

# Optimal Annular Continuous Flow Control

MTRAC® - intelligent, self-adjusting wellhead management system



# OPTIMAL ANNULAR CONTINUOUS FLOW CONTROL

## Situation

Customers' tubing sizes were causing pressure losses in the early stages of production. When attempting to flow both areas wide open, wells would load with liquids.

## Critical Issue

- Non-optimal production due to tubing restriction
- Too much operator time used in day-to-day well management

## Customers - various (5)

- Size: Tier 1, 2 and 3
- Region/Field: WCSB
- Production: Gas

## Customer Requirement

The customer required automated processes to handle liquid removal while well and gathering system dynamics were present. They were looking for something more effective to optimize production and reduce the need for an operator to manage the well.

## What Zedi Provided

Each customer installed Zedi's MTRAC intelligent, self-adjusting wellhead management system. By automating the annular flow process, optimal production was achieved during this phase of the wells lifecycle. In some cases well site booster compression was also integrated.

## Results

The continuous manipulation of the casing valve, by the MTRAC system, allowed the maintenance of critical flow in the tubing and allowed the wells to continually unload fluid while producing the remainder of the gas up the annular space.

Each well had an initial production uptake as the new Zedi automated process was applied, regardless of the tubing size. Ongoing, the wells had continuous incremental production over just the tubing area flow.

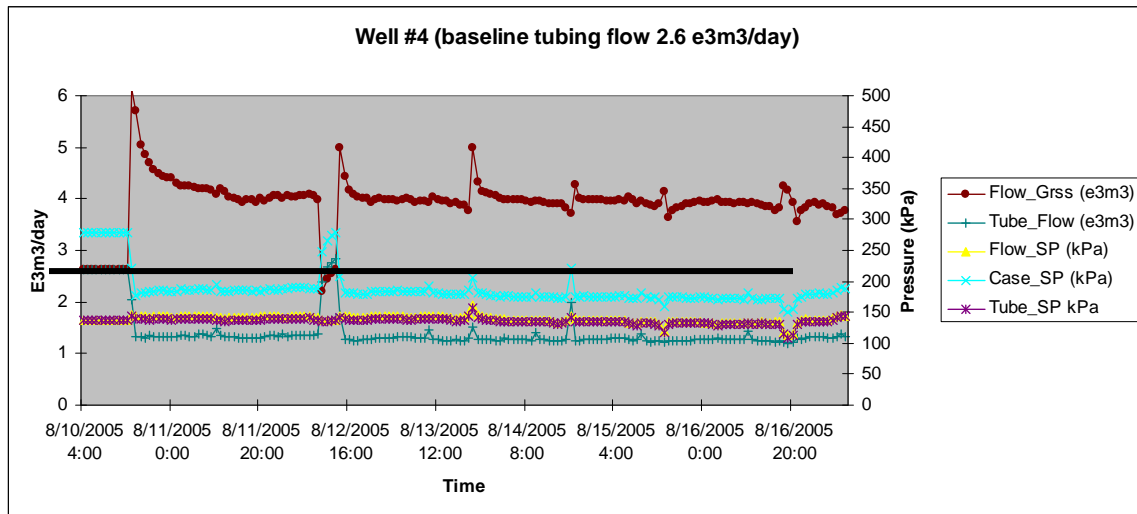
The following table and charts illustrate the initial production gains, the MTRAC applications used, incremental production, and how long the system was used at the wells.

Each customer realized more production by adopting Zedi's automated approach to parameter management and thus requiring less human decision making and manual intervention.

