FRAC SAND PLANT CFT DECISIONS

Mission

Oil and gas companies are striving to reduce fracking costs through the most effective utilization of sand. This includes aspects of sand quality and delivered cost. The combust, flow and treat (CFT) technologies employed play an important role in reducing the total cost of ownership. *Frac Sand Plant CFT Decisions* has been created to facilitate optimum decision making for each combust, flow, and treat component and process.

Sand Manufacturing: Starting with the excavation through the wet sand and then dry sand plant conveyors, pumps, valves, controls, chemicals, filters, centrifuges, dryers, screens, crushers and dust collectors are needed. Due to the abrasive and ambient conditions maintenance expenses are significant. The goal should be to continually develop new components and to use them most cost effectively.

A resin bonding process adds attributes required of some of the sand. This requires mixers, pumps and other CFT components

Sand Transportation: Sand needs to be transported from the point of manufacture to the individual fracking sites. Typically transload facilities use pneumatic and mechanical conveying as well as dust collection systems to unload rail cars, store sand and then load trucks. Tough federal regulations regarding silica dust present a special challenge

Method

Continuing validation of the total cost of ownership for each process, component, and consumable is possible with an organized approach.

1. Continually gather and organize all the background data
2. Conduct webinars and face to face meetings to arrive at the best choices
3. Encourage suppliers to conduct Lowest Total Cost of Ownership validations using the background data and guidelines provided
4. Pursue the use of the Industrial Internet of Wisdom (IIoW) to empower IIoT

Above is a sand manufacturing plant and following is a transload facility (courtesy IAC-Intl)

Structure

Frac Sands Plant CFT Decisions is free of charge to everyone. It appears on a dedicated website. There are continuous additions to the intelligence system which contain the summaries and links to background data. This data includes articles in magazines, white papers, and presentations.

This data is decisively classified. For example baghouses are segmented into two categories– pulse jet and other. Since reverse air, medium pressure- high volume- and shaker designs are not frequently used in frac sand plants the decision has been made to group them. However, should a new design become significant the groupings will be adjusted

There are periodic webinars on various components and processes. A monthly Alert summarizes developments

Suppliers will be participating with individual recorded presentations, webinar discussions and debates.

Publishers and conference organizers will be encouraged to participate. Articles are appearing in the January-February issues of *Industrial Waste and Wastewater Digest, Pump Engineer, Valve World Americas, and Hose & Coupling World*. McIlvaine is a sponsor for North American Frac Sands 2019.

Frac sand plant owners will be encouraged to participate and guide the effort for continuous improvement of the service to meet their needs.

Suppliers can participate in the evolution of the program through a number of options

1. Corporate subscription to *Frac Sand Plants CFT World Markets* with continuous forecasting of systems and components in each country.
2. Serviceable Obtainable Market forecasts tailored to the supplier's specific products
3. Large numbers of opportunities for recorded individual presentations and participation in recorded webinars
4. Multiple and continuing Lowest Total Cost of Ownership Validation (LTCOV) for each product and system supplied by the supplier
5. Coordinated activity at conference and exhibitions
6. Coverage in feature industry magazine articles

Intelligence System Example

Title: IAC Frac Sand Plant Optimization

IAC introduced the concept of optimizing a plant performance including water use minimization at every point in time based on the various control points of a plant. A given plant may have multiple control points that become a limiting factor to the amount of feed that can be sustained. A plant that is designed to run at 250 TPH at a given feed gradation may be limited to 125 TPH with heavy clays, 205 TPH with excess fines or 180 TPH with heavy 40/70.

Modeling the effect of each control point allows for the optimal sustained feed rate to be identified for a given area of the mine or mine blend ratio. IAC introduced a multi-step process to achieve an understanding of the various control points and the impact or change each introduces to a sustained operation. The six steps are: 1) characterization of each type of optimization. This would include water related processes such as filtering, settling and spill management. 2) Operate the plant and gather data compared to original design. 3) Model impact of operational parameters like feed gradation on control points. 4) Develop Operational SOP's around control point optimization. 5) Measure and report results and progress at all levels of the organization. 6) Approve capital expenditures around advanced control, retrofit, design modifications, etc., targeted toward specific control point optimization. **Click Here For Complete Article Text**

Frac Sand Plant Alert #1

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