

Teaching Old Dogs New Tricks

Leveraging Asset and Data Management in Mature Plants

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NEFCO

Recycle, Renew, Restore

Your Presenter



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- 39 years of experience in leading technical and managerial organizations, B.S. and M.B.A.
- Captain, United States Navy (Ret.); experienced corporate project and operations manager.
- Extensive experience in industrial product manufacturing, engineering and asset management.



Who is NEFCO?

For over 30 years, you have known us as New England Fertilizer Company, a trusted leader in biosolids management. New England Fertilizer is a privately-held company with strong financial resources to provide optimal technical and economic options to our clients. With customized client solutions and proven biosolids management technologies, we have demonstrated consistent excellence in designing, building, and operating facilities to produce a Class A biosolids product – one that can readily be used as either a product in premium fertilizer or as an alternative fuel.



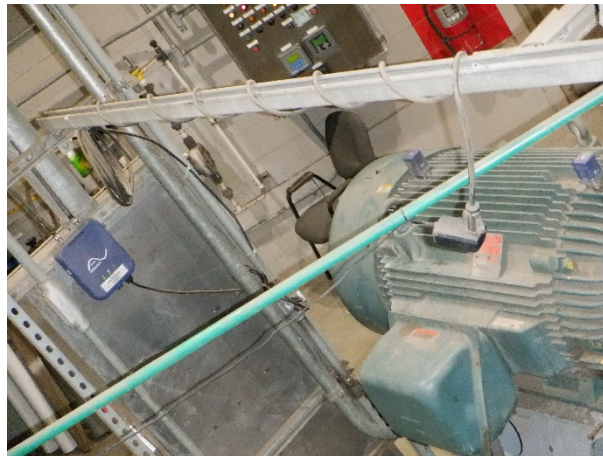
NEFCO

Recycle, Renew, Restore



Maintaining mature (AKA aging) plants at optimum operational and safety levels is a challenge that can be overcome by applying modern tools and techniques to legacy assets as well as to updated assets.

Recent advances in technology have allowed 1990's era plants to be advanced to 2020's standards by implementing Asset management techniques in tandem with data management systems and techniques. The goal: *Increase* reliability and *Reduce* unplanned downtime.



What is Asset Management?



Asset management is a set of well-coordinated activities that NEFCO leverages to realize the objective of sustained value of Facility assets in order to achieve NEFCO overall and Customer specific goals.