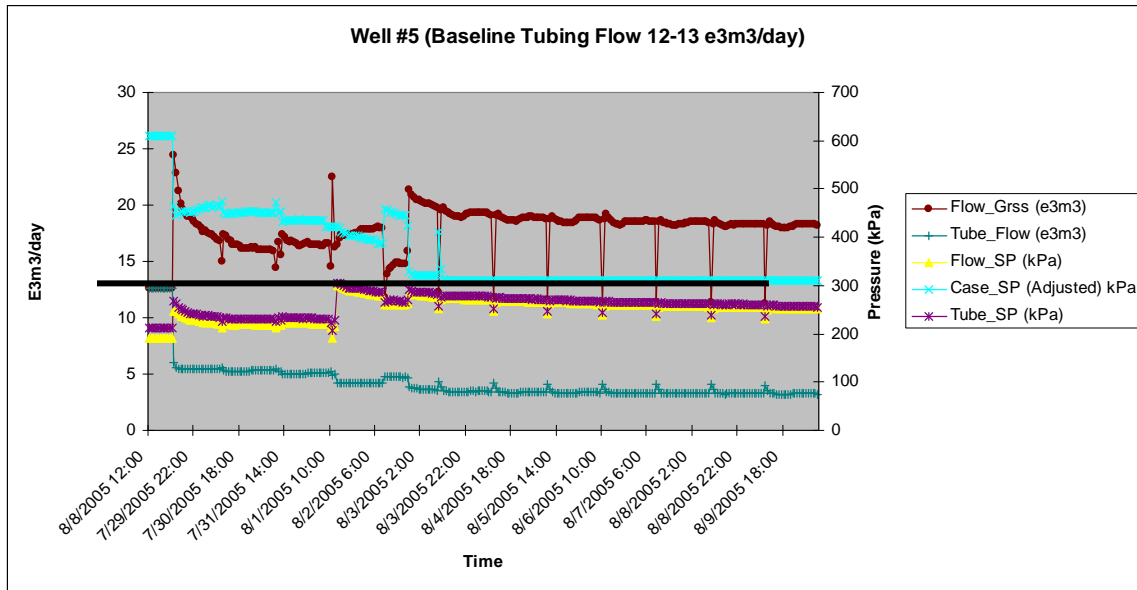
**Table 1: Well production improvement**

	Before Zedi		With Zedi		
Well	Tubing Size / Depth	Production e <sup>3</sup> m <sup>3</sup> (mcf/day)	Optimization Application	Production Annular Flow e <sup>3</sup> m <sup>3</sup> (mcf/day)	Length of Time Application Lasted
#1	73.0 mm (2 7/8") / 1,450 m (4,757 ft)	31.48 (1112)	Annular Flow Control (slip streaming) with well site booster compression integrated	51.98 (1836)	3 years
#2	38.1 mm (1 1/2") / 305 m (1,000 ft)	17 (600)	Annular Flow Control (slip streaming)	48 (1,695)	1.5 years (sand issues)
#3	60.3 mm (2 3/8") / 1,711 m (5,614 ft)	24 (848)	Annular Flow Control (slip streaming)	29 (1024)	4 years
#4	31.8 mm (1 1/4") / 300 m (984 ft)	2.6 (91.8)	Annular Flow Control (slip streaming)	3.9 (137.7)	1 week (test only)
#5	31.8 mm (1 1/4") / 310 m (1,017 ft)	12.5 (441.4)	Annular Flow Control (slip streaming)	18 (635.7)	1 week (test only)
#6	38.1 mm (1 1/2") / 950 m (3,117 ft)	17 (600.3)	Annular Flow Control (slip streaming)	33.0 (1165.4)	3.5 years

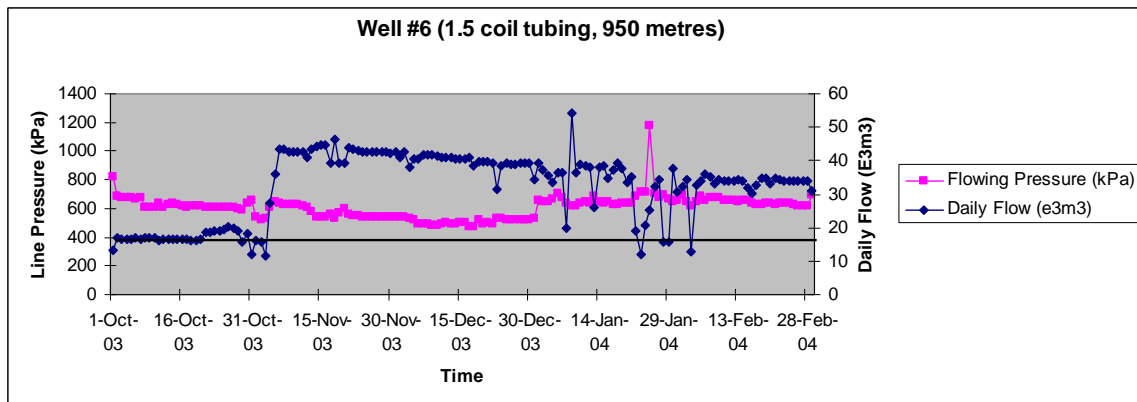
**Well #4 – Low rate gas well with 1.3 e3m3/day accelerated production with annular flow**



Well #5 - Medium rate gas well with 5.5 e3m3/day accelerated production with annular flow



Well #6 - Medium rate gas well with 16 e3m3/day accelerated production with annular flow



For more information on the MTRAC, please visit [www.zedi.ca](http://www.zedi.ca) and navigate to Solutions & Products, then Zedi Production Optimization.