



Pratt & Whitney East Hartford Facility



Dave Russell
Director, Facilities & Services, Pratt & Whitney

Location: East Hartford, Connecticut

Operations: Manufacture & Repair of Jet Engines and Jet Engine Parts

Population: >8500 employees

Size: 4.3 million FT² factory space/1.5 million FT² office space/1023 acres

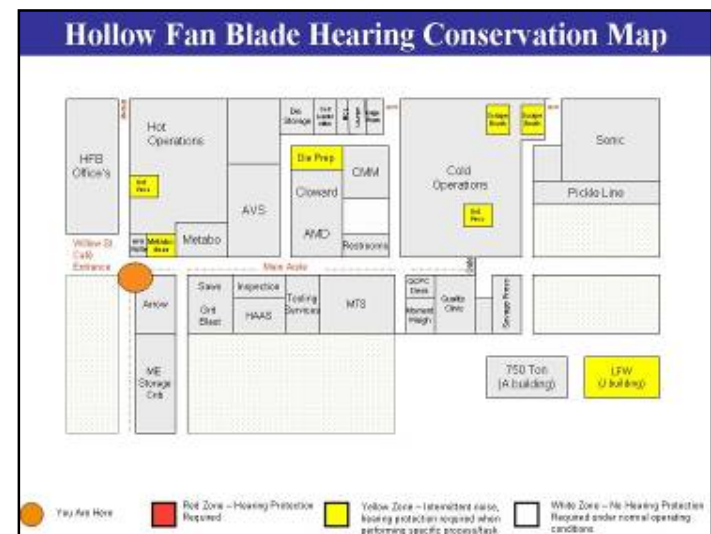


Hearing Conservation - Who is involved?

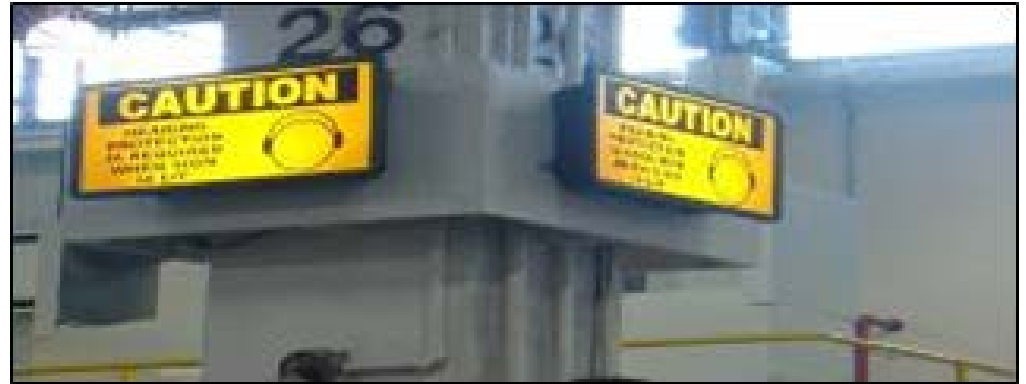
- Multiple HCP teams exist and work together to reduce noise at the P&W East Hartford Facility
- Each team is a cross functional team which consist of representatives from EHS, Facilities & Services, Machine Tool Services, Hourly Associates, Medical, Management & Engineering

Integration of Exposure monitoring into HCP

- Maps placed at various strategic locations (outside of noisy areas)
- Maps illustrate “Hearing Protection Required” zones
- Maps point to relative location vs. these zones
- Zones shrink over time as noise “point of generations” are eliminated
- Ear plug dispensers placed at these locations for easy access



Seeing the Noise....



Hearing Conservation video created

“Now Hear This – Hearing loss is preventable”

- Video focuses on new P&W HCP requirements
- Interviews with existing & retired P&W employees regarding hearing loss
- Prevention & control measures implemented

“Shop Talk” newsletters focused on Hearing protection requirements

Supervisor talking points for Toolbox Talks

- Noise-related conversations in departmental safety meetings

P&W Intranet (mysite) articles:

First Cell in Module Centers & Operations Removed from Hearing Conservation Program PPE Requirements

By Elliot Okrent
Communications Manager, Turbines and Specialty Manufacturing

Following a successful noise abatement effort, the first cell in Module Centers & Operations (MC&O) has been removed from Hearing Conservation Program (HCP) requirements.

