



Single Entry Multi-Lateral Jetting



Introduction

- Our industry is currently faced with a number of global production issues;
 - depleting production
 - trapped / unrecovered reserves
 - high cost of in-fill drilling
 - high cost of in-effective stimulations
 - premature well abandonments
 - premature field closures
- Issues are often compounded by the economics and availability of technologies to reverse them



Enhanced Oil Recovery Services

- ◆ EOR services are available, although in many instances limited, in their actual effectiveness;
 - Water, Steam, CO₂, N₂ flooding are good, but expensive surface equipment, with poor injection conditions, limited source - Cryo
 - In-fill drilling campaigns are expensive, and do not always resolve the underlying field issues
 - Stimulation operations, can be expensive, logistically challenging (equipment) and limited in effectiveness (product penetration)
 - Well abandonments, puts more financial strain on being able to sustain the overall field



Maple Enhanced Oil Recovery Services

- ◆ To vastly improve results of EOR Maple recommend
 - Increasing the down hole surface area of the producing reservoir face, with lateral passages
 - Increasing the down hole surface area of the reservoir, for effective fluid or gas injection
 - The use of in-situ acid solutions (safe to handle)
 - The application of micro-biological technology (enzymes) designed to unlock trapped reserves
- ◆ Applications made feasible by the use of Lateral Jetting or more commonly known Radial Jetting

