



FLUID LIFE

EQUIPMENT RELIABILITY SERVICES

Reliability Solutions

For your journey to optimized maintenance



WHATEVER YOUR CHALLENGE

WE HAVE A SOLUTION THAT'S RIGHT FOR YOU

The goal of preventive or predictive maintenance is to reduce the probability of failure, or mitigate the consequences of failure of an asset or group of assets, or both. By understanding the risk of an asset's downtime against production, safety, the environment, and a company's reputation, maintenance professionals can develop an optimized plan to maintain their equipment.

Our reliability solutions are designed with your individual needs in mind. We'll help you identify inefficiencies in your current oil analysis programs and lubrication processes, devise and implement plans for improvement and provide sustainable solutions to put you in control.

Fluid Life has the tools and the expertise to assist you on the journey to optimized maintenance. If your goal is improved reliability and availability, partner with Fluid Life's Reliability Team to benchmark your current maintenance practices against industry leaders and develop a plan to close the gap. Together, we will have an impact on your business, and demonstrate measured success.

RELIABILITY ROADMAP

To get a lubrication and reliability program built on solid ground, we think it's important to follow a reliability roadmap – a multi-step process that allows you to develop a clear plan for program development and improvement.

Stop 1: Benchmarking & Audits

The first stop along the road is benchmarking. For a reliability program to be successful it's essential to have a strong foundational knowledge of how well your equipment and processes are working. Understanding where there are gaps in your processes and procedures is an important first step toward creating a plan for improvement. Conducting a thorough inspection of your oil and greasing programs, equipment, and operating conditions helps to identify what the most common problems are and where they occur. Comparing your performance against industry peers, helps pinpoint which problems are found industry-wide and which are specific to your operation.

Stop 2: Optimization & Improvement

Once your overall lubrication processes have been assessed, the next step is to optimize and improve your reliability program by defining and mapping out the necessary steps to prioritize, execute and manage all aspects of lubrication and oil analysis needed for your organization.

Stop 3: Advanced Analysis

The third stop on the road is the implementation of advanced metrics and more proactive maintenance strategies, all the while continuously investing in training and developing the skills of your staff. As reliability programs mature, the areas where skilled maintenance technicians can add value to your operations need to be carefully considered. For example, are they best utilized performing manual relubrication, which can easily be automated, or by using their skills and knowledge to perform more analytical tasks, such as lubricant analysis, performing failure investigations, or conducting Reliability Centered Maintenance.

STOP 1: BENCHMARKING & AUDITS

PROJECT	OVERVIEW
Scorecard	Fluid Life leverages our team of reliability experts to identify and document gaps within your lubrication process. This benchmarking exercise allows us to generate a prioritized action plan to address shortcomings and implement industry best practices. The process includes identifying process gaps through staff interviews, a review of mechanical assets, and a review of current maintenance practices/procedures. Reports are then generated including recommendations and the action plan which are uploaded to myLab. A final report is presented to key stakeholders.
Sample Point Audit	A successful oil analysis program starts off with a strong foundation. A Fluid Life Reliability Specialist will conduct a thorough onsite inspection of your lubrication program, equipment to be tested and operating conditions. You will receive a comprehensive road-map document along with a turnkey process to get you started on the right track. We will assess your overall lubrication processes, identify organizational-level gaps, and build a framework for the oil analysis program. Assets will be evaluated on the basis of criticality, operational usage, fluid environment, size of reservoir and safety considerations. We will establish proper sample point locations, sampling procedures, test slates, sampling frequencies and data interpretation guidelines for each asset. Fluid Life will populate myLab with the asset list, testing defaults, sample scheduling information and provide a formal report with improvement recommendations.
Equipment Greasing Audit	An optimal greasing program starts off with a strong foundation. A Fluid Life Reliability Specialist will conduct a thorough onsite inspection of your greased assets including a review and documentation of the type of assets and operating conditions. You will receive a detailed report outlining a recommended greasing process for your assets. We will assess your overall greasing program, identify organizational-level gaps, and build a framework for the greasing program. Assets will be evaluated on the basis of criticality, operational usage, environment, size of equipment and safety considerations. We will establish proper greasing frequencies and amounts, for each asset. Fluid Life will populate myLab with the asset list with tasks for greasing including frequencies and amounts.

