Agenda

1. Western Star Overview
2. Environmentally Conscious Operations
3. Environmental Responsibility
   a) History of Compliance and Continuous Improvement
   b) Air Quality Monitoring Program
   c) Results and Actions
Portland Western Star Truck Manufacturing Plant

- Constructed in 1969
- Square Footage:
  - Office: 19,092 sq. ft.
  - Manufacturing: 359,959 sq. ft.
  - Warehouse: 95,336 sq. ft.
- Build Rate:
  - 26 Trucks per day ~ 1 shift
- 4 Unions:
  - Local 1005 – Machinists
  - Local 1094 – Painters
  - Local 305 – Teamsters
  - Local 49 – Service Employees

Total TMP Employees = 744
Western Star
Portland Truck Plant

Vision
Be the premium truck manufacturer in North America

Mission
To delight our customers & thrive in the future by safely building the highest quality truck in an employee-friendly environment with lean behaviors

Ownership by all

Asset to the community

Employee-driven waste elimination

Great place to work
I am proud to work here
This is a safe place to work

Benchmark truck manufacturer

Longevity: Here for the long haul
**Longevity - “here for the long haul”:**
- Achieve the lowest normalized, plant controlled cost
- Zero Environmental impact to our Community
- Deliver a “high quality” vehicle on time

**Employee Driven Waste Elimination:**
- Employees owning and continuously improving their processes
- Awesome 5-S processes
- Employee owned Total Productive Maintenance (TPM)

**Ownership by All:**
- Robust training programs and ongoing people development
- All work performed to up-to-date standard work
- Employees providing solutions to problems
- Everyone is the “CEO” of their job

**Benchmark Truck Manufacturer:**
- DTNA’s Presidents Cup winner
- Achieve the highest DTNA TOS assessment
- Shingo Prize winner (the ultimate LEAN award)

**Asset to the Community:**
- Meaningful contributors to our community
- 100% participation in charitable causes
- Support local business

**Great Place to Work:**
- Highest Employee survey scores
- 100% Employee involvement
- Employer of choice
- Transparent communication at all levels
- Create safety 1st accident free workplace
Environmentally Conscious Operations

ISO 14001 Certification
• Environmental Policy
• Compliance
• Pollution Prevention
• Goals and Targets
• Monitoring and Measurements

Daimler Due Diligence Program
• Site Assessment
• Proactive Target Agreement
• Key Performance Indicators

Regulatory Reviews
• Semi-Annual Compliance Certification
• Bi-annual Inspections
Coating Operations

Pollution Prevention

Application Technology
Source Reduction
Waste Minimization
Training
Standard Work
Volatile Organic Compounds

RACT (Reasonably Available Control Technology) Permit limits:
- Clear Coatings = 4.3 lb VOC per gal  Actual 3.18 lb VOC
- Forced Air Dried = 3.5 lb VOC per gal  Actual 2.93 lb VOC
Compliance – Hazardous Air Pollutants

40 CFR Part 63 Subpart MMMM (Coatings of Metal Parts)

Limit **2.6** lb HAP/gal solids

Actual 2013 emissions **0.059** lb HAP/gal solids

**94%** reduction since 2007

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40 CFR Part 63 Subpart PPPP (Coatings of Plastic Parts)

Limit **0.16** lb HAP/lb solids

Actual 2013 emissions **0.005** lb HAP/lb solids

**97%** reduction since 2007
Hazardous Air Pollutants

HAPs lbs per Truck

<table>
<thead>
<tr>
<th>Year</th>
<th>Change Description</th>
<th>Reduction From 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>Changed military coatings to comply with NESHAP MACT MMMM and PPPP</td>
<td>57% Reduction per Truck</td>
</tr>
<tr>
<td>2008</td>
<td>Changed topcoat from DMHS to UB tint system</td>
<td>85% Reduction per Truck</td>
</tr>
<tr>
<td>2009</td>
<td>Eliminated chrome from metal surface preparation</td>
<td>85% Reduction per Truck</td>
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<tr>
<td>2010</td>
<td>Changed basecoat converter</td>
<td>84% Reduction per Truck</td>
</tr>
<tr>
<td>2011</td>
<td>Changed chassis coating</td>
<td>93% Reduction per Truck</td>
</tr>
<tr>
<td>2012</td>
<td>Changed clear coat Formula Changed cleaner</td>
<td>97% Reduction per Truck</td>
</tr>
<tr>
<td>2013</td>
<td>Changed chassis coating Changed primer</td>
<td>97% Reduction per Truck</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>HAPs lbs per Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>7.65 lb HAP/truck</td>
</tr>
<tr>
<td>2008</td>
<td>3.26 lb HAP/truck</td>
</tr>
<tr>
<td>2009</td>
<td>1.11 lb HAP/truck</td>
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<tr>
<td>2010</td>
<td>1.13 lb HAP/truck</td>
</tr>
<tr>
<td>2011</td>
<td>1.18 lb HAP/truck</td>
</tr>
<tr>
<td>2012</td>
<td>0.48 lb HAP/truck</td>
</tr>
<tr>
<td>2013</td>
<td>0.24 lb HAP/truck</td>
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</table>
Air Emissions – Continuous Improvements

