	S-Lay		√			Full Scale Fatigue Testing
	Tahiti	SCRs	J-Lay		√			
	North Eastern Gas	Offshore Pipeline	S-Lay		√			
	West Africa Gas	Offshore Pipeline	S-Lay		√			
	Blind Faith	Titanium Stress Joint & SCRs	Reeled		√			
	Angola LNG	Onshore / Offshore Pipeline	S-Lay		√	√		Sour Service Fatigue Crack Growth & CTOD Tests