LESS (RISK) IS MORE (EFFICIENCY)

Being a worldwide leader in one source asset protection solutions means helping our clients get the most out of their investments.

That’s exactly the function of MISTRAS Group’s Center of Excellence (COE), the Asset Integrity Management Services (AIMS) unit.

AIMS provides a host of clients all over the world with the ability to maximize efficiency, production, and safety while minimizing risk and waste.

The AIMS program enables plant owners to maintain asset integrity in a Fit-for-Service condition for the desired life of the asset. AIMS is capable of providing this program thanks to the seamless integration of its various services, which all work in unison to support plant supervisors with the most comprehensive management system on the market today.

AIMS offers an independent assessment of an owner and user’s program condition utilizing a state-of-the-art GAP analysis methodology. Deficiencies inhibiting a company’s asset integrity program are identified and corrective measures are recommended.

KEY BENEFITS

- Lowered risk of operating equipment
- More reliable equipment
- Reduced emergency downtime and repair
- Increased plant uptime and production based on equipment reliability
- Maintenance cost reduction
- “Peace of Mind”
CLOSED-LOOP CYCLE FOR ASSET PROTECTION

Our seamless integrated solution is illustrated in the customized “closed-loop cycle” developed by MISTRAS, which addresses asset protection, monitoring, and improvement issues in an intuitive workflow.

For example, the cycle begins with a customized MI program developed after interviewing plant personnel and evaluating compliance to current regulations.

Then physical inspection and monitoring of the identified assets begins and we utilize a combination of traditional and advanced non-destructive testing (NDT) techniques to perform data gathering required in these inspections.

After data is gathered, we evaluate results based on rule-based decisions imbedded in PCMS®. We analyze the data using time and condition based methodology as prescribed in American Petroleum Institute (API) standards 510, 570, and 653 or using API 580 Risk-Based Inspection (RBI) methodology. The RBI approach analyzes each asset’s potential risk in its current operating condition. Inspection techniques and frequencies are established for reducing risk of operation of each equipment item based on the anticipated damage mechanism.

The cycle moves on to recommendations based on the inspection findings and data. On-line monitoring is one of our potential solutions for these at-risk assets. Furthermore, industry best practice solutions may be implemented at this stage as an Evergreen solution.

MECHANICAL INTEGRITY (MI)

Mechanical Integrity (MI) Services use their state-of-the-art resources to aid clients in developing, implementing, and maintaining an MI program that meets OSHA requirements while also building an environment rooted in safety and full utilization of all assets. The functions blend to fulfill both regulatory requirements while also ensuring equipment reliability, low maintenance costs and – most importantly – safety.

RISK-BASED INSPECTION (RBI)

Risk-Based Inspection (RBI) Services analyze the potential risks of each asset in its current operating condition and then allows users to choose from highly effective to least effective inspection techniques based on the asset’s anticipated damage mechanism. The more effective the inspection implemented, the lower the operation’s risk.

PLANT CONDITION MANAGEMENT SOFTWARE (PCMS®)

PCMS® is the foundation to our clients MI and RBI services. Our relational database software stores and analyzes the vast amounts of data needed to manage the plant inspection environment. Its user-driven functionality has made PCMS® one of the most widely used condition management systems in the world. With a mix of services only available from a worldwide leader in non-destructive testing and engineering solutions, yet the local presence of a true business partner, MISTRAS can customize a program built for your plant’s needs. In fact, more than 50 percent of U.S. refining capacity utilizes PCMS®.
By using the latest software tools and analysis, AIMS engineering quickly identifies critical areas of concern and provide realistic, resourceful, and cost-effective solutions based on a variety of guidelines.

MISTRAS built its reputation by providing traditional and advanced non-destructive testing techniques to a variety of process facilities for more than 40 years. From that foundation, MISTRAS now offers the ability to formulate engineered inspection plans, gather data, evaluate the results, and issue run-repair-replace or operational recommendations to plant personnel.

These services determine the operating health of critical components and are based on regulatory, process, and inherent operating risks by utilizing an API 571 Damage Mechanism Review and materials/corrosion engineering experts on the AIMS team.

**FITNESS-FOR-SERVICE (FFS)**

Fitness-for-Service assessments are quantitative engineering evaluations that are performed to demonstrate the structural integrity of an in-service component that may contain a flaw or damage. Because engineering works in combination with MI, RBI and PCMS®, in addition to our advanced and traditional NDT services, our FFS assessments use methodologies that are equipment specific.