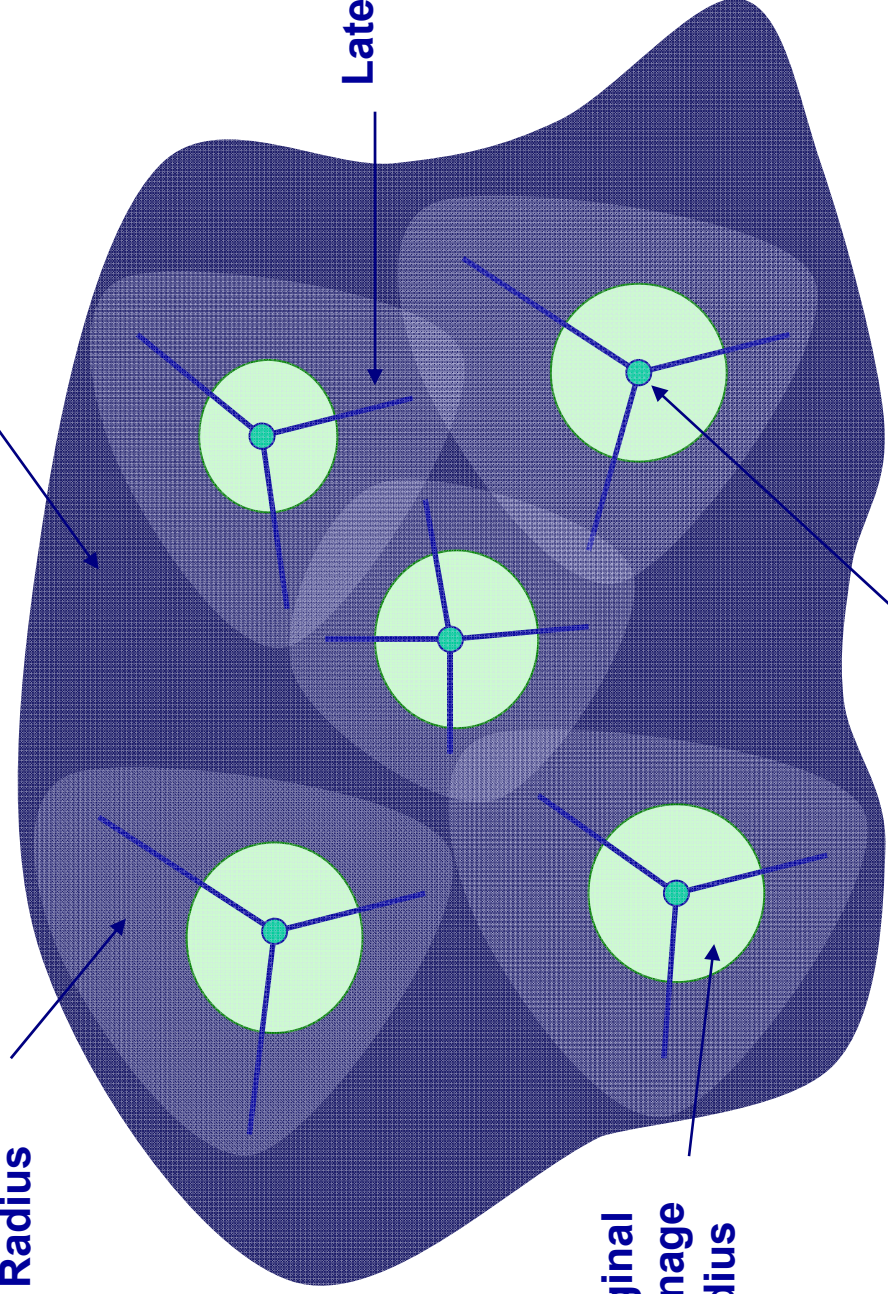
Post Multi
Lateral
Drainage
Radius

Oilfield

Laterals

Original
Drainage
Radius

Well





Radial Jetting



- Lateral or Radial Jetting has been about since mid 1980's, developed for use in the Austin Chalk
- Although Radial Jetting, in its current form has not really progressed
- Is limited in use and inherent with operational issues

Radial Jetting



- Uses micro-tubing and nozzle to jet channels into the formation with high pressure water
- Knuckle joint rotary drill used to penetrate casing and cement, causes 75% of issues
- Limited pumps can only jet with water, additional req'd, causing 25% issues
- Requires 8+ trips to jet laterals successfully





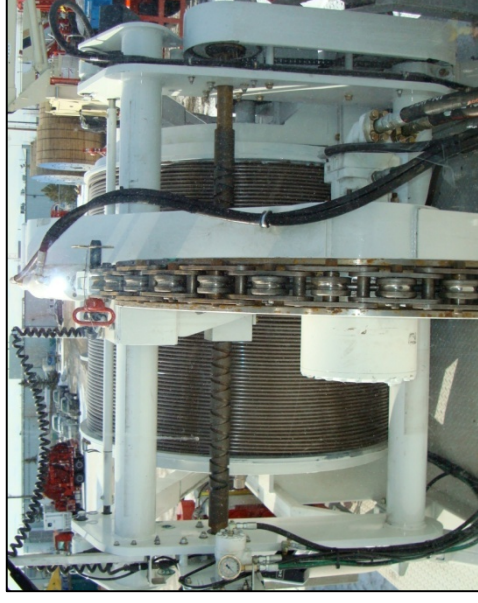
Single Entry Multi-lateral Jetting

- Maple Group however, are now releasing the “New Generation” in radial jetting, aptly named, “Single Entry Multi-lateral Jetting, or SEMJet for short.
- SEMJet provides the Client with a multi-purpose Well service system, built around a Lateral Jetting unit
- SEMJet resolves ‘ALL’ the issues previously associated with radial jetting, plus it includes a number of additional services to reduce the cost and reduce the time, but to increase the utilization and versatility
- SEMJet a Maple trade-mark, is provided exclusively under license of Petro-Surge Well Technologies



SEMJet System

- The system is provided with;
 - 1/4" Micro-coil tubing reel
 - High pressure jetting kit
 - Wireline logging unit / tools
 - BOP', flow spool, pipe work
 - High pressure pumps (acid)
 - Low pressure pumps
 - Automated feed tanks
 - Multi-disciplined crew





Competitors System Comparison

	Maple	Jet-Drill	RDS	Rad-Tech
BOP & Well Control Kit	●			
Power Sheave Injector	●	●	●	●
Wire-line Logging Unit	●			
Auto Fluid Tanks	●	●		
Acid Jetting System	●			
Hi / Lo Press Pump	●	●	●	●
Wire-line Logging Unit	●			
Single Entry Casing Mill	●			
Directional Jetting Tool	●	●	●	●
Skid Mounted Units	●		●	●
Truck Mounted Units	●	●	●	●



SEMJet ... how it works

- SEMJet is applicable for EOR opportunities in vertical / slightly deviated wells up to a depth of 4000m (horizontal extended reach system under development)
- Ideal in Carbonate, Sandstone and Limestone formations; Shale penetration possible with the use of stabilizing fluids / foams
- Jetting mediums are tested / engineered for “Formation Compatibility” prior to each campaign
- Maple Group can provide Reservoir Engineering support and EOR programs / procedures
- Maple Group can provide Field Flooding Designs programs; Lateral configurations inj. / prod. wells



SEMJet ...how it works

- Pull the production tubing using a service rig
- Maple will rig up wire-line and run a series of logs as requested; Warrior logging system, CCL, CBL, GR
- Once precise lateral placements are logged; the service rig will make up Maple's BHA
 - Pioneer - Casing Mill
 - Multi-Lateral Directional Tool





