

# Analysis and Diagnostic Services

## Service Solutions for Refineries and Chemical Plants

Dynalco offers a host of analysis and diagnostic services customized to meet your current and emergent demands and objectives. Many of these services are utilized when management:

- Wishes to **forgo the investment in equipment and training** required to grow and maintain an in-house analysis program.
- Is feeling the pain associated with **diminishing pools of available trained resources** as veteran analyst experts retire.
- Seeks a **rapid return on investment** in a reliability initiative through the improved health and performance of their engines and compressors.
- Is **challenged by units with excessive failure** rates and needs to determine not only the condition of components, but also the root cause of these failures and seek recommendations on how to improve their reliability and/or performance.



### COMPREHENSIVE COMPRESSOR ANALYSIS

Dynalco's Comprehensive Machinery Analysis Service provides an in-depth look at the current health and performance of your reciprocating compressors. Utilizing the RECIP-TRAP™, RTwin™ and other tools, Dynalco analysts diagnose mechanical faults, prioritize potential failure(s), assign risk measurements and provide information on where that unit is in its life cycle. In addition to the full mechanical analysis of the asset, performance and economic information and recommendations are provided to allow for actionable business decisions and planning.

Comprehensive Analysis Service is recommended for those units that have not been analyzed within the last year or for problematic units that are experiencing statistically low MTBF requiring frequent unscheduled maintenance where the root cause of the repeated failure is unknown. This service may also provide a solid baseline for regularly scheduled contract or basic analysis.

#### Comprehensive Analysis Deliverables Include:

- Maintenance punch-list by component, maintenance priority indicators, and recommendations
- Field analysis and safety observations
- Risk assessment and cost analysis
- Results of compressor/motor gauge controls performance checks, maintenance record review, and oil analysis

#### Compressor Performance and Economics Reports Include:

- Compressor vibration performance vs. published limits
- Comparison with compressor horsepower report to include: Indicated HP, capacity (MMSCFD), flow balance, end-calculated BHP/MMSCFD, and actual overall efficiency (%).
- Compressor cylinder end economic results to include: Lost capacity (MMSCFD), lost capacity energy cost (\$/day), lost capacity production cost (\$/day), excess BHP, excess BHP energy cost (\$/day), and total waste energy cost (\$/day)
- Compressor cylinder, valve, ring, and end performance results (% and \$/day)
- Compressor Health Report, Discharge Temperatures and Theoretical Capacities Report, Rod Load Report, HP and Capacity Report, Clearance and Volumetric Efficiencies Report, and Level History

## REMOTE ANALYSIS SERVICE

Dynalco's Remote Analysis Service leverages both local resources and Dynalco's analysis expertise. With this program, your personnel performs varying degrees of data collection tasks and then sends that data to our technical team for analysis, review and recommendations. Our team then analyzes the data and compiles a **Detailed Analysis Report**.

Our customers choose Remote Analysis when local plant resources and expertise are limited. This program may also serve as an interim step during in-house growth analysis programs. As we discuss our findings with you, a greater understanding of reciprocating machinery analysis concepts and techniques begins to occur. This valuable step will assist in the development of your teams skill set and bring greater meaning to your current reliability program.

Remote monitoring and analysis services may be used in conjunction with Dynalco's **RT Online™ Continuous Monitoring and Analysis Solution**. RT Online gathers data from fixed sensors, PLC's and/or your SCADA system. This data can be continuously monitored and analyzed in real-time by our Service Analyst Team.

Dynalco's Remote Analysis Service is a cost-effective method of analysis, as travel time and expense is eliminated.



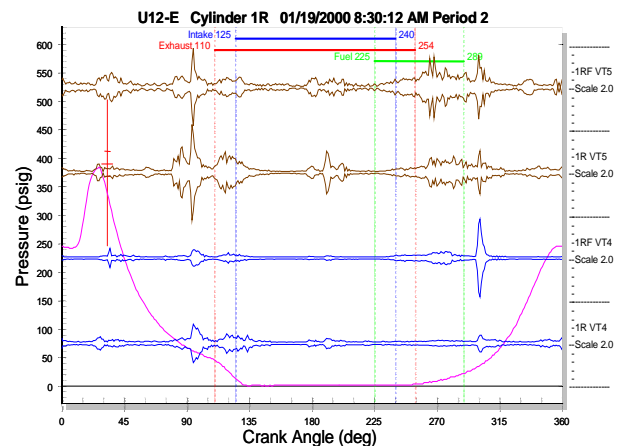
***A mouse-click in RTwin allows for the easy electronic packaging of data to be emailed or sent to our FTP server.***

## CONTRACT ANALYSIS

On-site Contract Analysis is often employed when refineries or chemical plants lack the tools or trained resources needed to regularly assess and trend the condition of their reciprocating assets. This industry-standard practice compliments and assists in optimizing your predictive maintenance program results. Contract Analysis is performed for the purpose of compiling regular assessments of machinery health for historical comparison and trending. If at any time during this process a significant or urgent issue is identified the client will be contacted immediately.

Based on the interval of analysis as specified in your customized plan, the deliverables are:

- **Machinery Condition Report** delivered on-site or within 24 hours which includes:
  - overall health of machinery
  - significant issues that need to be addressed immediately
  - information on general cylinder condition
  - visual and ultrasonic inspection results
  - notes on safety-related issues
- **Detailed Analysis Report** delivered in the time specified by the client, accompanied by a summary of findings.



CRANE **DYNALCO**

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