An FFS assessment can be used to make run-repair-replace decisions to help determine if pressurized equipment containing flaws can continue to operate safely and if so, how long. These FFS assessments are recognized and referenced by the API Codes and Standards (i.e., 510, 570 & 653) and by National Board-23.

The AIMS team has experience in various damage mechanisms such as brittle fracture, general corrosion, localized corrosion, pitting, crack-like defects, blisters, bulges, misalignment, creep, and fire damage.
API and American Society of Mechanical Engineers (ASME) codes did not permit crack like flaws until development of API 579/ASME FFS-1, which has empirical rules used for acceptance of metal loss and provides minimum guidance on the acceptability of other flaws and damage types (i.e., blisters, creep and fire damage). Accordingly, operators often bring down units to repair or replace equipment incorrectly or unnecessarily. A FFS can determine whether an asset is fit for continued service. Equipment may contain flaws, may not meet current design standards or may be subject to more severe operating conditions than the original design conditions.

**FIXED-EQUIPMENT MECHANICAL ENGINEERING**

Fixed-Equipment Mechanical Engineering is available for a variety of functions: pressure equipment re-rates, alterations or repairs, surface replication assessments, failure and fatigue analysis, heater tube remaining life assessment, Scanning Electron Microscopy, XRD analysis and engineering of non-pressurized assets, and assessment of non-coded vessels.

**PIPING INTEGRITY**

Piping Integrity evaluation helps determine the likelihood of both internal and external damage mechanisms using a risk-based analysis on a facility or piping group. Division engineers review all client-provided data and conduct a field analysis to collect additional operating data and verify existing data. A pipeline condition algorithm calculates the risk ranking of each pipeline segment in the facility or pipeline group and assists in identifying those segments that warrant additional review, NDT inspection, or immediate attention.

**INSTRUMENTATION AND ELECTRICAL ENGINEERING**

I&E engineers are responsible for design, development, installation, management and maintenance of equipment powering, monitoring and controlling engineering systems, machinery and processes. This ensures effective, efficient and safe operations.

**MATERIALS AND QUALITY ENGINEERING**

Quality Engineering can help limit potential danger and liabilities due to a manufacturing defect. An effective quality assurance/quality control program provides piece of mind, added confidence in a vendor, and confirmation of fulfillment of all codes, standards and specifications. This provides added confidence throughout each step of design and fabrication processes. Root cause failure analysis is also a quality engineering specialty.

**WELDING ENGINEERS**

Experts in adapting and developing procedures for new materials to meet special project requirements, our broad practical experience has solved problems during manufacturing and construction in a variety of fields. Our welding experts can review supplier procedures and practices for quality and cost assurance, develop new procedures, and help train on-site personnel in accordance with industry standards.

**CASE STUDY**

A Major Midstream Natural Gas Liquids operator acquired pressure vessels with head/shell dents and was unsure of their mechanical integrity. Utilizing a combination of NDT solutions, MISTRAS performed a Level 3 FFS per API/ASME procedures. The assessment enabled safe operation of the new vessels at desired pressures/temperatures, saving the client $10M over 5 years.
Yes, the Asset Integrity Management Services COE is an exceptional tool to ensure compliance with both national and local regulatory mandates — but it’s also so much more.

A sound Mechanical Integrity program can prevent catastrophic equipment failure, less-than-reliable operation, and high maintenance costs; all while ensuring the safety of employees, people, property, and the environment — which are all serious concerns.

Early Mechanical Integrity programs focused solely on corrosion as the main damage mechanism and inspection intervals were based on a combination of corrosion rates and code-based fixed intervals. They were simply a way to comply with jurisdictional mandates rather than initiate a good business practice. But as industry continued to experience catastrophic equipment failures, less-than-reliable operation, and high maintenance costs, the need for sound Mechanical Integrity programs became evident.

Our state-of-the-art resources aid clients in developing, implementing and maintaining an MI Program that meets the requirements of OSHA 29 CFR 1910.119 Section (j), and other jurisdictional mandates.

Our Mechanical Integrity experts can advise clients on MI program development or existing program optimization by utilizing inspection audits, advanced NDT technologies, and risk-based methodologies customized to fit a facility’s unique needs.