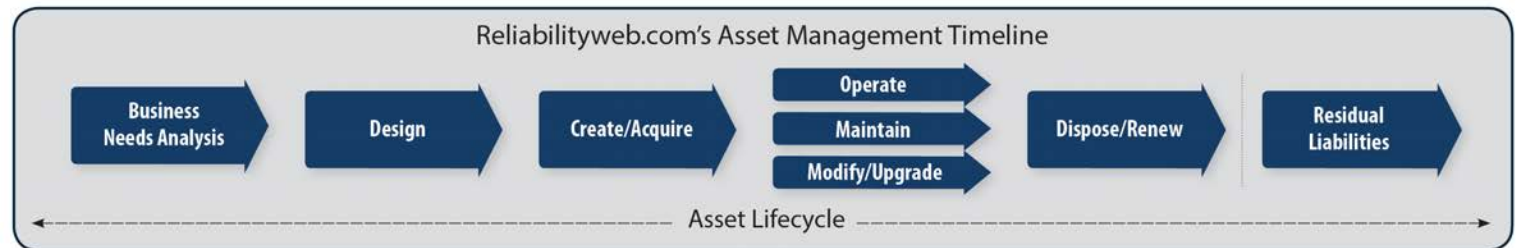
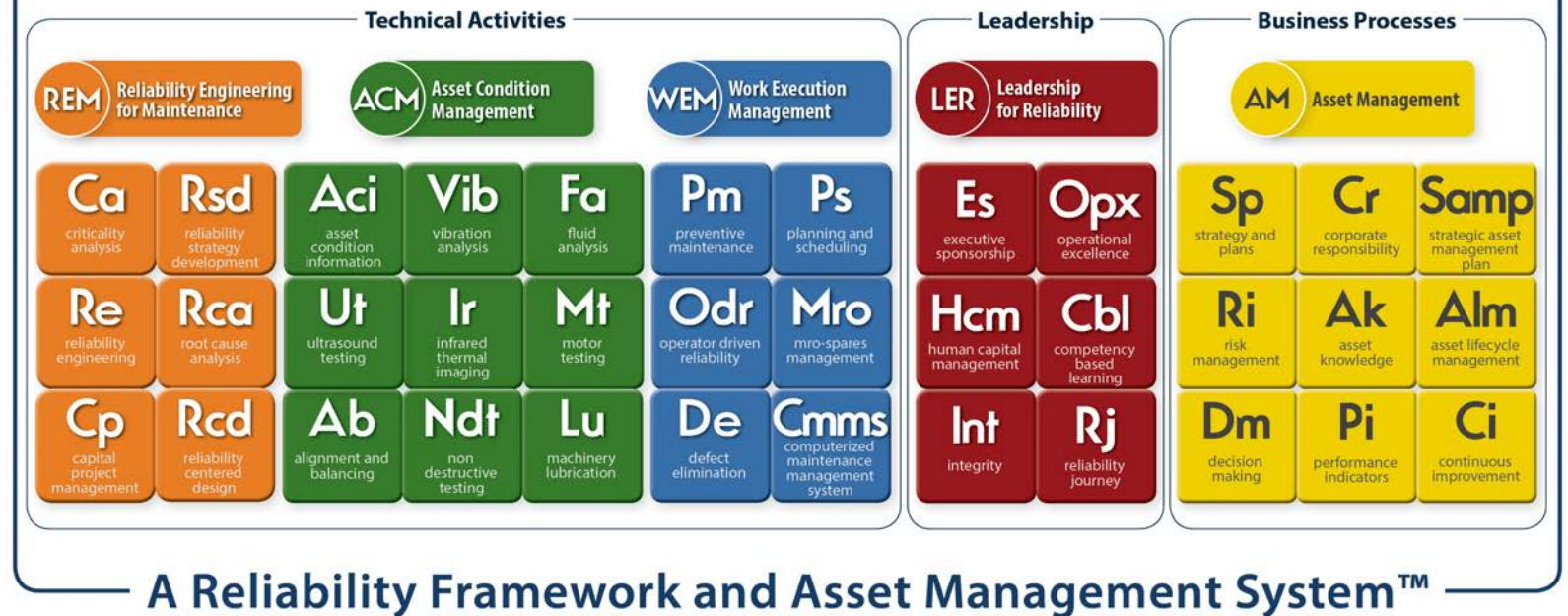
Effective asset management gives NEFCO a *plan* and documented understanding of the history and condition of the material assets of the Facility, allow for estimation of how long they are projected to last, allow estimation of repair costs to rehabilitate and critical spare parts inventory to stock, or ultimately replace them throughout the contract period.

AM \neq CMMS



NEFCO's Asset Management Plans were developed using the Water Environment Research Foundation Sustainable Infrastructure Management Program Learning Environment (WERF SIMPLE) prescriptions, and the Uptime® Elements™ body of Knowledge principles as espoused by The Reliability Leadership Institute's Uptime® NEFCO has 2 Certified Reliability Leaders (CRL). One of which, is a CRL-Black Belt

