Zero Waste to Landfill

"The Ultimate Recycling Machine"

Reduce and Reuse

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BMW Manufacturing

Spartanburg
March 2016

Sheer
Driving Pleasure

Zero Waste to Landfill
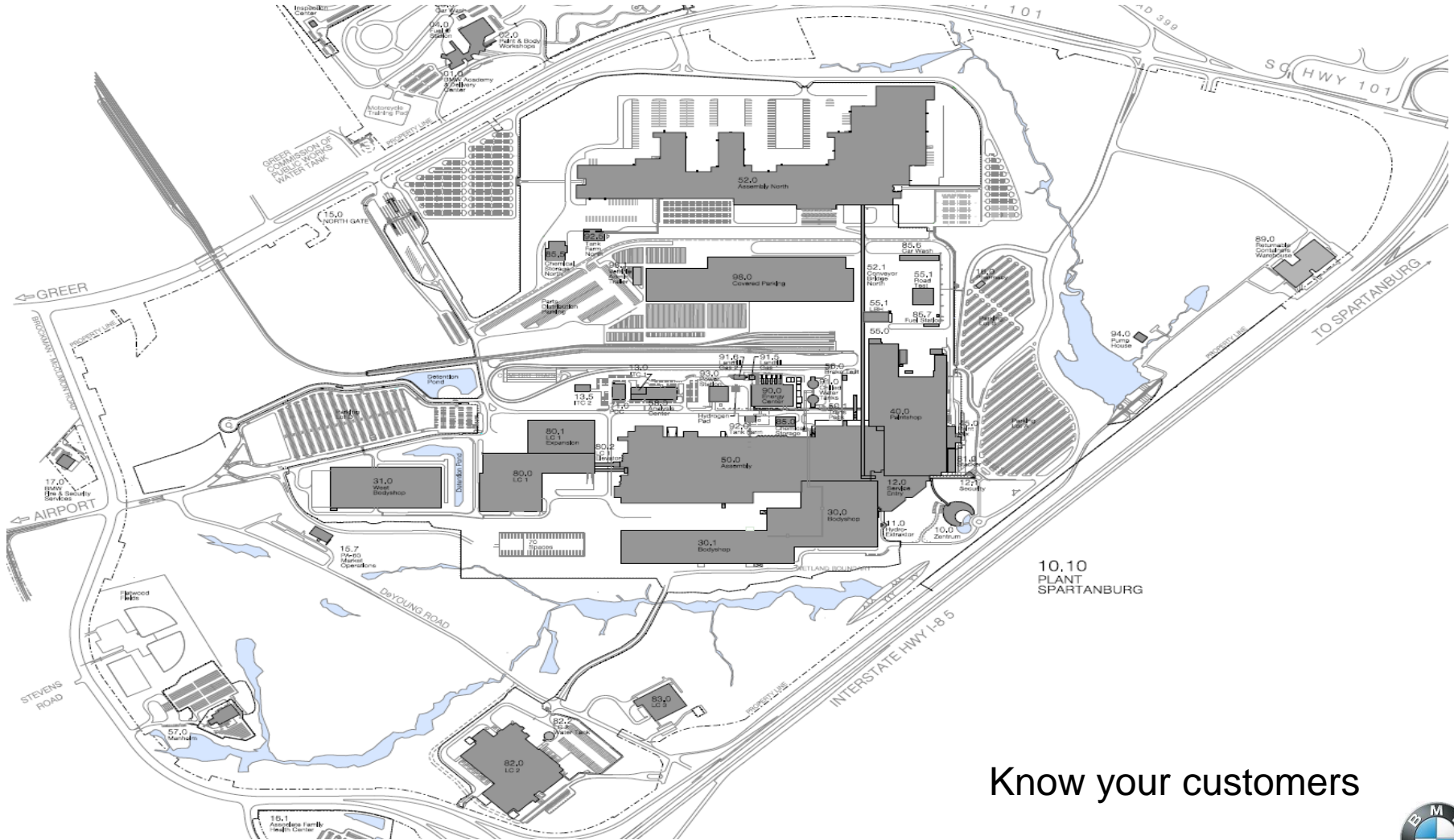## "The Ultimate Recycling Machine"

1. Know your scope

2. The Basics

3. Metrics

4. Identify the Obstacle's

5. Reduction Projects

   a) Wood/Pallets

   b) Metal

6. Reuse Projects

   a) Purge Solvent

   b) Di Purge Solvent

7. Questions

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The Playing Field

Know your customers

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Segregate at the Point of Generation.

