

Indiana Partners for Pollution Prevention 2015 P2 Conference and Trade Show



**Wright-Patterson AFB
P2 Initiatives
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P2 Topics: Overview



- **WPAFB Overview**
- **Air Quality**
- **Water Quality**
- **Recycling**
- **Environmental Management System**
- **Green Initiatives**
- **Partnerships/Community Outreach**
- **Challenges**



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WPAFB Overview

- One of the largest, most complex bases
- 116 different mission organizations
- Largest single-site employer in Ohio
- Employees: 27,000
- Land Area: 8,145 acres
- Buildings: 591 & 16.5M sq ft
- Housing: 1636 (100 gov't owned)
- Roads: 120 miles
- Airfield: 530 acres
- Runways: 19,600 linear ft
- Utilities: 1,200 miles of mains



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WPAFB Overview



- **HazWaste: Part B Permit/LQG/112 IAPs/3500 containers/yr**
- **Installation Restoration: National Priorities List – 72 sites**
- **HazMat: 71,000 items in the hazmat inventory**
- **Water: 23 NPDES storm water outfalls**
- **Infectious Waste: 7 generators/109,000 pounds/yr**
- **Cultural Resources: 256 historic buildings/3 historic districts/5 arch sites**
- **Natural Resources: 17 species requiring federal or state protection/20 acres wetlands**
- **Ohio's largest tall-grass prairie 109 acres**
- **Drinking Water: sole source aquifer w/ 8 production wells/air strippers for VOCs, 3.4M gal/day**
- **Solid Waste: 8,300 tons/year**
- **Storage Tanks: 77 BUSTR regulated USTs/189 SPCC regulated ASTs**



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Air Quality

- **Title V Permit: 1147 sources**
- **2010: closed NG-fired classified materials incinerator**
 - Required to meet MACT regulations: new wet scrubber \$500K
 - Replaced with disintegrator \$120K
 - Saved \$39K/yr gas cost
 - Diverted non-classified material to recycling center
- **2014: Converting Coal Heating Plants to natural gas**
 - Required to meet MACT regulations
 - Conversion savings \$13.4M in 20 yr life-cycle costs
 - Burned 51,000 tons coal/yr



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Incinerator Shutdown & Heat Plant Coal-to-Natural Gas Conversion



AIR EMISSION REDUCTIONS

	PM(total)	SO ₂	NO _X	CO	VOC*	HCl
Incinerator	0.09	0.17	0.19	0.03	--	0.404
770 Conversion	15.58	574.32	168.30	38.80	-1.34	16.52
1240 Conversion	8.15	226.22	65.13	18.60	-0.66	8.10
TOTAL (TPY)	23.82	800.71	233.62	57.44	-2.00	25.03

**VOC is the only slight increase in pollutant.*



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Air Quality

- **Employees participate in rideshare programs**
- **Replacing parts cleaners across AFRL w/ Chemical Free Enzyme cleaning**
- **AFRL replacing volatile solvent baths with zero VOC materials**
- **HPW maintenance contractors switched over 75% of the paint for building maintenance to green products containing no VOCs or CFCs**



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Water Quality

- **Storm Water Management Plan**
 - **Control measures for potential sources of industrial pollution**
 - **50 BMPs for municipal discharges**
 - **Construction site inspections – erosion control**
 - **Employee Training**
 - **Storm drain stenciling**
 - **Storm sewer system maintenance**
 - **Roadway deicing**
 - **Street sweeping**
 - **Pesticide management**
 - **Fertilizer application**
 - **Flood management**
 - **Spill booms located at outfalls**



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Water Quality

- **Storm Water Pollution Prevention Plan**
 - **Control measures for potential sources of industrial pollution**
 - **78 BMPs for industrial discharges**
 - **Flight-line operations: fueling, deicing**
 - **Storm water drain inserts**
 - **POL tank farm**
 - **Coal storage**
 - **Flyash handling**
 - **Metal Scrap yard**
 - **DLA salvage yard**
 - **Non-contact cooling water – hot water, chemical additives to control pH and alkalinity (scaling)**
 - **Annual compliance evaluation**



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Recycling

- **8300 tons SW to landfill (4400 tons flyash)**
- **2400 tons diverted from landfills**
 - **1600 tons recycled on-site via Recycling Center**
 - **540 tons recycled off-site**
 - **265 tons composted**
 - **Over 1.1M sq ft (706,000 lbs) of ceiling tiles**
 - **Shred-it savings: \$96,000 annual benefit**
- **\$1.5M SW disposal costs**
- **\$545K in revenue generated**
- **\$652K recycling expenses**
- **CHALLENGE: generating enough revenue to cover recycling operating costs**