Uptime® Elements™



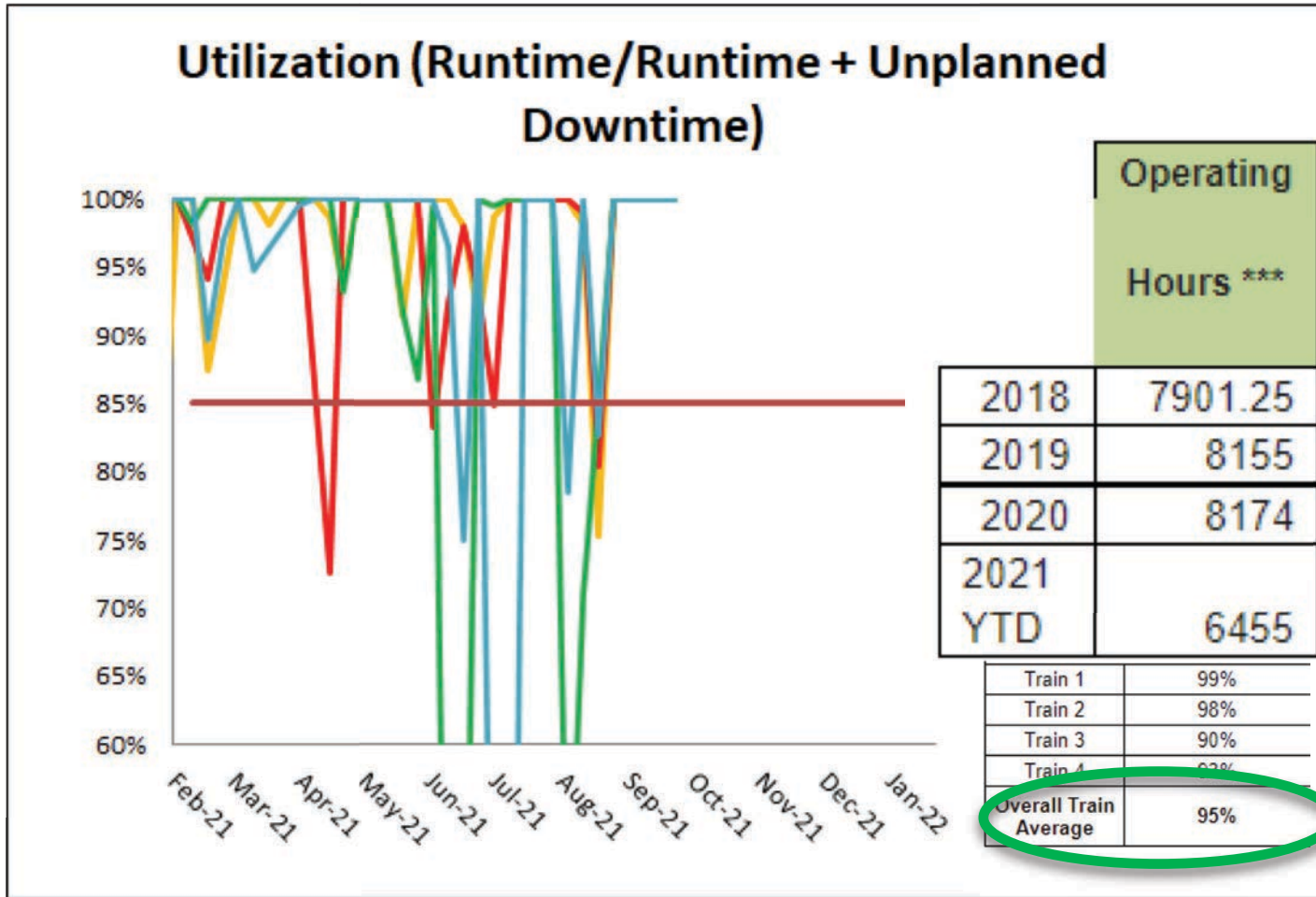
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Why do Asset Management? → Reliability

NEFCO
GLWA
Detroit





A Deeper Dive

In The New England Fertilizer Company (NEFCO) we have embraced and applied modern systems and techniques in Asset and Data Management to enhance plant uptime in all of our biosolids management facilities.