Use of X-frames, with sort lids. Each X-frame or blue bin is properly labelled to promote segregation

Green Team: Creation of Assembly management associates to help promote recycling.
- Select responsible team members
- Recycling leaders in their area
- Recycling resource for questions
- Promote segregation in their area
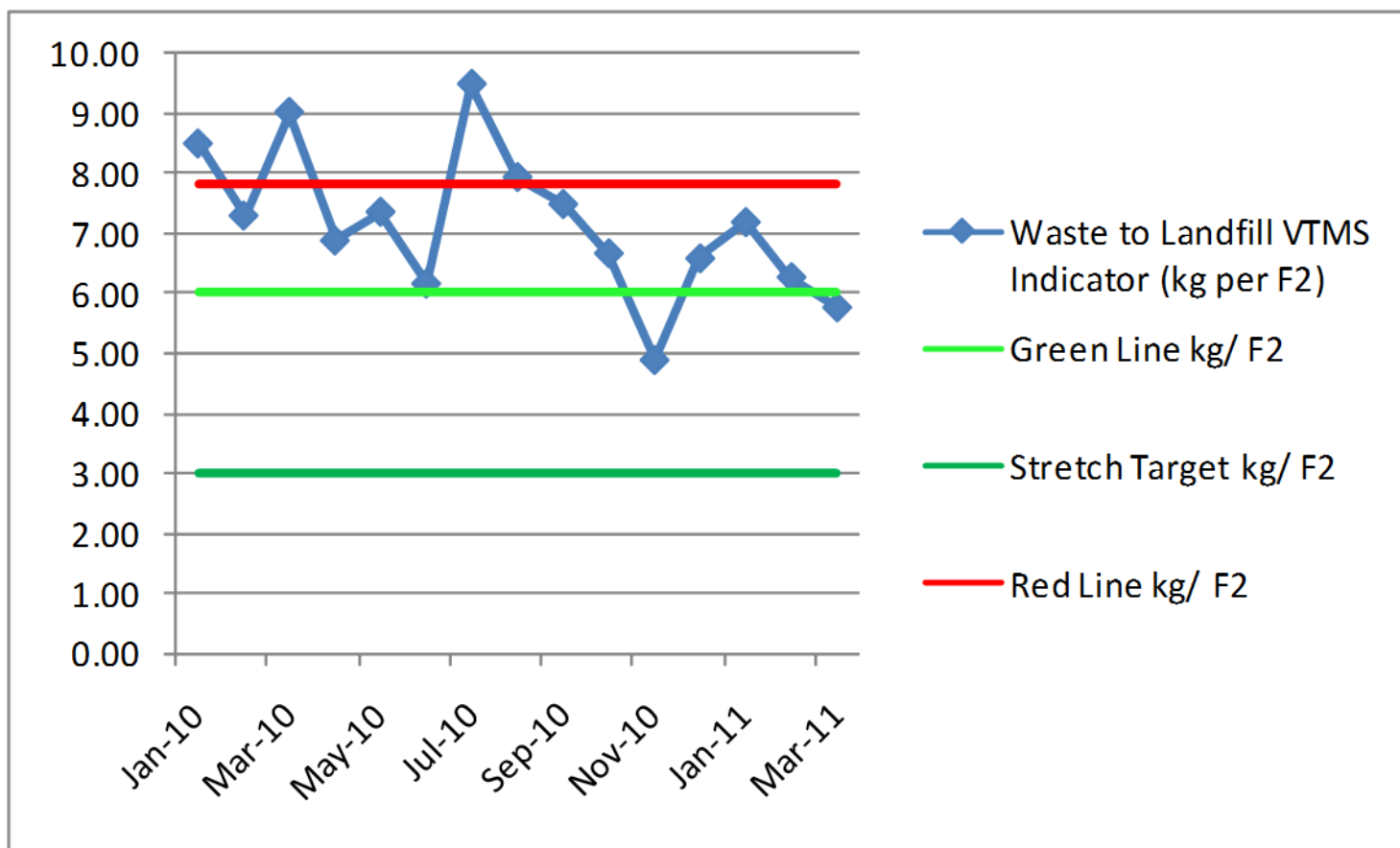- Kill recycling myths or squash any negative recycling rumours
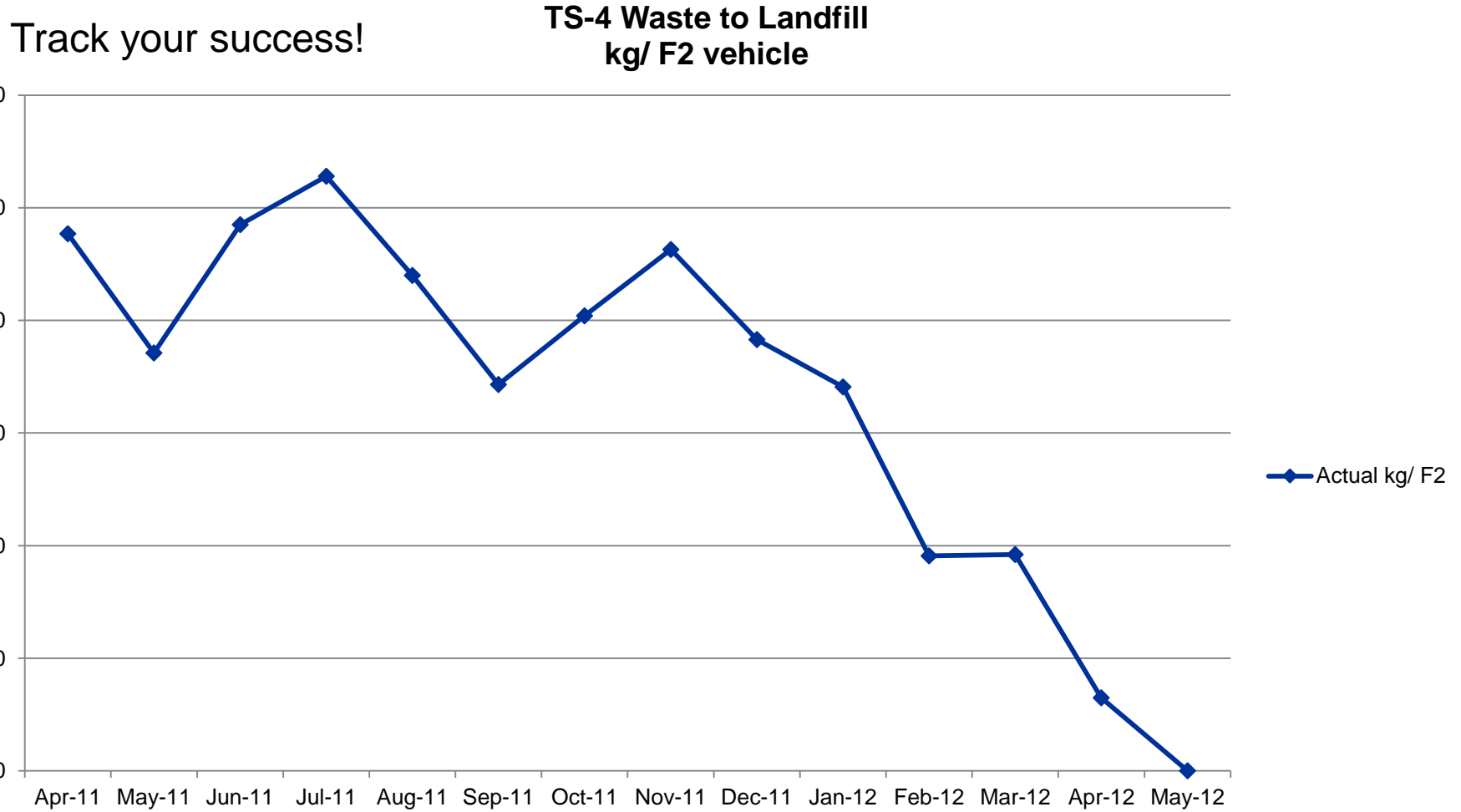
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You have to know where you are in order to know where you want to go.

