

Anderson Energy Ltd, Repositioning the Company for Oil Production and Reserves Growth

Anderson Energy was a very successful shallow gas development company with an impressive inventory of 865 Edmonton Sands drilling locations and 2009 F&D&A costs of \$8.00/BOE. The Company completed a very successful drilling program in the winter of 2009/2010 with capital costs 31% lower than the previous year and new production coming onstream at operating costs less than \$3.50/BOE. The Company took advantage of changes to Alberta's fiscal regime where low productivity gas was a clear winner with lower Crown royalties payable. With the step change downward in the natural gas prices and natural gas prospective markets the Company repositioned itself for oil production and oil reserves growth through a strategy focused on the Cardium light oil horizontal play in Central Alberta.

The Company's land position in the Cardium play was a legacy lands acquired in previous corporation and property acquisitions where the gas development target was a combination of the Edmonton Sands shallow gas zones and deeper liquids rich gas targets. In the fall of 2009, the Cardium horizontal play activity exploded with very strong land sale activity and the application of horizontal multi stage frac technology in a tight oil zone in what is now known as the Cardium halo play. As of December 15, 2010, the industry licensed 783 and drilled 515 Cardium horizontal wells.

Discovered in 1953, the Pembina field has highlighted the incredible oil resource contained within the Cardium formation across central Alberta. Ancient shoreface sediments and erosional deposits host overpressured, high quality, water-free oil reservoirs. Traditional development utilizes simple vertical wells in areas with concentrated deposits of conglomerates and coarse sands. The major Cardium fields, including the giant Pembina field, have thousands of such wells which exploit the very high permeability that is characteristic of these reworked sediments. However, the Cardium formation has much more to offer. The total sand package, comprising the thick deposits of finer shoreface sediments has comparable porosity values to the coarser material, slightly reduced permeability, and is fully oil saturated. Over a vast area, this rock hosts an incredible volume of oil and horizontal multistage technology has emerged as the tool to unlock this resource. Three new emerging play types include the 'halo' plays which are adjacent to the major fields, the extensional plays which follow trends extending from the major fields, and the standalone plays which have proven highly attractive through the utilization of new technology.

The Cardium is situated at vertical depths of 1300 meters in the Pembina area to 1800 meters in the Garrington area. Horizontal wells are typically drilled with a monobore design and then frac'd with either oil based or water based systems. The industry initially used interstage frac distances of 100 meters over a horizontal well lengths of 800 to 1400 meters. Initially oil based frac designs were used. Anderson initially frac'd with diesel and then moved to synthetic oil which allowed the Company to recycle a large portion of

the frac fluid for future use. Over time the Company increased its frac stage density from an interstage frac every 100 meters to every 75 meters, and today in a 1400 meter horizontal well the Company would conduct 18 frac stages. In February of 2011 the Company switched to water based frac systems using two different methods, a foam frac or a crosslinked gel water frac. The crosslinked gel water frac uses approximately 700 m³ of KCL water and 340 tonnes of sand. The foam frac uses similar amounts of sand and substantially less water. The cost savings of switching from oil based to water based frac saves approximately \$500,000 per well. Initial concerns of fracing with water were that water would reduce the relative permeability to oil in the Cardium formation. However water is a better frac fluid and with improved frac conductivity and the creation of approximately 2 ha of frac area restricts formation damage to a few centimeters.

The capital costs to drill, complete, equip and tie-in a Cardium horizontal oil well are approximately \$2.8 to \$3.0 MM per well. Initial productivity in the undersaturated oil window areas of the play are 150 to 250 BOED with very low gas oil ratios of 350 scf/stb. After six months the wells production flattens out to 40 to 60 BOED with low annual declines of 8 to 10% expected. Ultimate recovery of the OOIP is 10 to 12 % with potential reserves target of 150 to 200 MBOE. In the gassier areas of the Cardium, initial productivity can be much higher than 250 BOED, however ultimate recovery is 6 to 8% of the OOIP and oil reserves are substantially lower than in undersaturated areas of the Cardium.

Geological considerations are more important than geography of the location. The best wells are situated with the thickest net pay and the best permeability. Although wellbore orientation in theory should provide better productivity, in practice the best producing wells have the thickest pay with the best permeability over the longest pay section. Ultimate well densities are probably two to 4 wells per section. Solution gas is conserved. Cardium oil is 38 degrees API with a 0.15% sulphur content. The field oil price for the Cardium is approximately \$3.00/bbl less than Edmonton par price.

The economics of individual Cardium wells are enhanced by the new Alberta government fiscal initiatives with a 5% Crown royalty for the first 24 to 30 months depending on total well measure depth. Pretax rate of returns are 60 to 80% and well payouts are 18 to 24 months.

Anderson is evaluating the implementation of waterflooding the Cardium in the lower gas oil ratio portions of the play. Potential ultimate recovery factor with the addition of waterflood could be 25%.

In 2010, Anderson drilled 20 gross Cardium horizontal oil wells, and is planning to drill 32 gross Cardium horizontal oilwells in 2011. It has or is planning to drill wells in East Pembina, West Pembina, Garrington, Willesden Green and Ferrier areas in 2010 and 2011.

The Company has 103 gross (60 net) sections of prospective Cardium rights in the fairway, which could potentially yield 309 gross (180 net) locations. The Company has established a non contingent development drilling inventory of 143 gross (85 net) locations and as these wells are drilled and more land deals are made the drilling inventory is expected to increase.

Anderson's shallow gas drilling program is very low risk and can easily bring on production at attractive first year production addition metrics of \$14,000/BOED, as compared to \$40,000/BOED in the Cardium play. However the first year operating netback in the Cardium play is approximately \$65.00/BOE as

compared to \$16.00/BOE for the shallow gas program. Therefore the Company can grow its cashflow at a much higher rate than shallow gas drilling but at a lower production growth rate than with shallow gas. However cashflow is what drives the junior oil and gas business and that is the economic decision making tool.