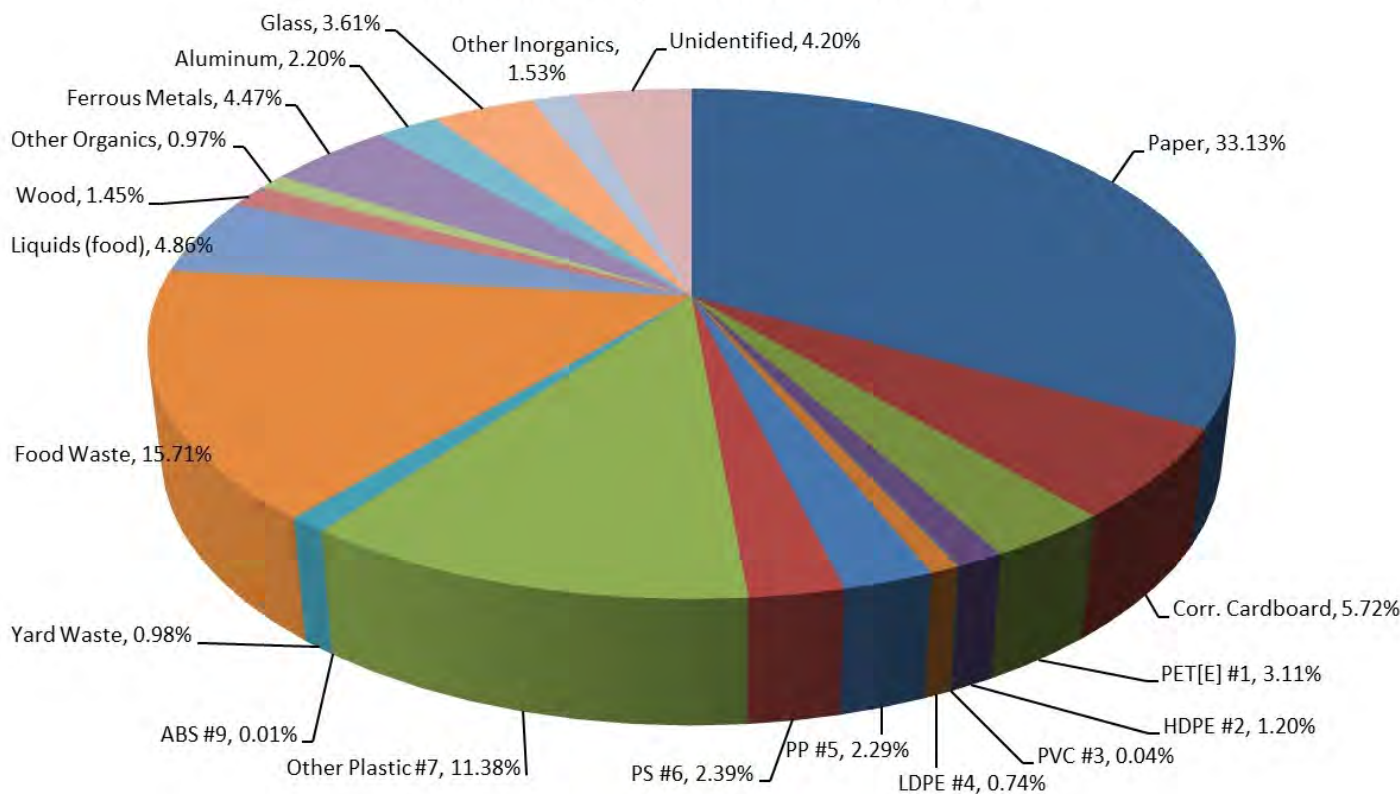


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Solid Waste Audit

Total % Composition For WPAFB



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Recycling

- **Radioactive Material:**
 - **recycle rad material for DoD**
 - **2083 Chemical Agent Detector Cells (Ni-63)**
 - **260 Exit Signs (H-3)**
 - **290 Kr-85 Check Sources**
 - **8100 Kr-85 Electrical Current Tubes**
 - **978 smoke detectors dismantled, 43K in inventory**
- **Firewood/Forestry Sales Program: Apr 2014**
 - **1020 urban ash trees: 300 removed, 200 to be removed in CY15**
 - **Revenue generated \$4K, saved \$9K in waste disposal**
 - **18 years USA Tree City Award Recipient**



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Environmental Management System



- **ISO 14001 conforming EMS since 13 Nov 2009**
- **Senior leadership support**
- **Annually identify significant environmental aspects**
- **Management action plans**
- **Follow the Plan, Do, Check, Act cycle**
- **Cross functional team participation**
- **Unit environmental coordinators**
- **Semi-annual self-assessments & triennial external audit**



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Green Initiatives

- **Energy saving lighting: T8 bulbs & electronic ballasts**
- **Holiday Scheduling - Programmed Energy Monitoring Central System**
 - **HVAC and lighting control for offices**
 - **Ensuring holiday weekdays do not run in occupied mode**
- **Medical Center**
 - **formalin & xylene recycling**
 - **x-ray and sliver recycling**
 - **10% reduction in infectious waste generation via training, container placement, waste segregation**
 - **implemented maintenance program for maintaining & repairing boiler steam traps**
 - **improved steam system efficiency, while reducing the amount of natural gas required to make up for steam loss**
- **Environmental specs in all contracts**



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Green Initiatives

- **Installed 4K sq ft green roof on the new ITC building**
- **Six LEED Silver level certifiable facilities**
- **Initiated "Green Golf Course" plan to protect natural resources**
 - **use less chemicals and conserve water**
- **Energy efficient windows installed to match historic styles**
- **Low-flow & low-flush fixtures**
 - **saving 45% of potable water used in facility**
- **Install variable volume air handling units, highly efficient HVAC**
 - **35% energy saved**
- **Lighting Retrofit projects, replacement of motors, pumps & air conditioners has netted \$488K in rebates**
- **Purchase “green” products**



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Partnerships/Community Outreach



- **3-yr partnership w/ OSU's Agricultural R&D Center**
 - **natural hormone injections to bolster immune system of 70 ash trees**
- **US Division of Forestry – ash tree surveys**
- **5 Rivers Metro Parks – Huffman Prairie mgt**
- **National Park Service – Huffman Prairie**
- **ODA & non-profit: pollinator project**
- **“Operation 1000 Cherry Tree” – Tomodachi**
- **Sinclair Community College**
- **Children’s Water Festival**



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Challenges

- **Continual AF organizational changes**
 - Regional centralization
 - Chain of command
 - Contract centralization
- **Projects no longer funded with environmental funds**
 - Facility operations
 - Sustainment, Restoration, Modernization
- **Reduction of facility footprint**
- **End of year project funding**
 - NEPA
 - Historic preservation