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Daimler Trucks North America
Western Star Truck Plant

FREIGHTLINER

WESTERN STAR

Thomas BUILT BUSES

Oregon Solutions, April 2, 2014

Paul Erdy, Plant Manager

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

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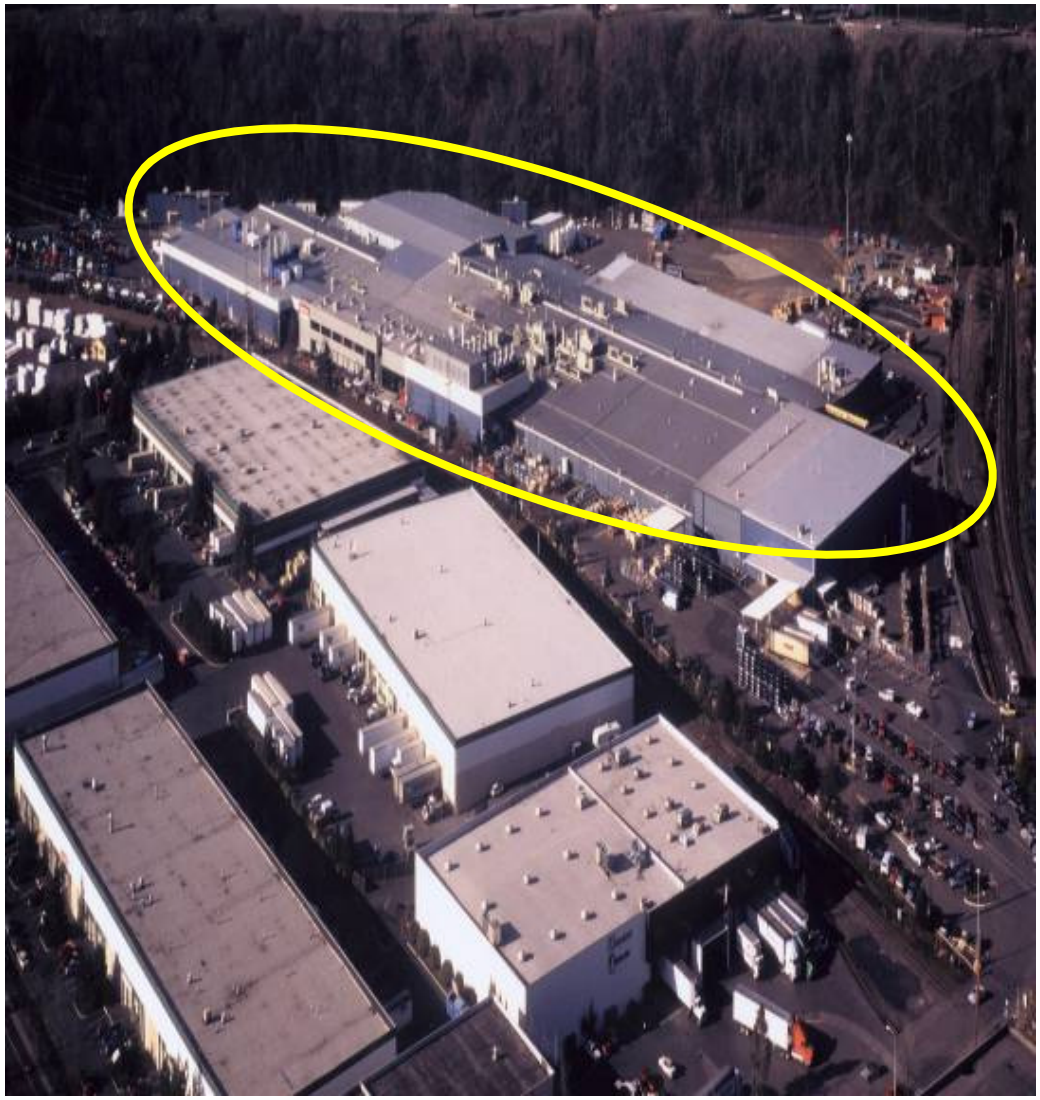
Portland Western Star Truck Manufacturing Plant



- **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

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PORTLAND TRUCK PLANT BLUE SKY

WESTERN STAR

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

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

Employee Driven Waste Elimination:

- Employees owning and continuously improving their processes
- Awesome 5-S processes
- Employee owned Total Productive Maintenance (TPM)