There are different capabilities within the Mechanical Integrity Services branch of AIMS, such as: Mechanical Integrity Program development; Mechanical Integrity audits; OSHA compliance assessments; condition monitoring location, placement; and existing program optimization.
MECHANICAL INTEGRITY (MI)

GRASSROOTS DEVELOPMENT

A Mechanical Integrity program developed by AIMS engineers is built from the ground up with a Level I or Level II GAP analysis of existing programs. A GAP analysis will identify areas where an existing Mechanical Integrity Program proved ineffective or inefficient.

The AIMS MI program features traditional and advanced methods of NDT, in addition to PCMS® Mechanical Integrity and Risk-Based Inspection software with implementation services. Our engineers will help implement the MI program and develop site-specific manuals and program management.

FACILITY INTEGRITY MANAGEMENT

The Facility Integrity Management Program determines the likelihood of both internal and external damage using risk-based analysis on a facility or piping group. An AIMS engineer will review all client provided data including facility drawings, inspection and repair reports, corrosion records, and other pertinent documents to gather accurate data for the individual pipeline segments. A field visit is often used to collect additional operating data and verify existing data from the records review. This information is reviewed and applied to several risk-based factors weighted to client preferences.

The pipeline condition algorithm calculates the risk ranking of each pipeline segment in the facility or pipeline group and assists in identifying those pipeline segments that warrant additional review or NDT inspection.

MISTRAS offers a variety of NDT inspection methods including UT, guided wave UT (GUL), C-scan, and most other available technologies. A report is issued documenting the integrity methods used, the line segments of interest and the recommended actions, and NDT inspections required to verify the integrity of the pipeline group.

BUILDING BLOCKS

By administering a sound Mechanical Integrity Program, users build a solid foundation in the first step of the closed-loop cycle powered by PCMS®. A functional MI program performs a proper triage of a plant’s entire needs, identifying and cataloging assets and history.

NEW CONSTRUCTION ASSET INTEGRITY COMPLIANCE

AIMS MI works with engineering and reliability groups to develop and implement OSHA-compliant programs during construction, ensuring compliance prior to start-up. By utilizing a site’s original construction engineering data the MISTRAS AIMS group can systemize the various plant’s processes, perform a damage review, circuitize associated process piping, and generate CAD piping isometric drawings. Baseline inspections and material thickness exams are performed and entered into PCMS®.

CASE STUDY

A major European based Methanol and Ammonia plant operator purchased an out of service plant in Texas and asked AIMS MI group for help. The purchased plant had to be inspected, the equipment needed to be evaluated, and mechanical integrity would be proved before start-up and follow-up actions were required per OSHA 1910.119 guidelines for continued operations.

Starting with GAP analysis and followed with development of MI program and procedures, conducting visual inspection, Ultrasonic, and Advanced NDT inspections, MI engineers and technicians enabled the operator to bring the old plant to service and sustained continuous operation. The operator had an unexpected visit from OSHA inspectors just before the start-up process and MISTRAS programs saved the operator a considerable amount of capital. OSHA inspectors were fully satisfied with the MISTRAS implemented MI program.
ISOTRAC™, A PROACTIVE APPROACH

MISTRAS’ ISOTRAC™ solution is a proactive approach for pre-developing an Asset Integrity Management (AIM) program, specifically developed for implementation within new plants in the refining, energy, and chemical industry. The ISOTRAC™ methodology has also proven very effective for existing facilities and is fully applicable to the upstream, midstream and downstream segments of the energy industry.

ISOTRAC™ is integral in the development of an Asset Integrity Program compliant with industry regulatory requirements at the time of commissioning. Facilities that implement an ISOTRAC™ system during the design and construction phase of a new facility can startup by meeting or exceeding compliance with current Mechanical Integrity (MI) regulations.

HOW ISOTRAC™ WORKS

ISOTRAC™ approaches program solutions using a specific multi-phased methodology detail to illustrate each element within a facility, using a specific system of organization to determine best-fit solutions and remedies through:

• Systemization
• Damage and Corrosion Analysis
• Circuitization
• Extraction of Inspection Isometrics and design data from the 3D Model
• Develop Inspection and Test Plan
• Assignment of Condition Monitoring Locations (CML’s)
• Generation of inspection & test plans effective for the anticipated damage mechanisms
• Data is Recorded Into the PCMS® or other IDMS systems
The ISOTRAC™ system begins with Systemization of a facility’s piping and equipment, followed by a comprehensive damage and corrosion analysis to evaluate all potential damages affecting each system. Each system is broken down into additional circuits, containing the same corrosion and damage potential.