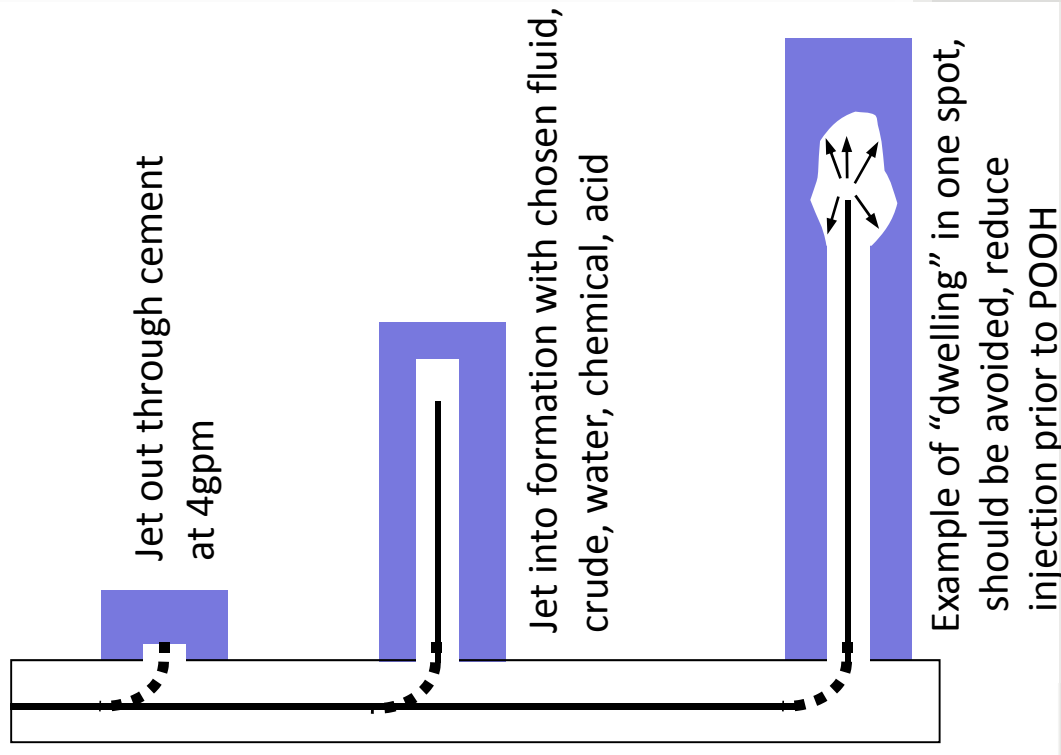
SEMJet ...how it works

- Service rig will run in hole to desired depth; Mill 6" to 10" section of tubing
- In the same run, Service rig will lower tubing 3ft to locate the MLDT across the Milled section
- Maple will rig up injector system and nozzle; drop MLDT activation ball, and then stab on BOP fluid lines
- Pump fluid to establish a tubing pressure behind ball; ball activates internal MLDT lowering an internal sleeve and aligning a 'J' slot to an exit port in the tool
- Once aligned, port is open to Milled section of casing



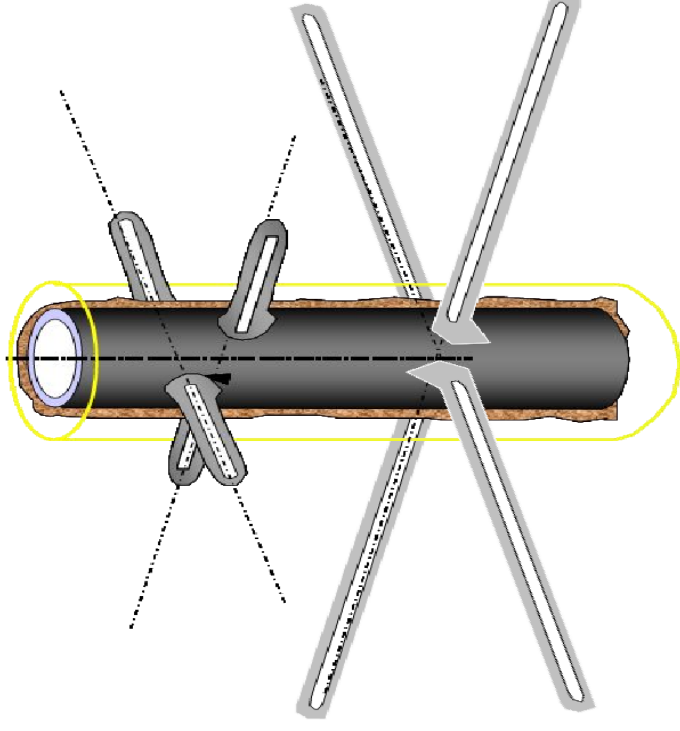
SEMJet ...how it works

- RIH hole with jetting system and jet out cemented section with 4gpm (desired fluid) at approx. 8,000psi at surface / 4,000psi BHP
- Continue to jet Lateral, with same or different fluid design for formation 3gpm to 4gpm