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

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conscious
operations

Coating Operations

Pollution Prevention

- Application Technology
- Source Reduction
- Waste Minimization
- Training
- Standard Work

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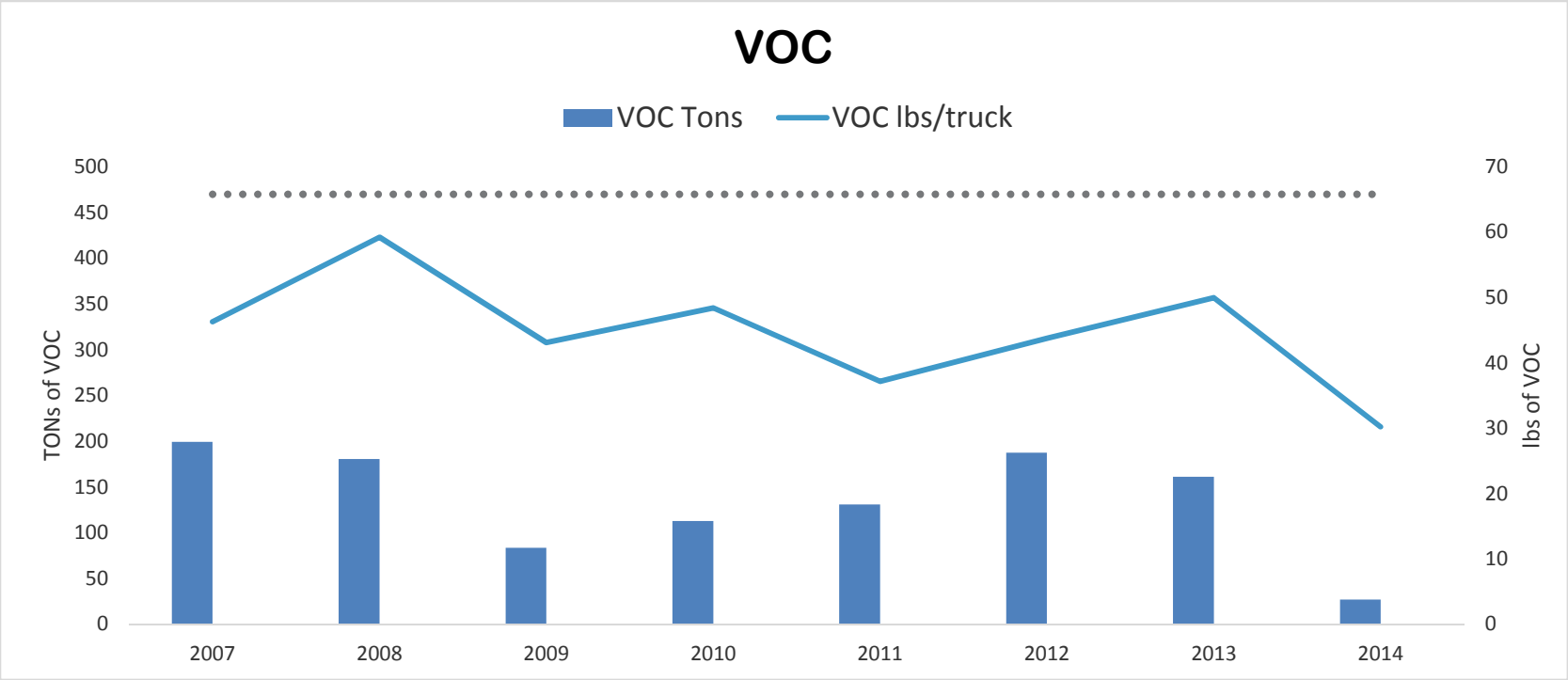
Volatile Organic Compounds