Specific areas of Asset Management employed include:
Overall Asset Management concepts, modern cloud based CMMS, Real time Condition monitoring to include Vibration, Temperature, Ultrasound measurement, Third party Expert Analysis



Overall Asset Management concepts:

- 1) Asset Registry, 2) Asset Inventory, 3) Asset Condition assessment,
- 4) Failure Mode analysis, 5) Determination of Asset Residual Life,
- 6) Determine Life Cycle & Replacement Costs, 7) Determine Levels of Service (LOS),
- 8) Determine Business Risk Exposure, 9) Optimize O&M Investment, 10) Optimize Capital Investment, 11) Executive Sponsorship and Leadership

Asset Management Technologies:

- 1) Modern cloud-based CMMS, 2) Extensive instrumentation,
- 3) Real time Condition monitoring to include Vibration, Temperature,
- 4) Ultrasound measurement, 5) Thermal measurement,
- 6) Third party Expert Analysis





Search for a machine or building/facility

- Company
- Branches
- Facilities
- Buildings
- Overview
- Compare
- Bookmarks
- Users
- Devices

NEFCO / Cumberland / Cumberland Main Building / Centrifuge-Main Drive

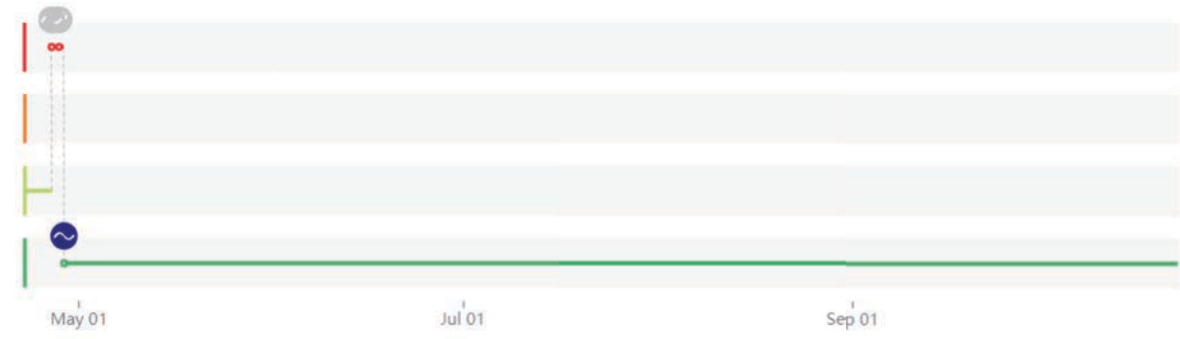


Centrifuge-Main Drive - Other
Asset ID: 7000
Inside
Last Recorded Oct 22, 2021 3:00:05 PM

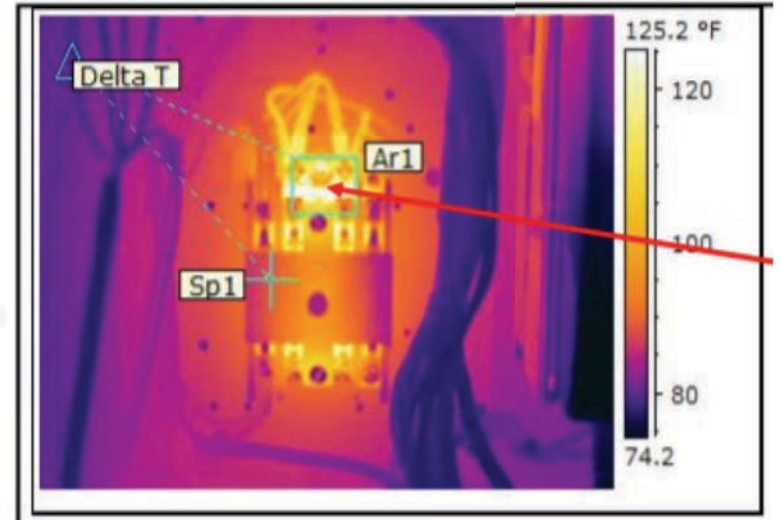
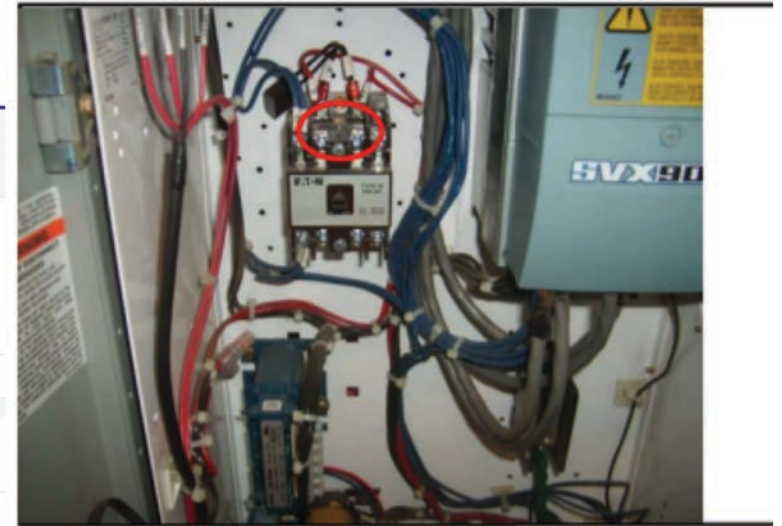
Show Machine Information