Turbine Module Center (TMC) Military Blades Cell 1, an ACE Silver Cell led by Business Unit Manager Ryan Bouffard, reduced noise levels below Occupational Safety and Health Administration (OSHA) exposure limits. As a result, no hearing protection is required for employees and visitors in this area during normal operations.

The TMC has invested close to \$500,000 in hearing conservation projects over the last few months with the support of Dave Russell, director, Facilities & Services. The process has been a challenge from both a cost perspective and the learning curve required to manage hearing conservation projects.



Matt Ackeyd (center) from the TMC EH&S Team reviews noise levels at the Blade Cell 1 Hydroflow machine with operator Carolyn Deboise and Bill Tarantino from Machine Tool Services.

MC&O and GSP Making Strides Toward Vision of a Quiet Factory

Noise induced hearing loss is preventable, and both Module Centers & Operations (MC&O), along with Global Service Partners (GSP) are committed to reducing noise in the manufacturing environment to improve employee safety.

"We are committed to real noise reduction within the manufacturing work environment. The implementation of noise abatement opportunities identified during our stand down is a top priority," said Mike Pcholinski, vice president, East Hartford Operations & Specialty Manufacturing.

During a recent safety stand down, more than 600 noise abatement opportunities were identified. Over the last month, aggressive actions have taken place across the manufacturing environment to eliminate the root cause of hearing injuries. MC&O and GSP employees, including line supervisors, Facilities & Services and EH&S professionals, along with six contract companies were focused and dedicated to the implementation of noise elimination projects.



Sound dampening blankets installed around Stokes vacuum pump at the Turbine Module Center have reduced the noise level by over 10 decibels.

"The cross-functional teams addressing the hearing conservation projects have come up with solutions that are user friendly for operators and allow the MTS team to maintain our equipment," said Kip Wyman, general manager, Turbine Module Center.

Hear The Difference? EHRO Noise Reduction Initiatives Succeed

When East Hartford (Conn) Repair Operations (EHRO) employees voiced concerns about noise levels during the safety stand down last year, they were heard loud and clear. Noise reduction initiatives began immediately, targeting the top noise areas in EHRO.

The EHRO noise reduction team, led by Craig Thompson and Dom Chiuli, focused on reducing noise levels to 82 dBA. Three water jet booths, six plasma spray operations, six plant-wide Stokes pumps and a plasma spray dust collector and downdraft booth were the top priorities, as each contributed to noise in excess of the Occupational Safety and Health Administration (OSHA) action standard of 85 dBA. OSHA requires a hearing conservation program for employees exposed to an eight-hour, time-weighted average of 85 dBA. 214 EHRO employees were in such a program.



Noise is monitored throughout EHRO, with 14 meters connected to signs that light up when noise exceeds 82 dBA.


HCP Standard Work: Risk Matrix

- Each organization in East Hartford cataloged and categorized processes with noise levels above 85dBA
- Unique Risk Matrix utilized to prioritize noise reduction projects