SEMJet ...how it works

- Lateral jetting has the ability to reach approx. 80m further than traditional perforations
- Once the Lateral has been jetted to desired distance, a stabilization fluid can be pumped when POOH
- Rotate tubing 90deg; prior to jetting next Lateral; a Gyro can be run on Maple wire-line if exact 90deg Lateral placements are required, the MLJT has an internal Gyro key locator



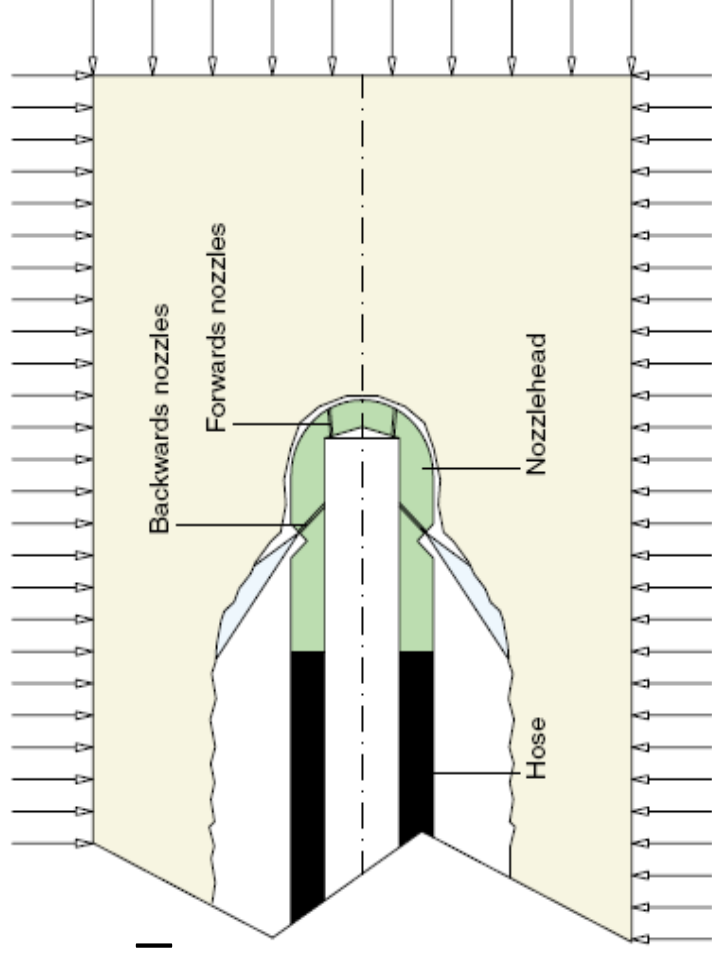


SEMJet ...how it works

- Continue same process to jet all 4 or more Laterals
- NOTE: if required Maple can jet a series of stacked Laterals, depending on clients formation and producing / injection zone criteria
- Maple can pump (lo press) In-situ Acids or Micro-bio Enzymes to soak, (hi press) as mini frac into Laterals

SEMJet ...how it works

- The Laterals are maintained horizontal due to the tension feed in the Power Sheave
- The BHP and jetting motion is such that it pulls straight the flexible jetting hose, Power Sheave automatically controls feed (NOV Hydra-Rig) design