Machine Health Events

2021 - 2021 | Last 6 Months



Health Status **Acceptable** Rob Alexander | Apr 28 | 15:04



Data Management

Data Management is also a key aspect to modern operation of legacy as well as new facilities.

Specific of areas of Data Management enhancements include: Data Storage, Process Data Collection, Collaborative systems, Expert Analysis, Access via secure cloud hosting

The results of these programs are enhanced utilization (AKA uptime) more efficient allocation of resources both human and capital.

Cost savings.



Overall Data Management concepts:

- 1) Inter-company Accessibility,
- 2) Intercompany Interoperability,
- 3) Data collection for Condition assessment,
- 4) Data collection for Maintenance Analysis,
- 5) Data collection for Process Improvements,
- 6) Data collection for Asset Management
- 7) Data collection for Asset Management
- 8)

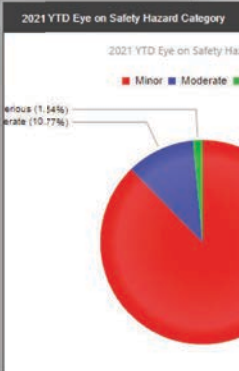
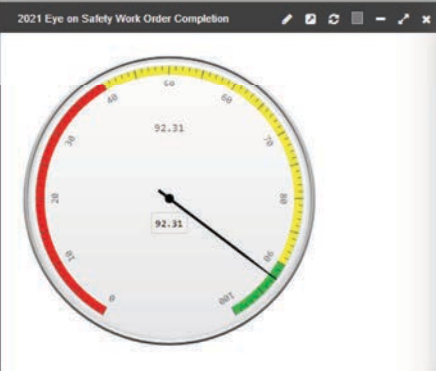
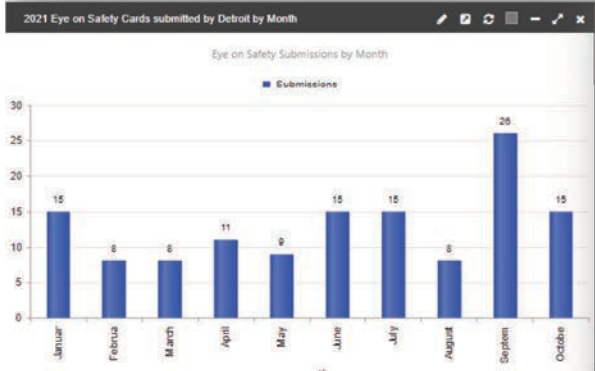