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

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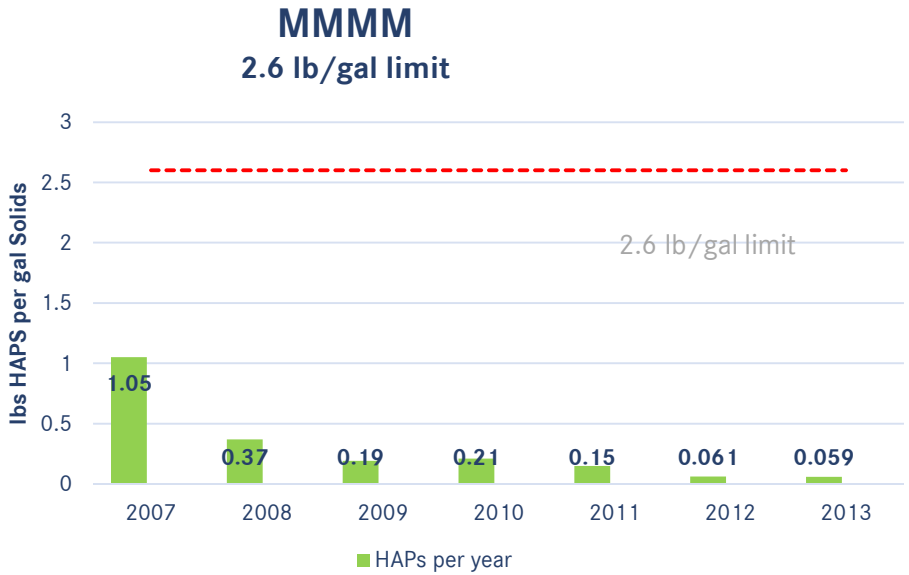
Compliance – Hazardous Air Pollutants



