

EOR Screening and Prioritization Methodology

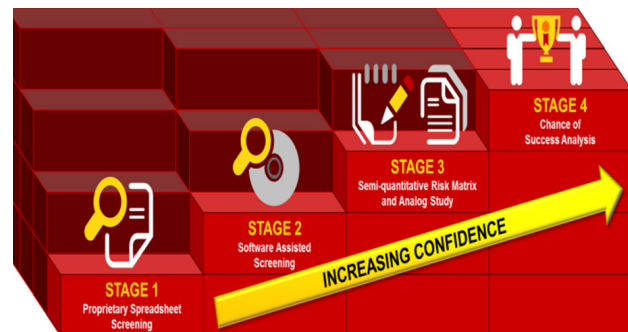
The Halliburton proprietary EOR screening and prioritization methodology provides screening of single or multiple reservoirs with unprecedented speed by using a small, robust set of key reservoir parameters and taking into account uncertainty ranges and problems of limited or inaccurate data. The methodology also provides an early determination of risk of implementation and chance of success of EOR methods to refine and prioritize screened methods before making major effort and investment commitments.

The Halliburton screening and prioritization process helps to solve problems that can often lead to error-prone screening planning in EOR projects, such as:

- Inaccurate or vintage reservoir data with large uncertainty
- Limited data availability
- Operator availability of EOR expertise to aid decision making processes
- Time-consuming screening processes for assessment of a large number of reservoirs
- Time-consuming processes for risk and success management
- Rigid and dated EOR screening criteria

Halliburton Screening and Prioritization Process

The Halliburton EOR screening and prioritization methodology is a four staged process that provides front-end planning services of single or multiple reservoirs through the use of a proprietary workflow designed to combine speed and accuracy. The first step involves a quick initial screening. Results from this step are further refined in the second step and prioritized through an early determination of potential project risk and chance of implementation success. This multi-layered EOR methodology generates timely, accurate, and tailored screening results, which enable operators to make quick and reliable decisions needed to invest capital wisely with the lowest possible risk.



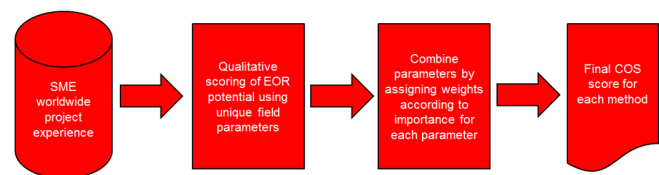
The Four-Stage Approach of the Screening and Prioritization Process

Through the above four stages, our methodology delivers:

1. Technical screening list of feasible EOR methods
2. Scored risk matrix
3. Assessment of analog reservoirs-feasible methods
4. Scored chance of success table

SEVERITY	CONSEQUENCE				INCREASING LIKELIHOOD				
	People	Assets	Environment	Reputation	A	B	C	D	E
0	No health effect/injury	No damage	No effect	No impact	Never heard of in ... industry	Heard of in ... industry	Incident has occurred in our company	Happens several times per year in our company	Happens several times per year in our location
1	Slight health effect/injury	Slight damage	Slight effect	Slight impact					
2	Minor health effect/injury	Minor damage	Minor effect	Limited impact					
3	Major health effect/injury	Localised damage	Localised effect	Considerable impact			4.6	5.7	
4	PTD or 1 to 3 fatalities	Major damage	Major effect	National impact				1.3	
5	Multiple fatalities	Extensive damage	Massive effect	International impact			2		

Semi – Quantitative Risk Matrix



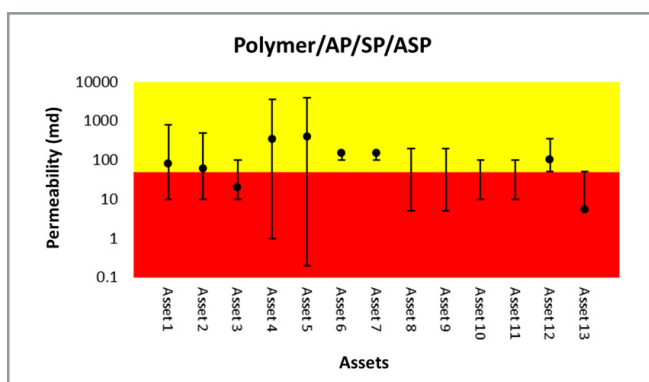
Chance of Success (COS) Methodology

A successful track record of application has shown our methodology to be a low-cost, cohesive process of four independent yet interlinked stages, which cater to the requirements of operators to make key decisions about further investment in EOR. A potential project can commence at any of the four stages, depending on operator needs and current knowledge.

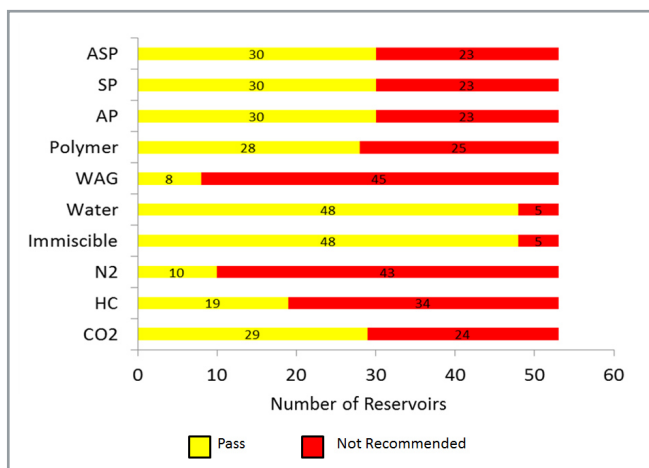
Case Study

A screening study for over 100 reservoirs of a National Oil Company was needed, in a very short time frame, to define company-wide EOR strategy.

Halliburton screened the reservoirs for ten commercial EOR methods by using the Stage 1 proprietary screening tool with inputs for average, minimum, and maximum values of seven reservoir parameters. Feasible/non-feasible EOR methods for each reservoir were obtained in a short three-week time span. Plots showing feasible and non-feasible regions for each parameter for each EOR method were provided as output. A summary of the reservoirs suitable for each method was provided to inform strategy.



Sample Plot of Results Output



Sample Summary of Screening Results for a Selected Group of 53/113 Reservoirs

Applications

For a specific EOR method in a given reservoir: Ascertain its feasibility.

For single or multiple reservoirs in the EOR planning stage: Screen and prioritize feasible EOR methods for further study and investment.

For multiple assets on a company wide basis: Input for company strategy for EOR investment, particularly applicable for large NOCs.

For single or multiple reservoirs in the appraisal stage: Enable better planning of current operations for potential future EOR projects.

Benefits

- Facilitates quick, strategic decisions making based on few, well-selected key parameters, enabling the assessment of a large number of reservoirs in a short timeframe
- Provides robust results and analysis even in cases of limited data availability, and vintage or unreliable data
- Provides clear indication of the feasibility of investment in further laboratory analysis and numerical simulation

Features

- Scored list of all possible reservoir-EOR combinations by a multi-layered approach that enables the greatest fidelity for early planning of EOR projects
- Offers tailored solutions fitted to address client needs of project timeframe, desired EOR method, and level of granularity
- Provides early evaluation of risk and key areas of attention including a summary of best practices to mitigate potential future project risks
- Possesses applicability ranging from evaluation of multiple reservoirs in the EOR appraisal stage to inform company strategy to front-end engineering for a single reservoir EOR project

**For more information, contact your local Halliburton representative,
or visit us on the web at www.halliburton.com**