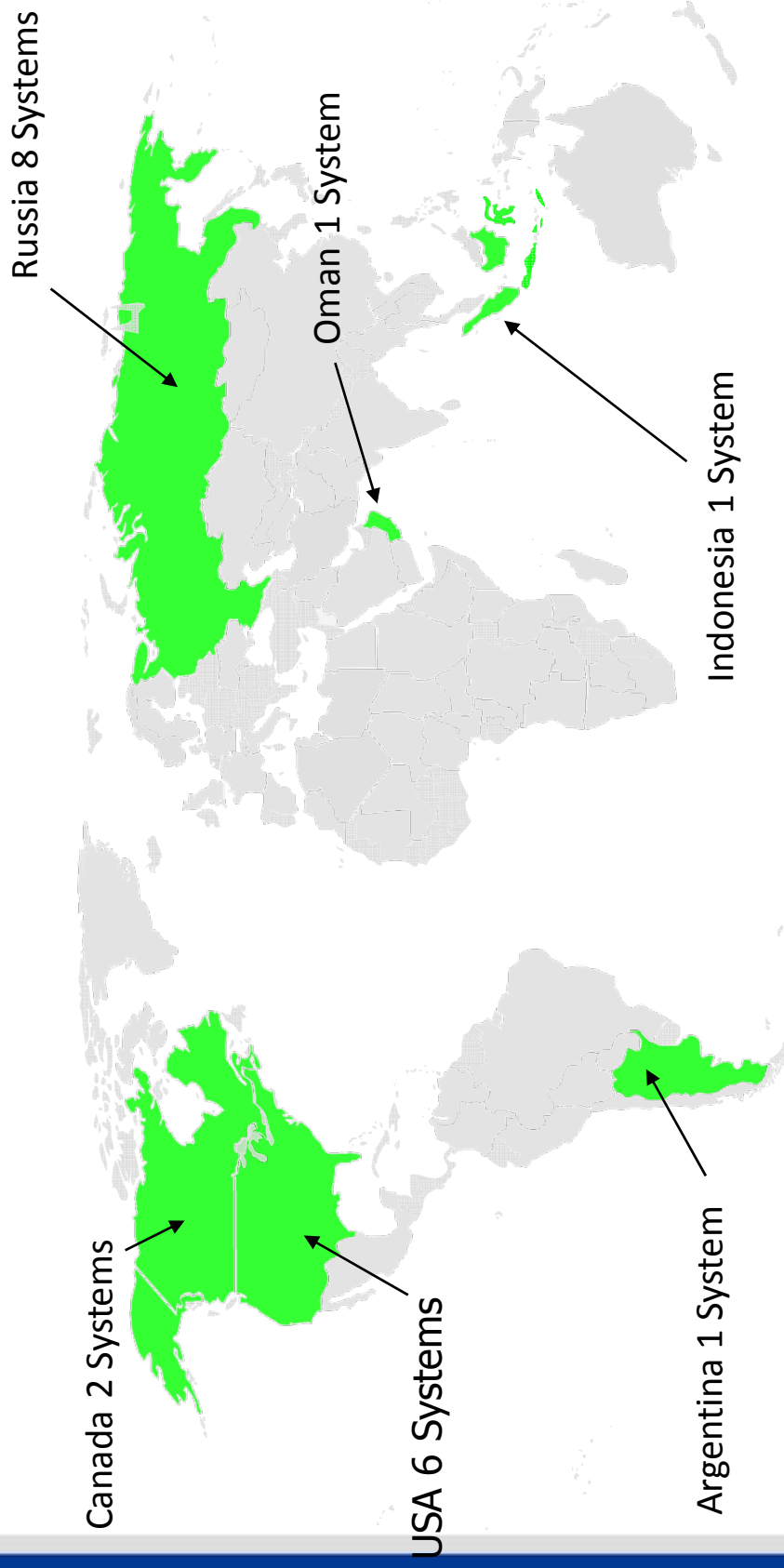
SEMJet ... how it works

- Design auto-feed control anti-collapse for Micro-Tubing
- Additional technology under development by Petro-Surge are a “Directional Tracker - 3D Real Time Modelling” and “Extended Reach Multi-Jet System”
- Maple add on services; Gauge deployment; Inspection cameras; Casing scrapers, brushes etc.





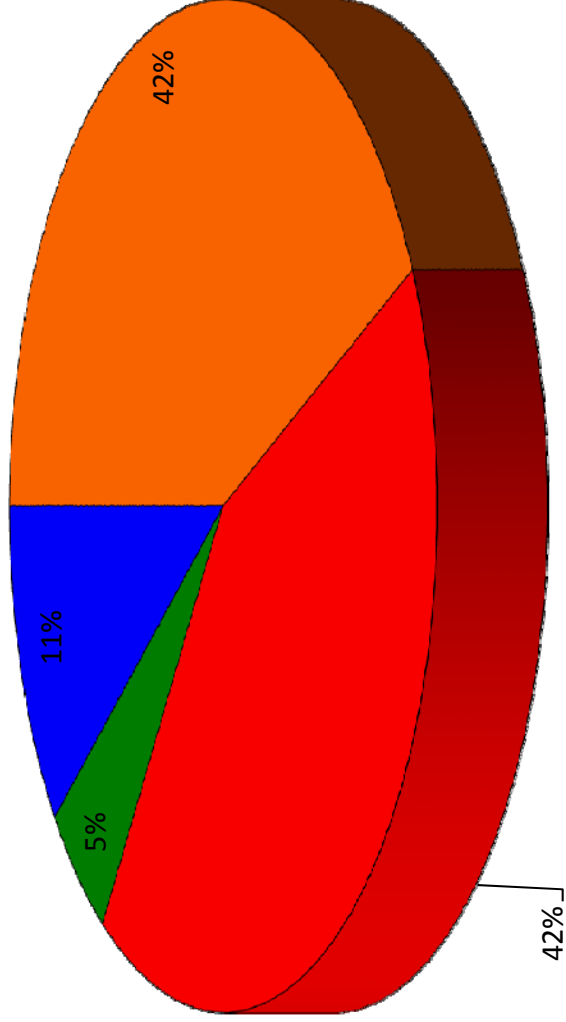
Global Activity 2009



Estimated Total Systems in 2009 = (2 x SEMJet style & 14 x Radial Style)



