

Executive Summary

- Solvent injection in 101-08 ceased on 5 December, as recommended by the technical team, and in alignment with the JV partner. This decision follows interpretation of the September 2013 seismic data, which confirms the onset of coalescence across the E-SAGD drainage area. Coalescence compromises the measurement of KPIs and increases the difficulty of closing the solvent balance.
- A modified operating strategy and test plan for post-solvent injection is being developed accounting for chamber coalescence and interaction. One of the original objectives for this period of the pilot test, monitoring the return of iSOR and rate KPIs to SAGD performance, will be challenged by coalescence. Measurement of these KPIs will continue though interpretability is uncertain.
- Measurement of the solvent material balance across the coalesced system will be prioritized through an expanded measurement program while attempting to maintain operating conditions that confine solvent to e-SAGD wells 101-08 and 101-10.
- Additional performance analysis subsequent to post pilot evaluation by COP and Total has resulted in a marginal increase in the SAGD baseline bitumen rate. Final performance estimates during the period of solvent injection reflecting these changes are shown in Tables 1 and 2.
- Detailed performance analysis to understand the lower-than-expected solvent returns to-date in well 101-10 suggests that the most likely influencing factors include offset steam chamber interactions and resulting liquid buildup above the producing well 101-10, as well as the adjacent neighboring SAGD well 101-11. The deviation seen in well 101-08 is most likely due to interaction with its neighboring SAGD well 101-09.
- Operational challenges related to E-SAGD test system, subcool and lack of steady state operations continue to challenge the interpretation of post-injection performance of both 101-08 and 101-10. The change in performance of 101-08 during November is most likely related to the recent steam chamber development from early to late stage McMurray transition and coalescence.

Table 1: Summary of key performance indicators for well 101-10

Performance Indicator	Cumulative Average E-SAGD Performance
Bitumen Rate Uplift ⁽¹⁾	36%
iSOR Reduction ⁽¹⁾	27%
Water Cut Reduction (Absolute) ⁽¹⁾	6%
Average Solvent Concentration ⁽¹⁾	18%
Current Cumulative Solvent Recovery ⁽²⁾	29%

(1) Performance reported for the time period 16 February – 18 August 2013. This period represents the duration of solvent injection at target solvent rates.

(2) Calculated solvent recovery effective until 15 December 2013

Table 2: Summary of key performance indicators for well 101-08

Performance Indicator	Cumulative Average E-SAGD Performance
Bitumen Rate Uplift ⁽¹⁾	26%
iSOR Reduction ⁽¹⁾	14%
Water Cut Reduction (Absolute) ⁽¹⁾	5%
Average Solvent Concentration ⁽¹⁾	20%
Current Cumulative Solvent Recovery ⁽²⁾	21%

(1) Performance reported for the time period 14 June – 1 July 2013. This period represents stable performance parameters and is less uncertain relative to the period thereafter which is influenced by unsteady state operations and solvent migration to offset SAGD well.

(2) Calculated solvent recovery effective until 15 December 2013

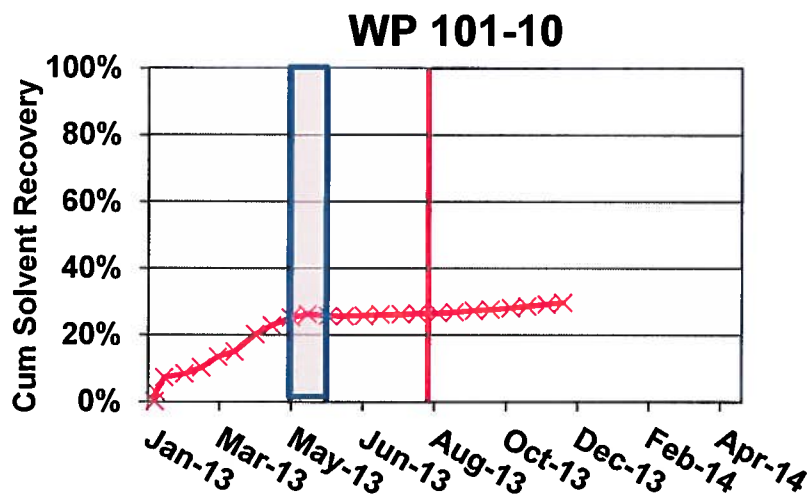


Figure 1 – E-SAGD Pilot Solvent Recovery (WP 101-10)

Note: Shaded period shows interval of off-spec solvent injection. Red line indicates cessation of solvent injection.

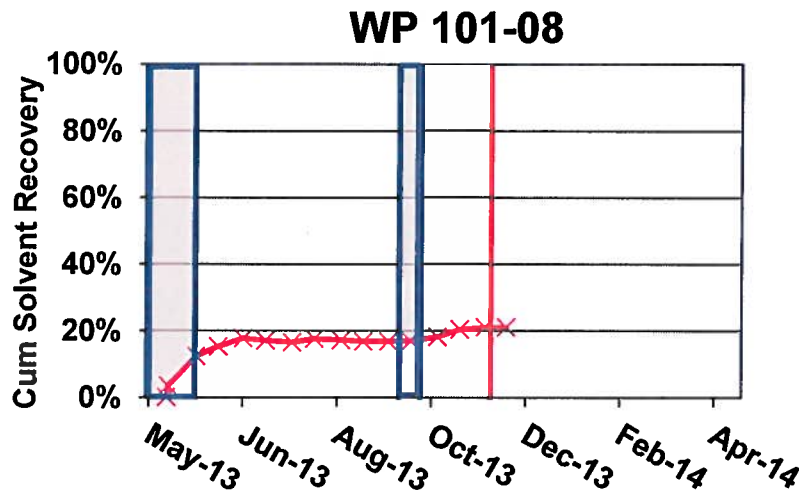


Figure 2 – E-SAGD Pilot Solvent Recovery (WP 101-08)

Note: Shaded periods show intervals of off-spec solvent injection. Red line indicates cessation of solvent injection. Produced gas samples from adjacent SAGD wellpair 101-09 indicated the presence of solvent species since mid-July. Given that 101-09 is not tied into the E-SAGD test system, accuracy of solvent returns from this well is lower than for 101-08 and 101-10.

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