Data Management Examples



More Data Management Examples

WO No.	WO Date	Asset ID	Asset Descri...	Problem Type	Brief Descri...	Work Descri...	Technician C...	Completed ...	Eye of Safet...	Requested By	Eye on Safet...	Eye on Safet...	Eye on Safet...	Eye on Safet...
94501	01/05/2021	EYE-ON-SAFETY	Eye On Safety	NONE	EOS Work Request	010420-2 Shawn M. excellent job preventing fire during DTE sudden power outage.		01/13/2021	Injury / Equipment /	Juan Madrigal	Serious	Defective Equipment	Fire Hazard	010420-2
94502	01/05/2021	EYE-ON-SAFETY	Eye On Safety	NONE	EOS Work Request	010221-1 Plant Power Outage - should we have generator to make Nitrogen?		01/13/2021	Injury / Equipment /	Adam Belifuss	Moderate	Physical Hazard	Fire Hazard	010221-1
94537	01/07/2021	EYE-ON-SAFETY	Eye On Safety	NONE	EOS Work Request	010621-2 Truck drivers in shed. signs to stay in vehicle and nefo employees only. 1 page safety/rules for handout?		01/13/2021	Injury	Joe Csernai	Minor	Human Behavior	Environmental	010621-2
94538	01/07/2021	EYE-ON-SAFETY	Eye On Safety	NONE	EOS Work Request	010621-1 Silo 1 missing Nitrogen seal. Scott to verify.		01/13/2021	Injury / Equipment /	Francisco Sandoval	Minor	Communication	Fire Hazard	010621-1



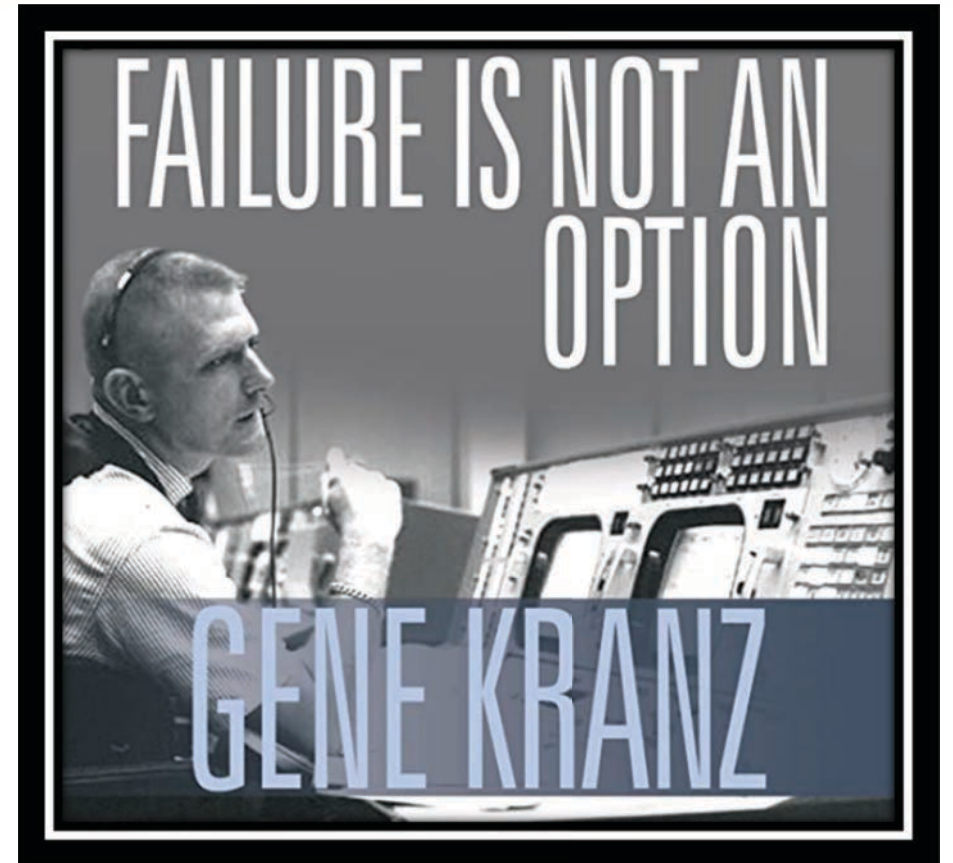


Reliability in the wastewater industry is imperative. The material flow is unrelenting and it is unacceptable for systems to be unavailable due to poor Asset Management. Equipment failures cause major service disruptions and can be dangerous.



Hope is not a Plan

Questions?



Results: World Class Asset and Data Management Creates
An Alternate, More Reliable Safer Future