STOP 2: OPTIMIZATION & IMPROVEMENT

PROJECT	OVERVIEW
Lubrication Route Task Management	It takes real discipline to schedule, execute and close out your maintenance or lubrication tasks on time. Fluid Life offers a concrete solution. myLab™ is an application tool that effectively and conveniently manages your daily maintenance and lubrication tasks. Using our myLab™ portal, Fluid Life's Reliability team can provide you with our Lubrication Route turn-key solution. The process involves gathering all relevant information for maintenance and lubrication task scheduling. Sources include sample point audits, lubrication surveys or information captured directly on-site. We will then confirm with you the configuration of specific routs and tasks in myLab and provide you with role-specific training on tasks, routes, work orders and dashboards in myLab.
Flagging Optimization	Fluid Life offers a systematic approach for optimizing the flagging thresholds used on your oil samples. This service allows you to validate the relevance of current flagging limits and modify them as desired. Your two main benefits: better reliability focus and data noise reduction. Flagging Optimization may improve your site's flagging limits while increasing the ROI of your oil analysis program. Fluid Life Reliability Specialists use an interpretive process for optimizing flagging rules. They will examine the most significant problem areas within your operation and validate them against machinery conditions. Key findings will be reviewed to gain consensus of how to respond effectively to your problem issues. Any modifications to the flagging rules will be uploaded into Fluid Life's laboratory database and a final report will be issued as reference material.
Lubricating Policies and SOPs	Does your company have the goal of developing and implementing a world-class lubrication program? Fluid Life can help you establish lubrication standards and identify the policies and procedures that will minimize breakdowns, improve operating performance and produce a safe and profitable operation. A Fluid Life Reliability Specialist will review your current lubrication workflows and practices with you, and discuss improvements and modifications that could be implemented. A formal lubrication standards document is then created in order to communicate lubrication policies and standard operating procedures to the entire organization.
Oil Drain Extensions for Mobile Fleets	Does it seem like you're always changing your oil on certain components, even when an oil change is not required? Want to save money on lubricants while maintaining the integrity of your oil wetted assets? The Oil Drain Extension program identifies the assets with highest potential savings by oil drain extension; collaborative decision support for which assets to begin extending oil drains on; identification of what is required to extend oil drain intervals; tracking of project milestones, challenges, and progress; and quarterly reporting on progress.

STOP 3: ADVANCED ANALYSIS

PROJECT	OVERVIEW
Criticality Analysis	A site's criticality analysis should be a living document. As new assets are commissioned and other assets age, the risk profile for the owner operator will change. Fluid Life partners with our clients to deliver an independent, third party prospective on the risk associated with an asset (or group of assets). Our Reliability Specialists assist customers in identifying the most critical assets to a site or process using a risk-based model that incorporates the potential impact on people, production, environment and reputation. Total risk, once assessed, is used to drive asset maintenance strategy.
Preventive Maintenance Optimization	Preventive Maintenance Optimization or PMO is a process that challenges your maintenance activities against an asset or group of assets. By matching restoration tasks to specific failure modes for equipment, PM tasks are reconsidered based on how they have failed or are anticipated to fail. This predictive approach ensures maintenance departments aren't spending resources doing maintenance too frequently, or not frequently enough. The PMO process weighs the customer's risk tolerance with recommendation from the OEM, the asset's PM history, the asset's failure history, and the performance required of the asset. An optimized PM plan is delivered based on this analysis that ensures the right maintenance tasks are performed at the right interval to ensure availability of the asset while minimizing the maintenance effort to achieve the required level of performance. This exercise is similar to a Reliability Centered Maintenance evaluation, but on a much simpler scale. A reliability engineer can facilitate PMO with the assistance of personnel responsible for maintaining the asset. If your equipment is not running as desired or is failing unexpectedly, then the assumptions that created the PM schedule need to be revisited to prevent future failures. This process will help you achieve that.
Failure Analysis	Equipment failures are unfortunate but they can teach valuable lessons going forward. A Fluid Life Reliability Specialist can conduct a post-mortem review of oil analysis results in order to suggest key adjustments to the testing program that will reduce the incidence of future catastrophic failures. A Fluid Life Reliability Specialist will meet with you to gather relevant details of the failure, including tear-down inspection findings, operational and condition-monitoring data and work histories. A report is generated that summarizes the oil analysis history and the corrective actions that were taken in response to any early warning signs of failure. Recommendations are made to improve oil analysis effectiveness in its goal of reducing failure occurrences. These recommendations include possible modifications of sampling methods, testing frequencies, test slates, alarm points, triggered testing options and corrective action plans.
Failure Mode & Effects Analysis	Failure Mode and Effects Analysis is a step-by-step approach for identifying the ways an asset or process can fail. The process utilizes a cross-functional team with knowledge about the process, asset or service. Once the team is assembled, the scope for the FMEA must be defined, the team must address the following questions for each asset or process under consideration: What are the functions of the asset (in line with the scope)? How can each function fail to meet a required standard of performance? What scenarios can lead to those failures? What are the consequences of those failures? How serious are those consequences? How often will they occur? Can they be predicted? What is the associated risk with those failures?
Root Cause Analysis	Fluid Life will facilitate and contribute to the RCA process. Root Cause Analysis is an approach for identifying the underlying ("root") cause(s) of an incident such as equipment failure after it has occurred. Usually employed when something goes wrong, it can also be used to identify what led to something going right so it may be duplicated in the future. Fluid Life's Reliability Specialists are trained to employ different techniques to assist our customers in determining what the problem was and why it happened, determined by the loss potential of the incident. Three service levels (Minor, Moderate & Severe) are available depending on the nature of the incident and the customers desired output. Fluid Life's Reliability Sales Specialists work with customers to help determine which service level is right for them. Deliverables from this project include: a report of corrective actions; failure timeline and RCA methodology output; and a summary of learnings in an incident report which can be shared with stakeholders.

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For more information on our Reliability Solutions, contact a Fluid Life Representative.

We're a company that's All Ways Reliable. From analysis and evaluation to planning and strategy, Fluid Life has the expertise to help you achieve a higher level of reliability.



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