Pratt & Whitney United Technologies Company																														
Noise Abatement (EH): Power House																														
ENVIRONMENT HEALTH AND SAFETY																														
Service Provider: Loureiro Engineering (Don Gardner)																														
Operational Owner: Roman Sywak / Ruben Martinez																														
<table border="1"> <tr> <td>1-24 employees</td> <td>25-49 employees</td> <td>50-99 employees</td> <td>100-499 employees</td> <td>500+ employees</td> </tr> <tr> <td>85-89 dBA: 1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>90-99 dBA: 4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>100+ dBA: 5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> </tr> </table>											1-24 employees	25-49 employees	50-99 employees	100-499 employees	500+ employees	85-89 dBA: 1	2	3	4	5	90-99 dBA: 4	3	2	1	0	100+ dBA: 5	4	3	2	1
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Start Date	Target Date	Closed Date	Col / Bt#	MACHINE	Score / dBA	ENGINEERING CONTROLS	PASSPORT SYSTEM			COST	COMMENTS																			
							Evaluation	Review	Approval	Risk Score																				
Jun-07	Sep-07		Basement	Steam Pressure Reducers (2)	8 / 106.7	A removable enclosure system will be fabricated and installed. System will allow heat to escape but not sound.	x	x	x	\$12,950	Going forward with LEA's proposal...																			
Jun-07	Oct-07	Dec-07	Roof	Super Heater Steam Vent	8 / 103.5	New silencer placed on vent.	x	x	x	N/A	We are replacing the silencer on this steam vent with a new one. The old silencer was rusted out and rendered useless.																			
Jun-07	Jan-08	Jan-08	1st Floor / Water Sinks	Sulfur Compressor (4)	8 / 101.2	Custom enclosure with...	x	x	x	\$49,270	LEA and Turner project with noise band analysis.																			
Jun-07	Jan-08	Jan-08	Main Entrance	Gas Compressor	4 / 98.7	Custom noise curtain enclosure. Curtains are designed to resist outside temperatures. New rain gutter installed as well.	x	x		\$4,000	Potential fire hazard. Need to avoid FULL enclosure as well as have adequate ventilation.																			
Jun-07	Sep-07		1st Floor / South End	Compensator Valve - 30lb. Blow Off	4 / 93.7	A removable enclosure system will be fabricated and installed. System will allow heat to escape but not sound.	x	x	x	\$10,800	Going forward with LEA's proposal...																			
Jun-07			1st Floor / North End	Centrifugal Steam Compressor (2)	4 / 90.9		x	x		\$32,950	Need further evaluation with this... LEA to provide other options...one suggestion is walling off the entire area.																			
Jun-07			Center Building (across Kitchen)	Sulfur Compressor Dryers	2 / 88.1		x	x		\$29,280	Need further evaluation with this...LEA to provide other options...one suggestion is just guarding the motors as opposed to the entire units...more cost effective and allows better access to machines...																			

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May-07	Jun-07	01-11-2011		300W-03 blower	4 / 90.8	Apply noise dampening material to 300W-03 based external surfaces and partial enclosure.	x			\$0	Get electrical control that requires remote noise dampening contact which will be used to allow noise control for all similar process lines.																			
11/16/07		01-11-2011		300W-03 blower	4 / 90.8	Apply noise dampening material to 300W-03 based external surfaces and partial enclosure.	x			\$0	All services at Yarns complete except cell 5.																			
10/10/07		01-11-2011		Lucarbene MS Dryer	4 / 92.8	Install operator screen door (2 and 3)	x			\$0	Doors replaced.																			
11/08/07		01-11-2011		Gulfs Press	4 / 92.8	Contact to evaluate opportunities to add barrier curtains.	x			\$0	Have DP&I install a cap, tank at equipment and provide suggestion.																			
12/21/07		01-11-2011		Hydrolys	3 / 88.8	Enclose with barrier curtains and sound absorbent material.	x			\$0	Enable Cell 3 Unit Complete. Enable Cell 2 working. Evaluate design and implement access at equipment.																			
07-07	Sep-07	01-11-2011		Wells gas vents	3 / 88.8	Install noise dampening covers on existing slanted roofs.	x			\$0																				
11/08/07		01-11-2011		Wells gas vents	3 / 88.8	Install noise dampening covers on existing slanted roofs.	x			\$0																				
12/21/07		01-11-2011		Feed Collectors	1 / 86.8	Enclose Tank with barrier curtains and attach to inside steel metal cases.	x			\$0	Waiting bids for factory made enclosure. Taking inventory of units and identify next priority.																			
11/16/07		01-11-2011		Flare Collector	2 / 87.8	Add exhaust extender.	x			\$0	Doors being dirt shed.																			
10/10/07		01-11-2011		Air Driers	2 / 87.8	Replace compressed air guns with DP.	x			\$0	Compress air guns are installed and when needed continue to use air. DP set is currently located in location.																			
11/08/07		01-11-2011		Aluminate Denash Process	1 / 87.8	Enclose all nearby process to eliminate an impact for space heating removal.	x			\$0																				