Next, the 3D design model is used to provide necessary data for extracting inspection isometrics and circuit grouping. The inspection isometrics are then sent for Condition Monitoring Location (CML) assignment. Each CML is assigned based on anticipated damage and corrosion mechanism, inspection and tests plans, and are developed based on the damage and corrosion analysis assigned to each CML.

The final phase of the ISOTRAC™ system, transfers piping and equipment designs, Process Safety Information (PSI), CML inspection data and inspection, and test plans into a usable form for the facility’s records. Data is prepared for facility personnel and recorded into MISTRAS’ Plant Condition Management System (PCMS®) or other Inspection Data Management Software (IDMS).

The ISOTRAC™ system utilizes the PCMS® and IDMS software to facilitate a comprehensive list of software modules including:

- Pressurized Threshold Monitoring
- Temperature
- Corrosion Management
- Risk Management

**KEY BENEFITS OF ISOTRAC™**

- **QUALITY ASSURANCE**
  - Verified during each step of the ISOTRAC™ process, ISOTRAC™ results in a MI Program that is compliant with current industry standards and regulations.
  - Quality software systems for effective reporting and response in the event of damage and during repairs.

- **SAFETY**
  - Uses less time and drafters in the field, while eliminating the need for elevated drafting.
  - Enables accessible CML locations using the 3D model and other linking systems.

- **COST**
  - Reduces costs associated with drafting teams and API inspectors.
  - Minimizes scaffolding costs, the 3D model provides information necessary for assigning accessible CML locations.

- **TIME**
  - Saves considerable time as compared to traditional MI program development.
BRIEF DESCRIPTION OF CARMAGEN ENGINEERING

Carmagen Engineering has ready access to over 180 experienced engineers who span the full spectrum of process and equipment technologies as well as project management services. Our consultants have experience in the oil & gas and related process industries having worked for one or more worldwide, integrated petroleum companies before joining Carmagen. The average experience level of our professional staff is over 30 years.

We do not sell catalyst, license technology, or build process plants – we are a pure engineering consulting company. Therefore, we are ideally suited to provide consulting services to process plants since we do not sell anything other than our experience. The simplest way to describe us is as a smaller version of the central engineering organization of a major refining company.

HIGH VALUE ADDED SERVICES:

- Review of inspection plans/practices and maintenance experience, with possible creation of Risk Based Inspection (RBI) programs
- Review of current Reliability and Maintenance and/or Turnaround (T/A) Planning procedures with recommendations to improve overall performance (e.g., reduce T/A duration, increase T/A intervals, improve overall reliability, reduce general maintenance and T/A costs)
- Energy management audits
- Process Design and Development Services
- Operations and Equipment Troubleshooting
- Profit improvement studies
- Process safety and compliance audits, Process Hazard Analysis (PHA), HAZOP reviews, including resolution of identified issues
- Risk management review
- Incident investigations and damage assessments
- Engineering training courses
PROCESS & PROFESSIONAL CONSULTING SERVICES

PLANT OPERATIONS SUPPORT

PROCESS
- FCC/TCC • Coking and Resid Conversion
- Lubes • Hydroprocessing • Petrochemical
- Gas Treating and Sulfur Plants • POX
- Separations and Fractionation
- H₂ Production Management • Alkylation
- Catalytic Reforming • Environmental and Noise

EQUIPMENT
- Mechanical • Heat Transfer • Materials • Civil
- Marine • Machinery • Electric Power • Water Treatment • Instrumentation/Controls • Offsites

PROFIT IMPROVEMENT

- Product Quality • Process/Equipment Audits
- Reliability & Maintenance • Forensic Reviews
- Turnaround Planning • Risk Based Inspection
- Safety/Risk Management • Licensing Reviews
- Blending Automation • Margin Improvement
- Oil Loss • Energy Management

PROJECT PLANNING AND EXECUTION

- Technology Selection • Process Design
- Plot Layout • Project Management
- Construction Safety
- Constructability/Lift Reviews
- Quality Assurance/Controls
- Contracting Strategies/Procurement
- Team Staffing • Start-up Assistance

TECHNICAL TRAINING

- Pressure Vessels/Heat Exchangers • Piping
- Reliability & Maintenance Management
- Project Management • Storage Tanks • Process
- Machinery • Safety and Loss Prevention
- Refractory, Cathodic Protection, Paints, Coatings, and Corrosion
Risk-Based Inspections (RBI) are conducted in terms of both probability of failure and consequence of failure, providing users with a unique view of the condition of each fixed asset in reference to each other.

