

CASE STUDY

EXAMINING THE TRUE COST OF RESERVE PITS

BACKGROUND

In some states, burying E&P waste in reserve pits at the drill site remains the default disposal method for many operators. This is despite a growing awareness of the emissions attributed to reserve pits and the risks to soil, groundwater, and the operator’s reputation. Beyond regulatory compliance, the decision to use reserve pits is largely cost-driven, rather than a holistic decision addressing both cost and ESG concerns. The assertion is that reserve pits are cheap and compliant, despite their environmental impact. To test this rule of thumb, Milestone commissioned a study examining the cost of using reserve pits compared with professional offsite disposal.

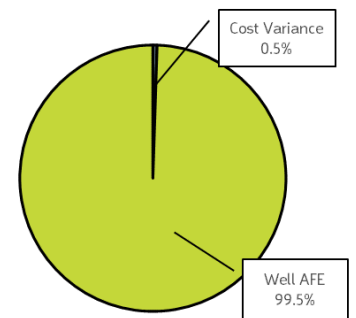
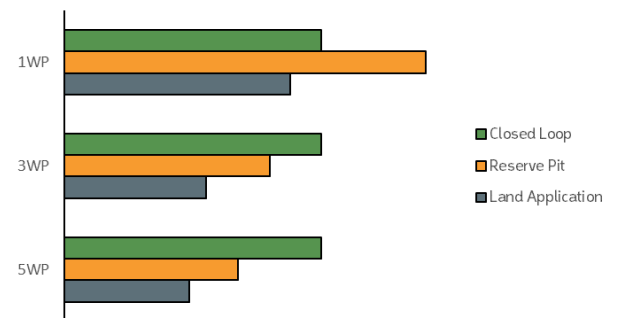
METHOD & RESULTS

The study considered the cost variables involved when an operator chooses between using professional offsite disposal with zero discharge (closed loop), onsite reserve pits, and landfarming. The differences in disposal volumes, trucking, pit construction, liner costs, pit closure, waste transfer, and spreading/tilling costs were all considered on a per-well basis.

It was found that on a one-well pad, the cost of using a reserve pit was higher than using a closed-loop system, primarily because the entire expense of the pit is allocated to a single well. Conversely, in the multi-well pad scenarios the cost of the reserve pit was marginally lower than the closed loop system.

Most importantly, it should be noted that the cost differences were very modest, and almost irrelevant in the context of an overall well. While variances ranged up to \$36,000 per well, well AFEs are typically in the \$6-8 million range. Regardless of which way the scales tipped, in all scenarios the variance represented less than 1% of the well cost. Moreover, other costs associated with reserve pits were excluded from the study, including any remuneration paid to surface landowners or financial liabilities arising due to contamination from reserve pits.

Per Well Cost Variance



SUMMARY & CONCLUSIONS

- In states where multi-well pads are common and reserve pits are still allowed, the decision on how to dispose of drilling waste is driven by cost and minimal compliance, rather than a holistic view that addresses both cost and ESG concerns.
- A study showed that the cost difference between using offsite disposal, onsite reserve pits, or landfarming is negligible; in all scenarios it was virtually irrelevant, representing less than 1% of the overall well AFE.
- The true cost of using reserve pits includes remuneration to surface landowners, or future liabilities for contamination. These can be very significant but are not allocated in the drilling AFE, therefore play little part in well-to-well decision making.
- Apparent cost incentives to use reserve pits or land application are marginal and siloed to the drilling AFE. In truth, any “savings” are overwhelmed by longer-term financial exposure, as well as prevailing social and environmental concerns.