“DIVE” Process used to determine Root Cause & Corrective Actions for Identified Noisy Processes

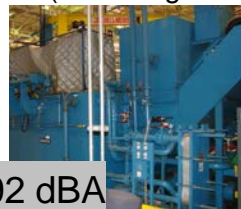


Pratt & Whitney
A United Technologies Company

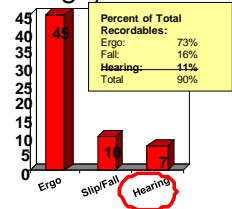
Tools and Methodology

Define

Jan 1, 2008: UTC requirement of 85 dB or less for all manufacturing processes (time weighted average)




92 dBA



Category	Percent of Total Recordables
Ergo	45%
Fall	16%
Hearing	11%
Total	90%

Investigate



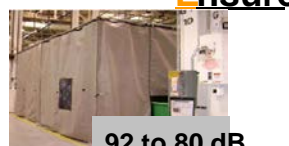
TMC HCP WAR ROOM

- Mapped shop floor noise level
- Identified noisy equipment/ processes
- Verified employee exposure level
- Prioritized noise control projects
- Developed abatement strategy
- Tracked projects to completion


ENSAFE Study
137 machines at 90+ dBA

Sound Level Meter

Ensure

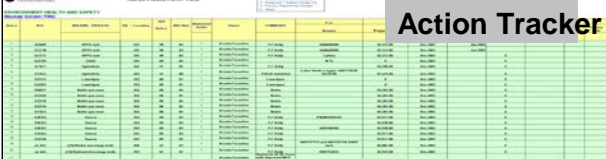


92 to 80 dB


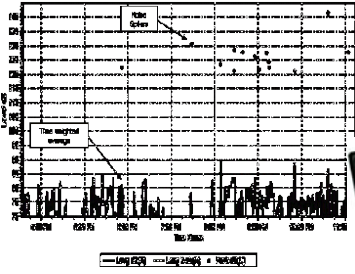



82 to 79 dB

Action Tracker



Verify

2008 Pratt & Whitney Leadership Awards

Chemical Tank Blowers

12 Units Abated

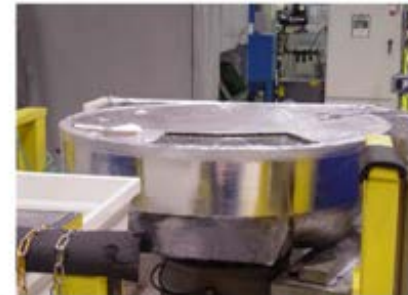


2008 Pratt & Whitney Leadership Awards

9

SWECO bowls

5 Units Abated



2008 Pratt & Whitney Leadership Awards

17

Dust Collectors

45 Units Abated



2008 Pratt & Whitney Leadership Awards

11

HYDRO FLOWS

8 Units Abated

Before



After



2008 Pratt & Whitney Leadership Awards

1



Power Press 3 Units Abated

Before



92 dBA

After



78 dBA

2008 Pratt & Whitney Leadership Awards

12



Turbo Tip Plating Line



83 dBA → 72 dBA

2008 Pratt & Whitney Leadership Awards

18



Enclosures for Hand Tools



108 dBA → 82 dBA

2008 Pratt & Whitney Leadership Awards

15



Vacuum Pumps

24 Units Abated



85.5 dBA



78 dBA

2008 Pratt & Whitney Leadership Awards

17

Employees reap the rewards...

- Custom fit PPEor NONE!
- Less stress on the job
- Many projects done “in-house”
- More quiet work area



Future Pratt & Whitney East Hartford Facility Hearing Conservation Program:

- Continue to focus on Engineering Controls to eliminate the need for a Hearing Conservation program at P&W East Hartford
- Serve as a benchmark and share best practices with other Pratt & Whitney & United Technologies facilities.