Market Share 2009



- With just 2 units Maple / PSWT already have 11% of the global market share



Regional Focus for 2009 - 2010

- Maple to focus on operations in the 4 busiest countries first
- With call-off systems available later, for smaller regional projects
- Alliance EOR partners possible in Indonesia and Australia

China

Full EOR Services

SEMJet, MPFM, Fluids

Indonesia

SEMJet Services

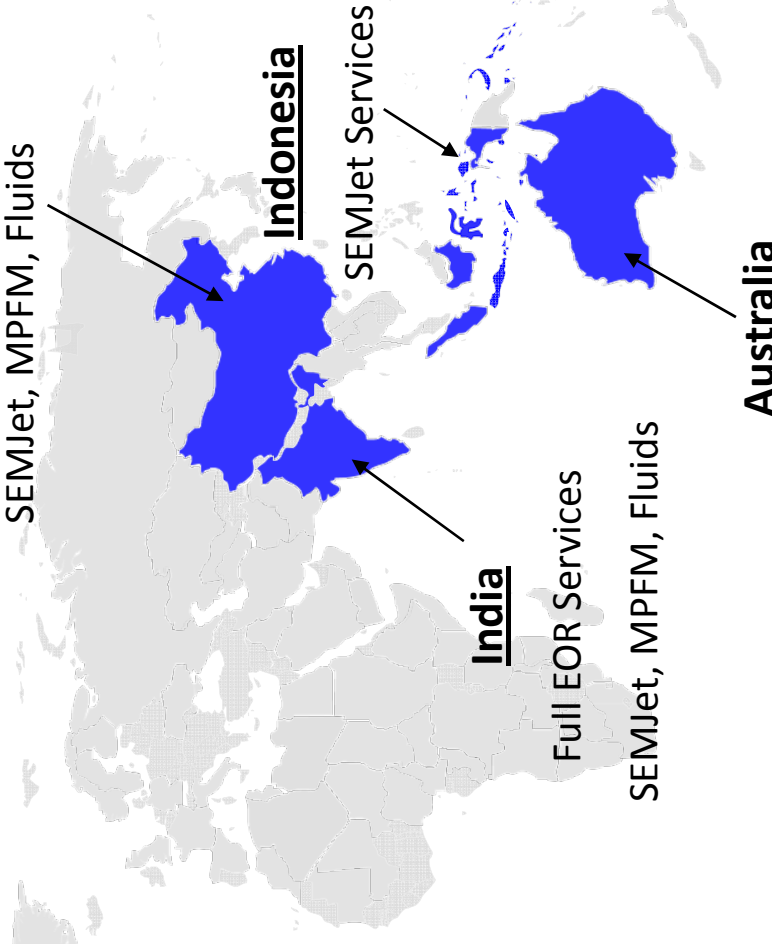
India

Full EOR Services

SEMJet, MPFM, Fluids

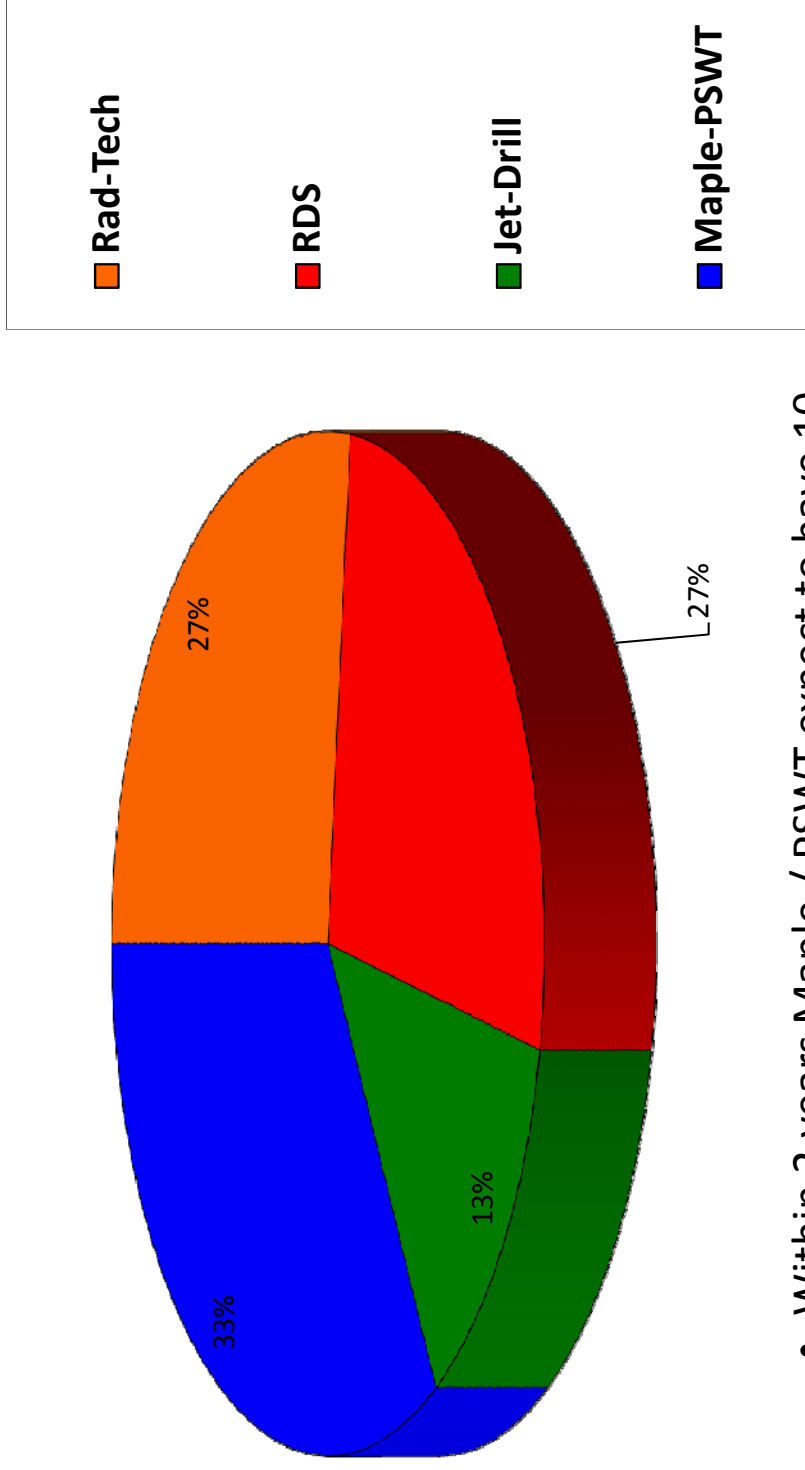
Australia

SEMJet Services





Market Share by 2011



- Within 2 years Maple / PSWT expect to have 10 units and 33% of the market due to its advanced technology



SWOT Analysis

<p>Strengths</p> <ul style="list-style-type: none">• Advanced proprietary system that is liked by the client• Unique EOR delivery services• Able to work alongside pull through services	<p>Weaknesses</p> <ul style="list-style-type: none">• Do not have all the services required for most EOR• Do not have any regional infrastructure, experience or operational facilities
<p>Opportunities</p> <ul style="list-style-type: none">• Increased need for EOR services in the industry• Multiple well contracts are possible in regions of focus• Possible Alliances or JV's	<p>Threats</p> <ul style="list-style-type: none">• Current 8 month delivery time, too high up-front build & delivery costs• Previous radial jetting problems• Projects in remote locations



Strategy for 2009 - 2010

- Maple Group to focus on the larger, busier regions first; to establish relations with Alliance or JV partners
- Highlight the benefits of SEMJet as a stand-alone or multi-functional EOR system to clients
- Highlight the 'pull through' benefits to any Alliance or JV partners;
 - increasing the number of producing wells that require stimulating, clean-ups & testing
 - increasing the number of economically feasible producers that require ESP's & production services
- Establish a range of specialty fluids & enzymes



Strategy cont....

