

Better Process Control: Using Technology to Build Robust Quality and Safety Programs

Maintenance is Critical to Continued
Success

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Mature Product Safety Device Technology

- Magnets
- Sifters
- Strainers
- Foreign Matter Detectors



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Mature because they work

- BUT.... They are not “install and forget” systems.
- Regular maintenance is required to keep their effectiveness.
 - What maintenance depends on the technology.
 - Frequency also differs between technologies.



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Magnets

- Regularly inspected for damage which can greatly reduce effectiveness.
 - Damage from cleaning or dropping/striking is common.
- Pull tests conducted to verify they are operating within specifications.
- Sufficient capital planning to replace based on lifespan – verified by pull tests.



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Sifters / Strainers

- Regular inspections to ensure they are installed properly and are intact.
- Replacements on hand in case an issue is found.



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Foreign Matter Detectors (FMD)

- Vibrations can cause false positives, which may lead to lowering sensitivity.
 - Line vibrations.
 - Nearby equipment passing by.
- Changes to the line may also effect false positives.
- Electromagnetic energy can effect the FMD.
- Structural components may effect the FMD.
- Cleanliness can effect the FMD.



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FMD Maintenance

- Regular coupon checks necessary.
 - More accurate than wands.
- Regular PM with oscilloscope may be needed.
- Solid procedures around:
 - Troubleshooting
 - Changing sensitivities
 - Accurate logs (false trips an indicator)
- Training of personnel, especially maintenance.



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Case Study

- FMD installed immediately before baggers.
- Plant grew from 30 baggers to over 60.
- Personnel also doubled.
- Training for maintenance and others involved in FMD did not keep up with growth.
- Lack of technical expertise led to program deficiencies over several years.



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Deficiencies

- Line changes over the years led to stack up issues.
- Standard remote control unit (RCU) cable length was too long for most installations creating electrical interference.
- During cleaning procedures, some isolation pads lost over time leading to excessive vibration.



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Deficiencies cont.

- As false trips increased, maintenance turned down the sensitivity which led to increased metal related issues.
- Budget cuts led to reduced availability of spare parts and reluctance to send units out for repair.

Corrective actions

- Brought in manufacturing reps for training and troubleshooting.
- Sent maintenance techs out to specialized training on FMD.
- Corrected stack up issues, missing isolation pads, other maintenance items and extra long RCU cables.
- Instituted running coupon program.



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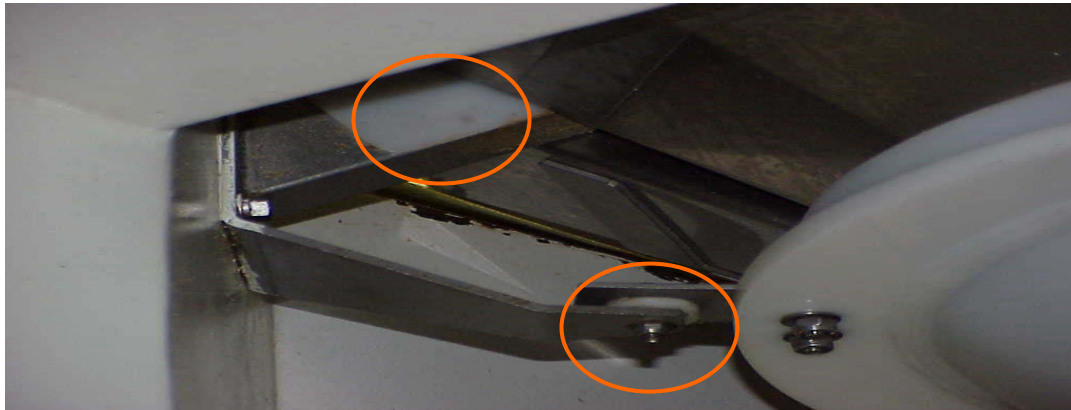


Excessive cable length



Isolators

Foreign Matter Isolator Photographs



10/11/99

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FMD other maintenance issues



The Liner is starting to come loose. Also look To see if there are any holes or chips out of the Liner. Please report so action can be taken.

Results

- Reduced false trips by 40%
- Reduced metal related complaints by 20%
- Increased emphasis also led to program improvements (ex. Critical parts on hand, replacement plan for outdated equipment)



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Summary

- Product Safety Devices can either prevent or catch foreign matter in our products.
- They must be properly designed and installed.
- They must be properly maintained over time to continue providing protection.