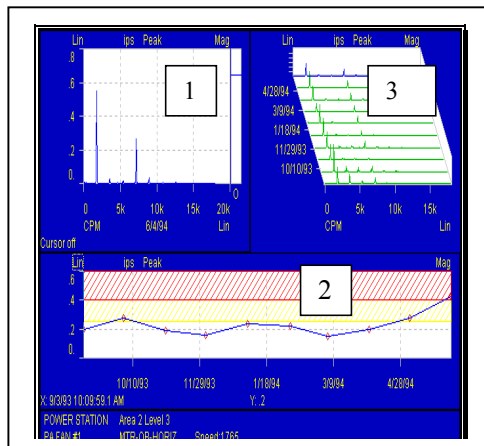


**ATT INFRARED SERVICES** offers a R.O.S.E.™ Program, which provides RAPID ORGANIZATION & SETUP of EQUIPMENT to pinpoint areas where information could support, long and short-term operations of a complex plant. Our staff can configure and train your personnel the key aspects of a predictive maintenance system.

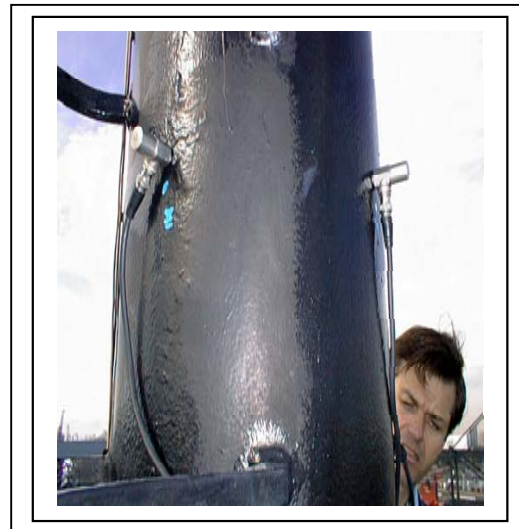


**VIBRATION MONITORING**

Vibration analysis monitoring & trending program using time waveform & frequency spectrum information to evaluate condition of machine. (1) Frequency plot identifies

operating speed fault of machine or components such as blade or vane pass on fans or pumps impellers. (2) Overall magnitude over time represents physical change in condition of machine. (3) Waterfall can graphically show transient vibration on start up or display frequency spectrums over time for trending vibration readings.

**ATT INFRARED SERVICES** will provide condition-monitoring program with optimum equipment knowledge so that accurate fault and condition analysis can be identified. These surveys must indicate proper measurements that are sensitive to change in a machine condition with the least complexity and data processing.



**STRUCTURAL TESTING**

Our expert technical staff can provide surveys involving structural problems where free vibration maybe interfering with operation of vital equipment. Large buildings, hulls, or small electronic devices can be evaluated through various testing techniques using vibration, acoustics, or ultrasound testing. The staff can consult in areas of structural dynamics, acoustic intensity, and structural modification, and apply vibration / acoustic controls.



**TOTAL RELIABILITY MAINTENANCE PROGRAMS**

ATT INFRARED SERVICES will use its strong background in developing and documenting metrics in maintenance management. Using the available data s information systems and our knowledge of Reliability Centered Maintenance, ATT INFRARED SERVICES will create not only a cost versus benefits model, we will include metrics such as Mean Time Between Failure (MTBF), Mean Time to Repair (MTTR), Repair versus Replace Analysis and others. Not only will we develop the metrics, we will teach the application and use in an Advance Machinery Diagnostics Class and a Supervisor / Manager Overview Session.

**PREDICTIVE MAINTENANCE REQUIREMENTS / INFORMATION CHECKOFF:**

- Reliability Maintenance Seminar.....
- VIBRATION INSTITUTE Machinery Vibration Analysis Certification.....
- Precision Alignment Training & Certification.....
- ASNT Infrared Thermograph Training & Certification.....
- Condition Performance Monitoring Program / Rotating Machinery Analysis.....
- Condition Monitoring Performance Program - Reciprocating Machinery Analysis.....
- R.O.S.E. Program - Rapid Organization & Setup of Equipment - Infrared / Vibration Systems.....
- C.L.I.P. -Cost Leverage Improvement Program - Benchmark Facility Auditing & Cost Modeling for Maintenance Operations / Staff / Personnel.....

NAME:.....  
 POSITION:.....  
 COMPANY:.....  
 ADDRESS:.....  
 CITY:..... STATE: ...  
 ZIP:.....PHONE:.....  
 FAX..... E-Mail:.....  
 PREDICTIVE SYSTEM:.....  
 INDUSTRY:.....