- To fast track some long term contract opportunities & increase the overall SEMJet fleet in Asia from 1 to 5 within 2 years
- To seek some potential 'Equity Share' contracts & shared risk operations; providing services at a discount, in return for a long term share in 'Increased' oil, revenues
- Source alternative funding and/or partners to increase the SEMJet fleet & to increase additional R&D budgets
- Ultimately...to increase the awareness of SEMJet & to become a global leader in EOR delivery



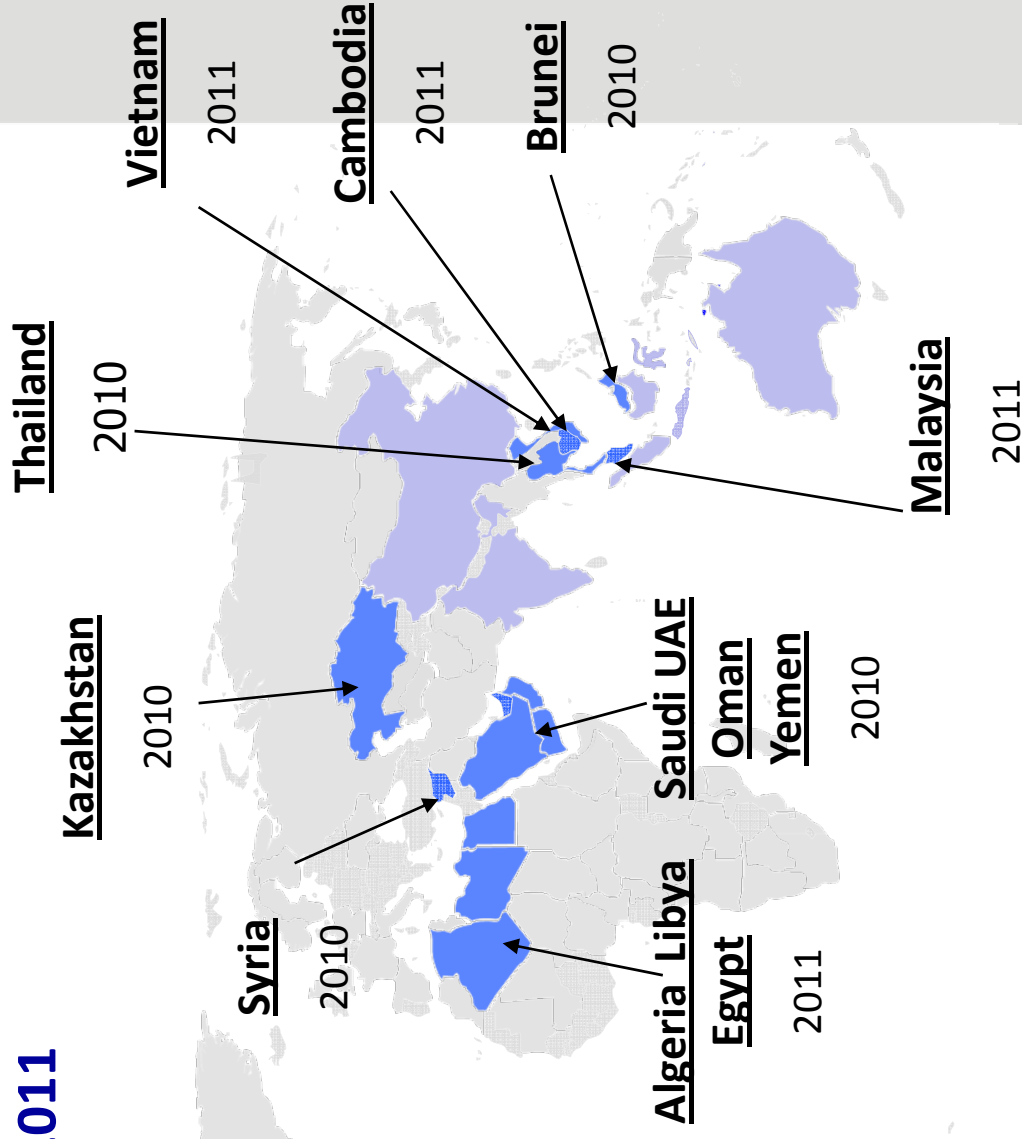
Strategy cont...

- To offer the clients cost effective solutions, rather than offering just a stand alone service.
- To utilize both experience and regional knowledge of what the customers would really like to see offered...
 - ✓ Multi-versatile SEMJet systems
 - ✓ Onshore (truck) & Offshore (skid) systems
 - ✓ Locally trained & experienced staff
 - ✓ An overall Solution A-Z (project management, technologies & engineering)
 - ✓ Effectively priced services (compared to traditional stand alone stimulation)



Future Focus for 2010 - 2011

- To establish a globally accepted EOR services & expand steadily in the Middle East & Central Asia
- To include the new offshore skid mounted units for additional expansion in Asia Pacific 2011





Future Objectives

- Review the strategy again 2 years by assessing the market share & potential competition
- Assign new down hole proprietary tools to stay ahead of the competition
- Utilize the experience gained to select some new regions / countries for expansion
- Adjust & recruit more local staff accordingly!
- Ensure that Maple Group continues to maintain its service values, reputation & safety at all times!