- Decommissioned Booths
- 36% reduction of 1-methoxy 2-propyl acetate
- Touch Up Booths 1, 2, 3
- Oven 1
- Booth 2
- Booth 1
- Main Ovens
- Main Paint (3, 4, & 5)
- Prime Booth
- E-coat Ovens
- 100% elimination of n-butanol
- Solvent Recovery Unit
- 12% reduction of VOC
- Parts Booth (PB D)
- Chassis Booth
- 100% elimination of HAP

* HAPS Free
* Not in Use
* < 30 gal/yr
* NG Combustion
Odor Complaint Investigation

- Evaluated odor complaints – time, days, location, etc.
- Individual components and mixtures were raked for potential odor risks
- Air sampling program began on May 15, 2012 and ended on May 20, 2013
- Sampled twice per day during operations and various other times when the plant was not operating
- Neighbors were complimentary and supportive
- Neighbors were encouraged to participate. Summa canisters (and training) were provided to neighbors.
Air Sampling Program Summary

Five hundred fifty eight (558) samples have been collected using summa canisters to analyze for a broad range of volatile organic compounds (VOC). Twenty four (24) samples have also been collected with tedlar bags for a broad range of sulfur compounds – heavy oil, natural gas, etc.

One hundred sixty eight (168) different compounds have been detected. Fifteen (15) are potentially associated with paint activities.

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Odor Threshold</th>
<th>Result</th>
<th>Common Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>06012012</td>
<td>1-methoxy 2-propyl acetate</td>
<td>0.0014</td>
<td>0.0032</td>
<td>coatings</td>
</tr>
<tr>
<td>06082012</td>
<td>dimethyl sulfide</td>
<td>0.0025</td>
<td>0.0073</td>
<td>decay, sewage</td>
</tr>
<tr>
<td>06082012</td>
<td>hydrogen sulfide</td>
<td>0.0006</td>
<td>0.008</td>
<td>decay, sewage</td>
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<tr>
<td>11012012</td>
<td>hexanal</td>
<td>0.00028</td>
<td>0.01</td>
<td>natural gas, oil</td>
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<tr>
<td>11012012</td>
<td>nonanal</td>
<td>0.00034</td>
<td>0.0025</td>
<td>natural gas, oil</td>
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<tr>
<td>11012012</td>
<td>octanal</td>
<td>0.00001</td>
<td>0.003</td>
<td>natural gas, oil</td>
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<tr>
<td>11052012</td>
<td>hexanal</td>
<td>0.00028</td>
<td>0.00089</td>
<td>natural gas, oil</td>
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<tr>
<td>01142013*</td>
<td>1-methoxy 2-propyl acetate</td>
<td>0.0014</td>
<td>0.0016</td>
<td>coatings</td>
</tr>
<tr>
<td>04192013</td>
<td>hexanal</td>
<td>0.00028</td>
<td>0.00074</td>
<td>natural gas, oil</td>
</tr>
</tbody>
</table>

*DTNA not operating
Western Star Air Sampling Program

- Newman-Stafford 1 (V)
- Amherst-Olin 2 (V)
- Amherst-Menlo 1 (S)
- Willamette-Olin 3 (V)
- Willamette-Menlo 10 (V) 6 (S)
- Amherst-Cambridge 1 (S)
- Staff-University 1 (V)
- Amherst-Dwight 4 (V)
- Amherst-Woolsey 1 (V) 1 (S)
- Amherst-Newman 1 (S)
- Willamette-Woolsey 5 (V)
- Willamette-Wellesley 4 (V) 1 (S)
- Amherst-Wellesley (S1) 492 (V) 12 (S)
- Willamette-Wellesley 4 (V) 1 (S)
- Amherst-University 6 (V)

Winter wind data
Spring wind data
Apr 2012
Consulted with industrial hygienist to evaluate coatings and rank them according to odor thresholds. Identified key components for potential odor risks. Discovered that changes to lower VOC or eliminate HAP may increase risk of odor.

May 2012
Contracted with Air Toxic Ltd. for sampling protocol and analysis of air samples. Evaluated odor complaints to determine the types, times and locations. Air samples were collected in various locations in and around the neighborhood twice a day (during operation) for one year – one at noon and alternate mornings and afternoon/evenings. Neighbors were complimentary and cooperative and suggested we were sampling in the right places. Some samples were collected when we were not operating.

