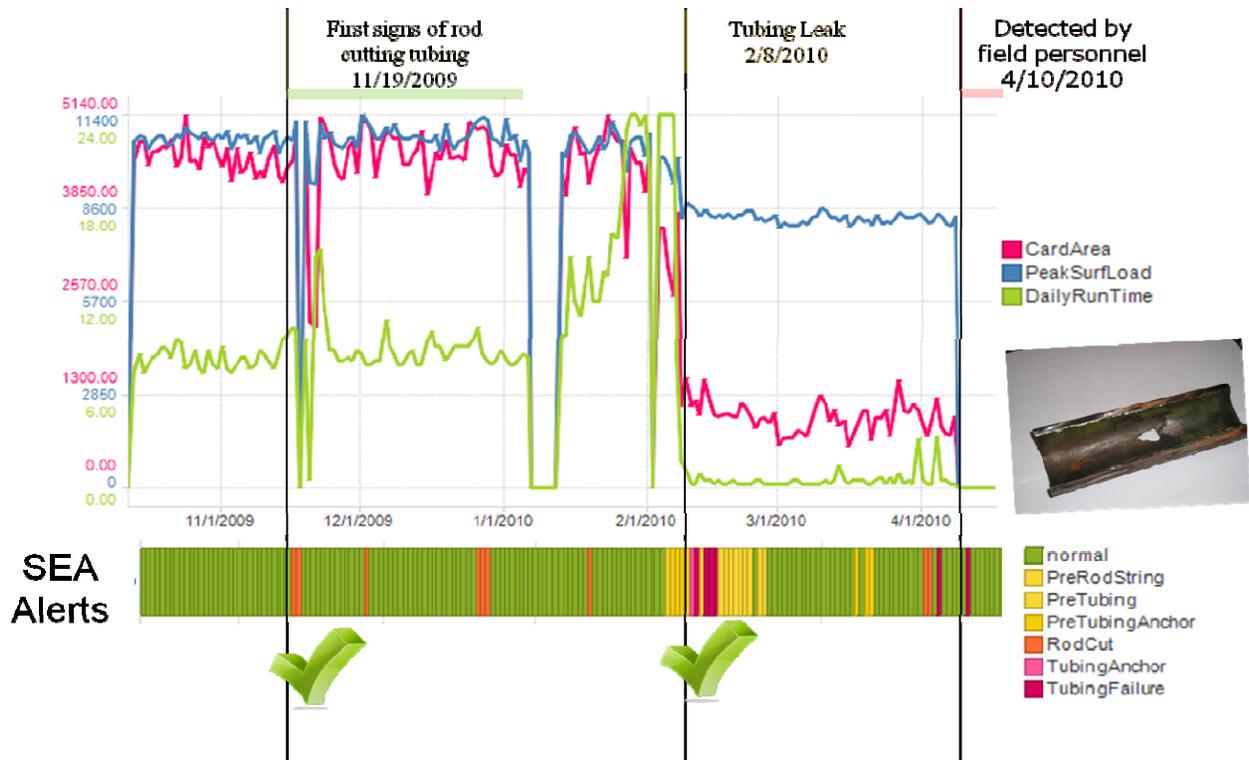## Smart Engineering Apprentice

SEA is a smart solution using a machine learning method for monitoring pumps to proactively predict failures. Production losses and repairs due to failures are major costs in artificial lift operations. SEA is a proven global answer for detecting and predicting anomalies for rod pumps and electrical submersible pumps, characterizing failure modes, and recommending action.

SEA predicts failures and makes recommendations

Value Proposition:

- Early prediction of failures and anomalies reduces lost oil production and enables proactive interventions/repairs to cut costs
- Reduce man power and increase safety
- Interactive system recommends remedial actions based on previous experiences

About CiSoft

CiSoft is a USC-Chevron Center of Excellence for Research and Academic Training on Interactive Smart Oilfield Technologies. Established in December 2003, the Center includes participating research scientists from various departments in the Viterbi School of Engineering and from Chevron. Two important entities associated with the Viterbi School of Engineering, IMSC (Integrated Media Systems Center) and ISI (Information Sciences Institute) are closely associated with CiSoft. Expertise of participating USC faculty includes Petroleum and Chemical Engineering, Computer Science, Electrical Engineering and Industrial and Systems Engineering. Research areas include:

CiSoft's role has been to generate bursts of innovative ideas related to digital oilfields

Integrated Asset Management
Well Productivity Improvement
Robotics and Artificial Intelligence
Embedded and Networked Systems
Failure Prediction in Artificial Lift Systems
Reservoir Management
Data Management Tools
Immersive Visualization
Environmental Health & Safety

About USC

University of Southern California is at the forefront of research in information technology and a full spectrum of engineering disciplines. The Viterbi School consistently ranks in the top ten in the U.S. News and World Report rankings. Our highly interdisciplinary research environment has enabled faculty to respond to emerging needs for research in such diverse areas as conventional and renewable energy, imaging, robotics, software engineering, sensor networks, vision sciences, automated construction and photonics. The Viterbi School actively encourages technology transfer and commercialization through industrial partnerships. The university has several high performance computing resources with significant computational capabilities for a variety of computation-intensive projects including subsurface modeling and simulation. Our network spans all over the world and is reputed to be one of the largest, most influential, and loyal.

USC University of Southern California