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

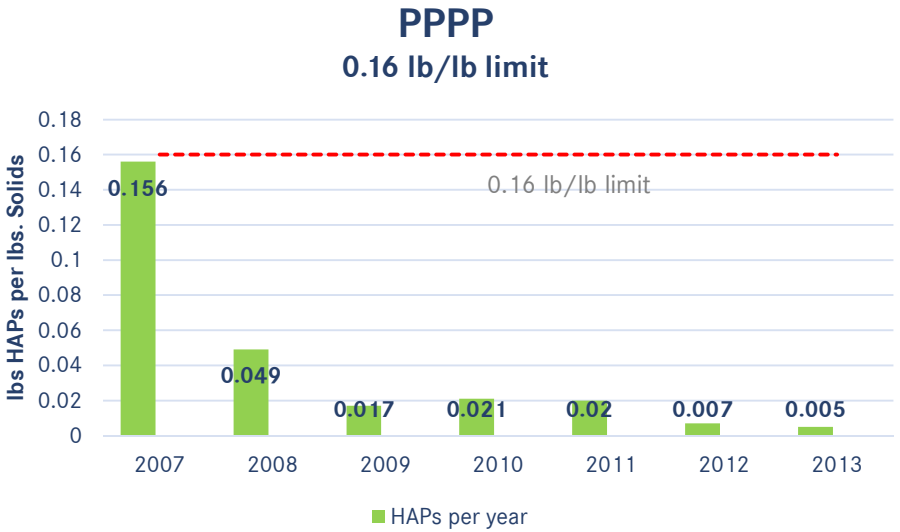
94% reduction since 2007

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



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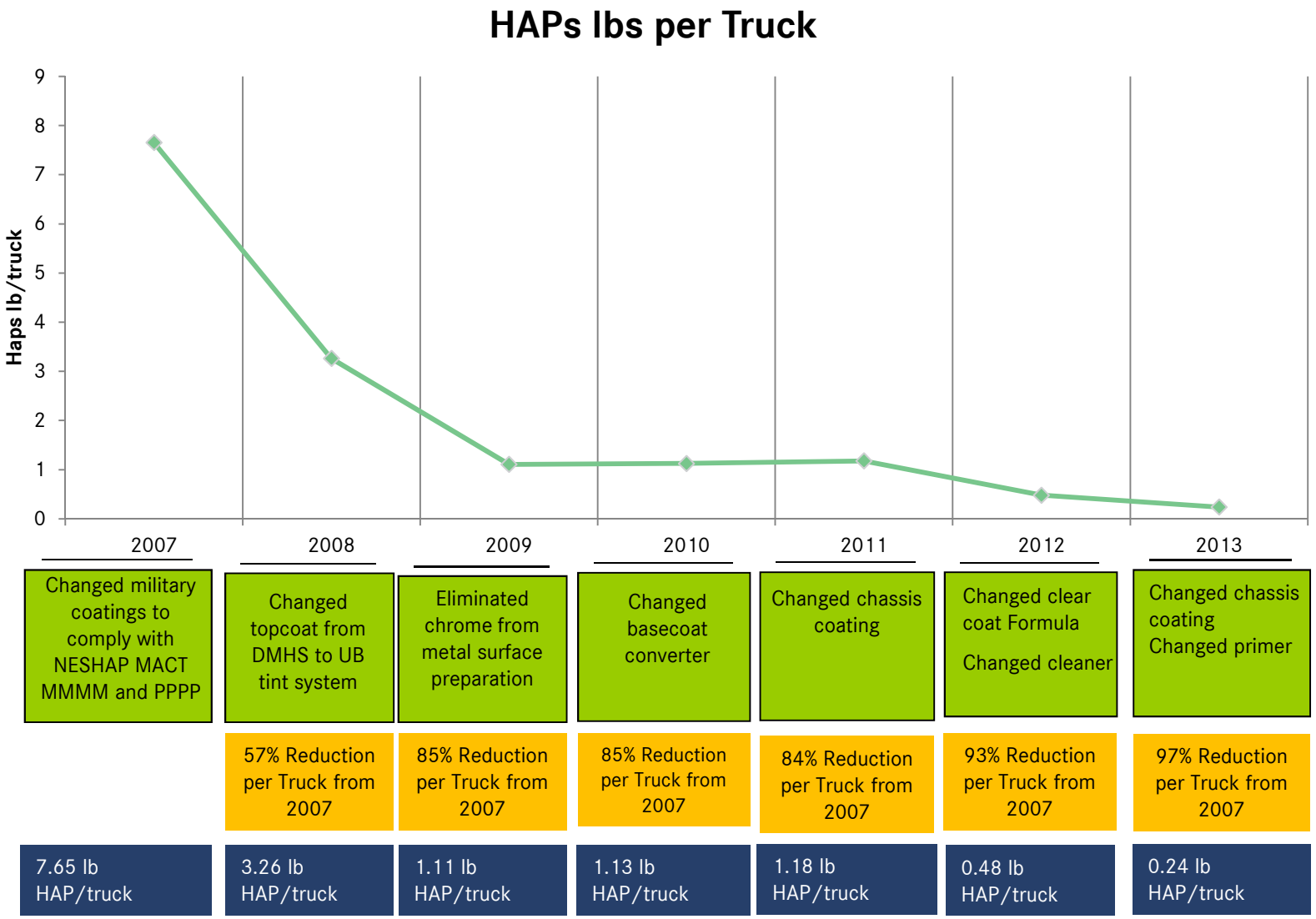
Hazardous Air Pollutants



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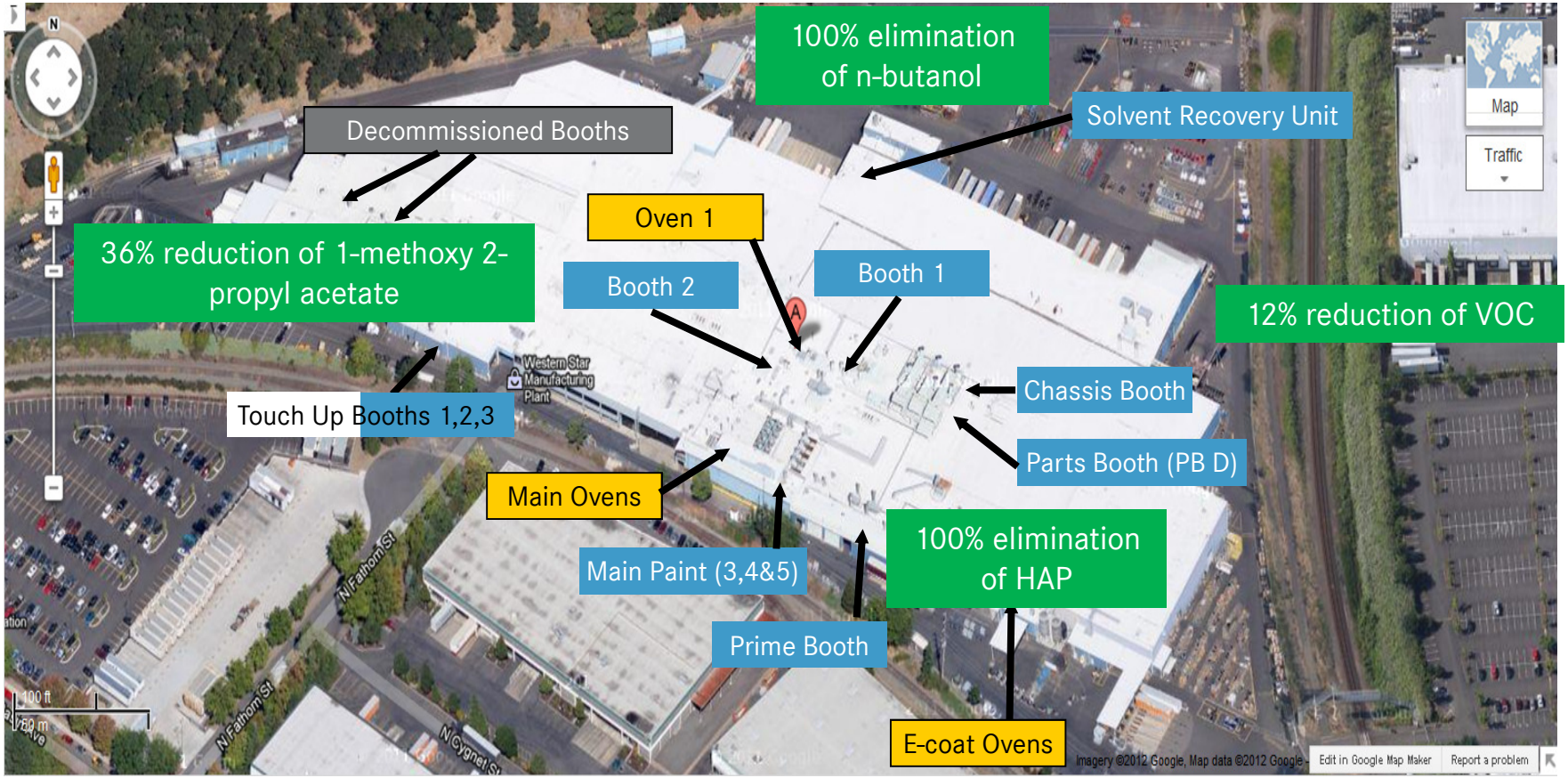
Air Emissions – Continuous Improvements