Air Toxic Ltd. provided analysis for 62 various VOC and 4 different sulfur compounds. Based on the industrial hygienist study, we contracted with the lab to add 4 additional compounds with low odor thresholds. 98 other tic’s (tentatively identified compounds) were also included.

Jun 2012
1-methoxy 2-propyl acetate above its odor threshold. This compound is associated with the clear coat. The coating was reformulated to reduce this compound and put into production in September. Hydrogen sulfide and dimethyl sulfide detected above their odor thresholds. These compound are not associated with coatings.
Aug 2012

The cleaner used for paint equipment maintenance and color changes was reformulated to eliminate n-butanol and replaced with isopropyl alcohol.

Sep 2012

Second neighborhood meeting was held at the site. Invitations included 150 households, regulatory and health officials, faculty from the local University of Portland, NCA representatives and retired EPA experts. Primary focus was to share the data that was collected and discuss the reformulation of the clearcoat.

Nov 2012

Held third neighborhood meeting at the site. Invitations included 150 households, regulatory and health officials, faculty from the local University of Portland, NCA representatives and retired EPA experts.

Communicated the results of the air sampling program and discussed ways to improve the sampling. As a result, DTNA agreed to continue the sampling through the winter months and provide summa canisters and training to the neighbors to collect air samples when they experience odor.

The dialogue indicated that the neighbors experience a myriad of odors with varying intensity during different times of the week and seasons of the year. The experience is not necessarily localized and odors are said to exist throughout the entire North Portland area. The group indicated that their underlying concern is health impacts of air quality in their neighborhood and the lack of access to relevant information regarding those potential impacts.
Nov 2012
Participated at a **supplemental Public Informational Meeting** hosted by DEQ.

Nov 2012
**Pentanal, hexanal and octanal detected above their odor thresholds** as tentatively identified compounds. The most common source of alkanes is natural gas and oil.

Apr 2013
**Hexanal detected above its odor threshold.**

Jun 2013
Changed **chassis paint** and eliminated **12% VOC** and reduced odor risk.

Jul 2012
Changed **primer** and eliminated **100% of HAPS.**
Closing

Thank You!
Back Up
Portland Air Toxics Solutions (PATS) Summary

Portland Air Toxics Solutions Committee Report and Recommendations

Published April 2012

Modeling Study that projects air toxics concentrations for 19 pollutants in 2017

- industrial, mobile, residential activities
- 14 of the 19 pollutants are above health based benchmarks
- 8 of the 14 cause the most risk
  - 1,3 Butadiene
  - Benzene
  - Diesel particulate
  - 15 PAH
  - Naphthalene
  - Cadmium
  - Acrolein
  - Formaldehyde
**Portland Air Toxics Solutions (PATS) Summary**

**Priority Emission Source Categories**
- Residential Wood Combustion
- On Road Mobile Light Duty
- On Road Mobile Heavy Duty
- Construction
- Industrial Metals

<table>
<thead>
<tr>
<th>Mobile Source</th>
<th>Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3 Butadiene</td>
<td>Cadmium</td>
</tr>
<tr>
<td>Benzene</td>
<td>Manganese</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Nickel</td>
</tr>
<tr>
<td>Chromium VI</td>
<td>Lead*</td>
</tr>
<tr>
<td>Arsenic</td>
<td>Secondary</td>
</tr>
<tr>
<td><strong>Residential Wood</strong></td>
<td></td>
</tr>
<tr>
<td>15 PAH</td>
<td>Acetaldehyde</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>Formaldehyde</td>
</tr>
<tr>
<td></td>
<td>Acrolein</td>
</tr>
<tr>
<td>% Point Source</td>
<td>DTNA</td>
</tr>
<tr>
<td>----------------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>lb/yr</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0</td>
</tr>
<tr>
<td>Acrolein</td>
<td>1</td>
</tr>
<tr>
<td>Benzene</td>
<td>2</td>
</tr>
<tr>
<td>Butadiene</td>
<td>0</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>9</td>
</tr>
<tr>
<td>15 PAH</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>1</td>
</tr>
<tr>
<td>Arsenic</td>
<td>2</td>
</tr>
<tr>
<td>Cadmium</td>
<td>70</td>
</tr>
<tr>
<td>Chromium 6</td>
<td>7</td>
</tr>
<tr>
<td>Lead</td>
<td>99</td>
</tr>
<tr>
<td>Manganese</td>
<td>100</td>
</tr>
<tr>
<td>Nickel</td>
<td>100</td>
</tr>
</tbody>
</table>

* Priority reduction for Portland to meet ambient air quality benchmarks. Acrolein is a byproduct of natural gas combustion. Overall, DTNA is not considered a high priority with respect to the Portland Air Toxics Solutions study.