After a risk-based assessment of all fixed assets, and your plant operations as a whole, is established, MISTRAS can help lower that risk by decreasing failure probability.

Inspections using highly-effective conventional and advanced NDT technologies are chosen by anticipated damage mechanism of an asset.

The combination of RBI planning and advanced NDT technologies may even allow plant operators to safely increase run times of critical plant equipment.

However, based on RBI results, some inspection frequencies may be increased. RBI services include:

**SCHEDULE AND PLANNING**

Final results indicate due dates based on RBI or rule-based dates, but users have the option to override rule-based dates with RBI target dates or override both. Detailed inspection plans include scope, damage mechanism, and recommended inspection effectiveness.

**INSPECTION TRACKING**

Users can create an event to trigger an RBI report, which is also created if a circuit becomes susceptible to a particular damage mechanism. This documents the scope and effectiveness of an inspection, provides detailed inspection plans, and records the final results including recommendations and inspection effectiveness. Approval of the final event updates the RBI assessment automatically with new RBI target and schedule dates.

**STAFF AUGMENTATION**

AIMS can provide Risk-Based Inspection facilitators, RBI team leaders or RBI practitioners to augment a client-managed implementation or provide a complete turnkey RBI implementation team. Complete data management services are also available to: gather information, process data through our software, and deliver asset integrity and RBI inspection reports and schedules.

And if you require data conversion, custom software development, or training, MISTRAS can meet your needs with PCMS software specialists and developers.

**KEY BENEFITS**

- Avoid offline time and unnecessary costs by identifying most at-risk assets to repair/replace before failure
- Allows customers to better budget and plan for potential repair/replace costs
- Compare RBI results to rule-based results
- Focused inspection plans based on damage mechanisms
- Circuit analysis by risk ranking
- Document inspection effectiveness
- Track actual risk vs. baseline risk vs. target risk

**RBI CALCULATOR SOLUTIONS**

A key part of the PCMS system is a fully-integrated Risk-Based Inspection Module within the program. Design, operating and inspection data continually feed the RBI calculator, which provides a true Evergreen approach to RBI management. With that, users have the choice of a Semi-Quantitative (API 580/581) or a Qualitative RBI approach.
The Semi-Quantitative RBI Calculator was developed from a range of base models and theories as well as the PCMS® RBI Subcommittee enhancements.

With the Semi-Quantitative RBI Calculator, users can maintain inspection data and perform RBI analysis all within one software program. This methodology is supported by API 580/581 guidelines with input from industry experts and user group subcommittee enhancements. It automatically identifies susceptible damage mechanisms and consequences per circuit and is fully embedded in PCMS®, which promotes a true Evergreen implementation. Inspection plans are automatically created, identifying potential damage mechanisms and recommending inspection techniques.

From all of this, an RBI target date is generated, based off of risk thresholds, to aid in the inspection planning process. The Semi-Quantitative RBI Calculator also performs a “what-if” analysis based on inspection effectiveness applied with custom risk matrix dimensions and parameters.

On the other hand, a Qualitative RBI Calculator is also available for users that prefer this form of RBI methodology. Damage mechanisms, consequences and overall risk rank can be assigned to each equipment or corrosion circuit in the program. Damage mechanism inspection intervals as well as inspection procedures and techniques can be configured per risk rank and used in inspection scheduling analysis as well as the inspection execution.

As illustrated by their names, the Semi-Quantitative RBI Calculator takes a more wholesale, macro approach, while the Qualitative RBI Calculator takes into account subjective factors and comes up with a ranking system.

No matter which RBI Calculator a user chooses, updates to any damage mechanism in the program will seamlessly update any future inspection schedule.

RBI ASSESSMENT OBJECTIVES

- Provide risk ranking for equipment included in the process plant
- Provide inspection guidelines for inspection requirements in a specific plan period
- Provide equipment inspection recommendations, including interval, method, and procedures
- Provide electronic equipment data files for future updating and maintenance of inspection program
- Demonstrate savings in terms of direct cost reduction, avoidance of an incident, or improved operating efficiency

RBI ASSESSMENT CONCLUSION

- Reduce the operating risk of process plant
- Recommendations for reducing the number of assets requiring inspection on the next shutdown / turnaround
- Analyze the opportunities for reducing the number of internal inspections required per API 510
- Provide a systematic approach to establish and optimize the current piping inspection program
- Reduce the number and frequency of piping inspections required per API 570
- Reduce the overall cost of operation through maintenance and inspection costs and improved operating efficiency