* 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.

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

*DTNA not operating

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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)

Bluff Train Tunnel
4 (V)

Stafford-University
1 (V)

Amherst-Dwight
4 (V)

Amherst-Woolsey
1 (V)
1 (S)

Amherst-Newman
1 (S)

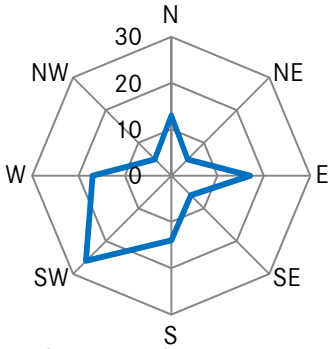
Willamette-Woolsey
5 (V)

Willamette
1 (S)

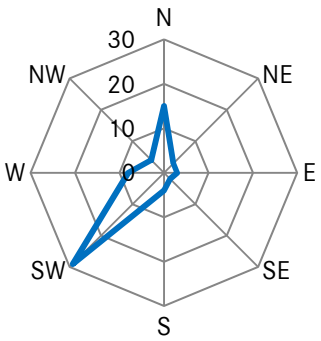
Amherst-Wellesley (S1)
492 (V)
12 (S)

Willamette-Wellesley
4 (V)
1 (S)

Amherst-University
6 (V)



winter wind data



spring wind data

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Nov 2011	**First neighborhood meeting** and plant tour approximately 20 attendees including neighbors and DEQ. Plant tour has conducted.
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.

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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

Mobile Source	**Industrial**
1,3 Butadiene	Cadmium
Benzene	Manganese
Ethylbenzene	Nickel
Chromium VI	Lead*
Arsenic	**Secondary**
Residential Wood	Acetaldehyde
15 PAH	Formaldehyde
Naphthalene	Acrolein

DAIMLER PATS Point Source Summary

Attorney/Client Privilege

	% Point Source	DTNA	Cascade General	Gunderson	Malarkey	Paramount Petro	Conoco Phillips
		lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr
Acetaldehyde	0				658*		
Acrolein	1	5*	1.3		1491*	9	
Benzene	2	<1	143*	<1	122*	1020	648
Butadiene	0		1				
Naphthalene	9	<1	<1	116		<1	841
15 PAH	<1	<1	<1	135	3*		
Formaldehyde	1	14	7*	20	4372*	27	
Arsenic	2	<1	<1	<1	<1	<1	
Cadmium	70				3*		
Chromium 6	7						
Lead	99						
Manganese	100						
Nickel	100						

* 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.