

Dana Houghton Waste Treatment and Process Improvement

Ultrafiltration and Reverse
Osmosis

H. Scott Daniel

10/25/07

1

Introduction

- Purpose of this presentation
 - Objectives:
 - The object of this presentation is to present an understanding of the benefits on Filtration process in a industrial setting while building on the foundations of a beneficial working relationship between Supplier and Customer

Agenda

- Brief Introduction and Company Background
- Building the Relationship: the foundation for opportunity
- Why Ultrafiltration and Reverse Osmosis?
- Testing the Technology
- Management Concerns
- Implementation Challenges
- Lessons Learned
- Realized Benefits
- Conclusion and Questions



Dana is a world leader in the supply of axles; driveshafts; and structural, sealing, and thermal-management products; as well as genuine service parts. Based in Toledo, Ohio, the company's continuing operations employ approximately 35,000 people in 28 countries and reported 2006 sales of \$8.5 billion, with more than half of this revenue derived from outside the United States.

Thorold Frame Plant 2005

210,606,000 million dollars in sales to Ford and Produced 432,000 frames for Ford.

10/25/07

Building the relationship: the foundation for opportunity

What is the foundation of any good business relationship?

1. Communication
2. Understanding
3. Trust
4. Honesty

Legal Contract

Why Ultrafiltration and Reverse Osmosis?

- Reduce water usage by extending bath life
- Reduce chemical use for cleaning
- Reduce disposal costs and waste diversion to landfill
- Reduce manpower and energy costs
- Insure legal compliance for discharge to sanitary sewer and storm
- Automated for continuous operation
- Satisfies ISO 14001 Standard 4.3.3 for targets and objectives

10/25/07

Why Ultrafiltration and Reverse Osmosis?

- Understanding the Technology
- Ultrafiltration
- Reverse Osmosis
- Carbon Bed Filter

Testing the Technology: Management Concerns

- Priority testing needs to take place anywhere the process may be altered by the new technology
- Long rail testing proven not to effect part lube recycling
- Waste treatment plant successful in filtering oil. How about organics?
- Paint shop testing - too much Management resistance. Could we have communicated better?

Implementation Challenges

- Installation and the coordination of trades
- Power supply: is it compatible?
- Do we have the right filter for the job?
- Coordination between GE, Houghton, and Dana. (Where is the Love?)

Lessons Learned

- Testing must confirm that the production process will not be adversely effected
- Implementation must be coordinated so that supplier and customer are on the same timeline
- Application of the new technology must be specific to the waste.

Realized Benefits

Ultrafiltration at the Long and Small parts washer.

1. Cost reduction relating to the lessening dependence of our natural resources, labor and material costs
2. Quality, production improvements due to cleanliness of parts minimizing porosity weld issue at line
3. Potential water savings 360,000 gallons be year
4. Soap usage decreased by 66,040 lbs

Realized Benefits

- Ultrafiltration, Reverse Osmosis, Carbon Filtration at the Houghton Waste Plant
- Elimination of the transport of solid waste oil of site. Diversion of 1689 tons to land fill per year.
- State of Michigan to stop transportation of Solid waste from Canada.
- Potential recycling of 1,020,942 liters waste oil for fuel
- Elimination of all oil binding compound for oily waste.
- Satisfied section 4.3.3 of ISO 14001 Targets and Objective
- Satisfied compliance of Niagara Regional Sewer and Storm Bi-Law requirements.
- Increased environmental awareness throughout the Plant.

Conclusion

- In conclusion it can be said that there were challenges in implementing the new technology in the Thorold Frame Plant.
- These challenges represented an opportunity to deliver waste minimization coupled with cost savings for Dana as well as Houghton.
- In the end Houghton and Dana worked through the challenges by working together in achieving success.
- The Thorold Frame Plant is a benchmarking achievement on how supplier and client can utilize expertise to become economically and environmental sustainable in a increasingly competitive market place

Thank You !!

Any Questions???



10/25/07

14