CASE STUDY

A MISTRAS RBI study of a major refining complex’s operating units determined an integral column in the FCCU should receive a CUI inspection with over 50% required insulation removal to be effective. Corrosion with depths up to 50% of wall thickness were discovered, allowing the facility to repair the vessel by preventing loss of containment and a potential facility shut down.
Vast amounts of data are needed to manage the plant inspection environment. PCMS® is a relational database software that stores and analyzes all of that asset inspection data. From that data, it subsequently determines corrosion rates, next-inspection dates, retirement limits, and flags suspect areas for follow-up inspections.

Thanks to its user-driven functionality, implementations, and world-class service, PCMS® is a worldwide leader of condition management software systems. PCMS® provides a host of tools to organize, link and synchronize information, enabling the thorough evaluation of inspection, and calculated risk-based results.

PCMS® is a comprehensive software application developed specifically to assist facilities to implement effective mechanical integrity and process safety programs. In use at refineries, chemical plants, production & exploration facilities, and inspection service companies worldwide for more than 20 years, PCMS® offers best practice solutions developed by an active User Group. Annual User Meetings ensure PCMS® meets ever-changing regulations and supports leading-edge technologies. Some of PCMS® many features and benefits include:

- Store asset data and control documents in one place, reducing redundancy and streamlining record keeping
- Maintain design and operating characteristics for fixed, electrical, and rotating equipment
- Capture activities such as inspection reports, test results, and maintenance requests
- Interface with data loggers, PMI (Positive Material Identification) equipment, and PDAs
- Calculate corrosion rates, remaining life, due dates, and risk rankings
- Plan future activity such as compliance inspections, maintenance activities, and equipment tests
- Recommend effective inspection techniques and monitoring solutions
- Link to maintenance management systems such as SAP, Maximo, and EMPAC
- Link to continuous monitoring applications to identify potential problems pro-actively
- Provide KPI (Key Performance Indicators) to benchmark asset and facility performance

With any new endeavor, proper software implementation is the centerpiece of sound asset integrity management. The MISTRAS AIMS implementation team provides a variety of services:

**TURNKEY DATA MANAGEMENT**

Deployment is streamlined as MISTRAS provides a data hosting environment that allows access to PCMS® anytime, anywhere in the world. This option is a leading edge implementation as guided by staff that adheres to the best practices applied from the hundreds of sites using PCMS® on a daily basis.

**IMPLEMENTATION SUPPORT**

MISTRAS is the only company in the marketplace that can offer Levels I, II & PCMS® Project Management personnel.
All implementation levels are required to meet requirements with PCMS® Procedure 75-PCP-001.

An on-site or off-site implementer will ensure that the client is getting the most out of PCMS® and adhering to Best Practices, including:

• Streamline and improve site’s PCMS® implementation
• Provide efficient and accurate data entry
• Create, deploy and manage all reporting functions
• Data mine and review of analytical outputs
• Develop and deliver on-site personnel training

**DATA CONVERSION**

MISTRAS’ Data Conversion Team is led by industry experienced professionals that have comprehensive technical and working knowledge of other IDMS systems including UltraPIPE, MaxiTrak, Credo, Meridium and Capstone. The team works with your personnel to deliver a successful data conversion.

MISTRAS owns a proprietary conversion program that links any data source to PCMS®, collapsing multiple data sources into a single database. We also provide a systematic process that includes analysis, sanitizing of legacy data, electronically script specific rules and the safe transfer of all legacy data.

**DATA OPTIMIZATION**

Data optimization is a full diagnostic on a site’s MI database that analyzes data conditions, configurations, implementation parameters, system settings, and overall data structure. A full report is provided with a priority of conditions as well as an overall rating benchmarked against similar sites. The necessary steps to improve implementation are also included.

**KEY PERFORMANCE INDICATOR (KPI) REPORT DEVELOPMENT**

MISTRAS’ team members have years of experience developing custom KPI reports. We have experience in writing tools and delivery applications such as: Crystal, Crystal Server, Xcelsius, Business Objects applications and PCMS® report writers.
The AIMS COE synthesizes the best blend of advanced and traditional NDT testing solutions to give plant owners the ability to maintain asset integrity in Fit-for-Service condition for a desired lifespan. This systemized method utilizes a closed-loop, continuous cycle of asset protection and improvement — unrivaled by any other application in the field.