For Further Information, contact Project Engineer, ATT INFRARED SERVICES at (562) 421-6730 or Fax (562) 421-6890

## **Infrared Thermography / Vibration Courses 2003 Schedule**

Courses and Exams are Sanctioned by  
Vibration® Institute per ISO & The Infraspect  
Institute per ASNT

### VIBRATION ANALYSIS

<u>Level 1 Course &amp; Exam</u> FEB. 24-28, 2003 APR. 28 – MAY 2 JULY 21-25, 2003	<u>Level 2 Course &amp; Exam</u> MAR. 24-28, 2003 AUG. 18-22, 2003
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### INFRARED THERMOGRAPHY

<u>Level 1 Course &amp; Exam</u> MAY 5-9, 2003 JUNE 9-13, 2003 NOV. 17-21	<u>Level 2 Course &amp; Exam</u> SEPT. 15-19, 2003 DEC. 8-12, 2003
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**The course fees for Machinery Vibration Analysis Levels 1 & 2 are \$975.00 and \$1150.00, respectively. Examination fees for both levels are \$200.00 for members and \$250.00 non-members. Retest fees will be \$75.00. Non-members automatically receive a year's membership with test fee. The course fees for Infrared Thermography Levels 1 & 2 are \$1450.00 and \$1550.00, respectively. Examination fees for both levels are included for all applicants. Retest fees will be \$75. The course fees covers cost of all sessions, demonstrations, beverage breaks, and miscellaneous notes for the course. We will provide a continental breakfast and lunch. Please contact Sal DiFrancia at (562) 421-6730. Fax: (562) 421-6890 or E-mail: [chiefeng@gte.net](mailto:chiefeng@gte.net) for registration. Participants will receive confirmation by mail.**

Cancellation of registration will be honored, and full fee refunded, provided written notification is received no later than one week before opening date of each course. A \$100 fee will be charged for later cancellations. If course is rescheduled, no fee will be charged.

The above classes are scheduled in the SIGNAL HILL OFFICE, 2667 E. 28<sup>th</sup> STREET, Suite 520 for Infrared Thermography, and for Vibration Analysis. Time: 7:30 am – 4:00 PM.

Seats Available: 12

## **PROJECT MANAGEMENT**

ATT INFRARED SERVICES will review the Computerized Maintenance Management Software in use to see if we can automate the metrics. If there is industry standard software.



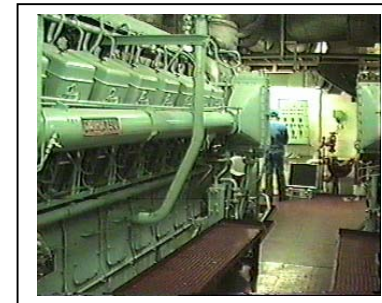
ATT INFRARED SERVICES will recommend

cost-effective analysis package. The metrics will assist in directing the Quality Assurance program and key factors in the Root Cause Analysis.

ATT INFRARED SERVICES will use the results of the On-Job-Training initial evaluation to develop the customized training program. We will use Vibration Institute© Machinery Vibration Analysis training packages where applicable. The training program will be specific to the program implemented as the facility, yet transportable to all maintenance centers. We will develop the program through the systematic approach to training.



ATT INFRARED SERVICES has established a multi-discipline team to perform this project. The team consists of an Executive Sponsor with experience as a Maintenance Manager and in evaluating predictive maintenance programs, a Project Manager with strong predictive maintenance experience and technical skills, a training Specialist with experience in the systematic approach to training, a recognized Vibration Analysis expert and a Predictive Maintenance Analyst with an engineering degree. These individuals have all of the necessary skills and



experience to prepare the report and, if requested, to support the use of the recommended integrated package.

## **CARMA®** COMPUTER ASSISTED RECIPROCATING MACHINERY ANALYSER

THE ONLY PORTABLE ANALYSER WITH:

- REAL TIME DISPLAY - 4 CHANNELS
- UP TO EIGHT CHANNELS ACQUIRED
- PC COMPUTER & SOFTWARE BASED
- EXTENSIVE ANALYSIS / TRENDING
- VIBRATION/ULTRASOUND/PRESSURE

PERFORMANCE FEATURES:

- INDICATED POWER / BHP / KW

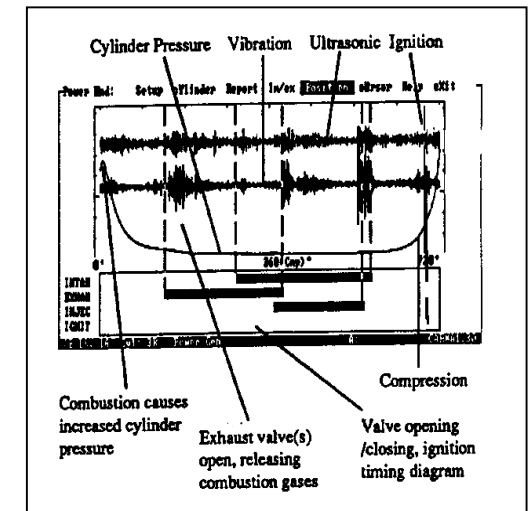
- PEAK PRESSURE / ANGLE
- VALVE EVENT & DIAGNOSTICS
- DIESEL CYCLE SIGNATURES



- REDUCED FUEL CONSUMPTION
- GAS COMPRESSOR DATA & PERFORMANCE SURVEYS

POWERFUL TOOL FOR OPTIMUM  
MACHINERY OPERATIONS:

- MAINTENANCE WORK REDUCED
- SPARE PARTS SAVINGS



- EXTENDED OVERHAUL FREQUENCY
- REDUCED DOWNTIME