Create a base line….

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Track your success!

**TS-4 Waste to Landfill
kg/ F2 vehicle**

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Identify your road blocks for reducing or reusing your waste.

Packaging changes pushed down from AG: Munich or the suppliers

- *More or less content, type of content, effects*
  - *% returnables vs one way packaging*
  - What if any can be recycled
  - Collection method
  - Available recycling markets for new content

Internal guidelines or policies

- Speak with colleagues and industry connections
- Get associate feedback from shop floor

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Reduction Project: Wood waste

- ## Current wood waste operations

  - *Utilizing data from a 4 month sample period in 2012 the following information was extrapolated to represent an average 12 month operating cycle*

    - BMW currently pays Nexeo $75.60 for each trailer of wood pallets removed from production-Nexeo incurs $18-$25 loss on each pull
    - Approximately 20 pallet trailers/week
    - 1000 trailers per year-BMW cost $75,600
    - 13m lbs of wood waste generated
    - Major opportunity for cost reduction and balanced relationship

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Future

• Stationary wood grinding option

– *Potential benefits, cost reduction, and sustainability*

- Pricing remains static for BMW @ $75.60 for each trailer of wood pallets removed from production-The total number of trailer pulls would be reduced by approximately 33-50%.
- 500-650 trailers would net a cost savings for BMW from $26,460-$37,800
- Source for ground material
  - Boiler fuel
  - Fuel cubes
  - Mulch product (will require additional investment for colorization)
  - Current vendor supply plan is well established in the local area-sources are awaiting material

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Trial

SOP

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Reduction project; metal waste

Metal recycling program

– Maximize loads for transportation efficiency.

– Increase refund through better segregation.

– Create a knowledgeable team to carry out the plan

– The starting point:
  - Initial cost: $95,000.00
  - ROI: Completed in 6 months

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Metal Recycling program

Never settle for the current process, look for optimizations.

– Utilize networking and vendors to create a better program, do not hesitate to call in an expert.

– The Next level:
  - Total cost: Refund deduction
    - $2500 a month
  - Increased revenue by 60%
  - Decreased trans by 50%

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Reuse options

1. Purge Solvent

2. Di Purge

- Several projects were kicked off to see if there was a possible way to reuse the waste streams on site.

- Explored external uses, for Beneficial reuse.
    - ✓ Better option, does not reflect negatively on amount of waste generated.
    - ✓ Ships out as product with a chance to generate revenue.

Thank you for your attention.

Questions?   Perguntas?   Fragen?
¿Preguntas?   问题吗?