



***3<sup>rd</sup> Annual Prescription Drug Abuse  
Symposium  
Ultimate Disposal of Pharmaceuticals  
December 19, 2012***

**By John G. Waffenschmidt, Vice President  
Environmental Science and Community Affairs  
Certified Ecologist**



## Agenda

- Who is Covanta
- How Energy-from-Waste Works
- Why Covanta Energy Got Involved
- Covanta Energy's Rx4Safety Program
- Other Issues/Next Steps



# Who is Covanta?



# Leading Producer of Energy-from-Waste

- **# 1 Position in North America**
  - Over two-thirds of EfW capacity
  - Dispose of ~6% of U.S. waste
  - 7% on non-hydro renewable power

- **Focus on attractive, densely-populated Northeast markets**

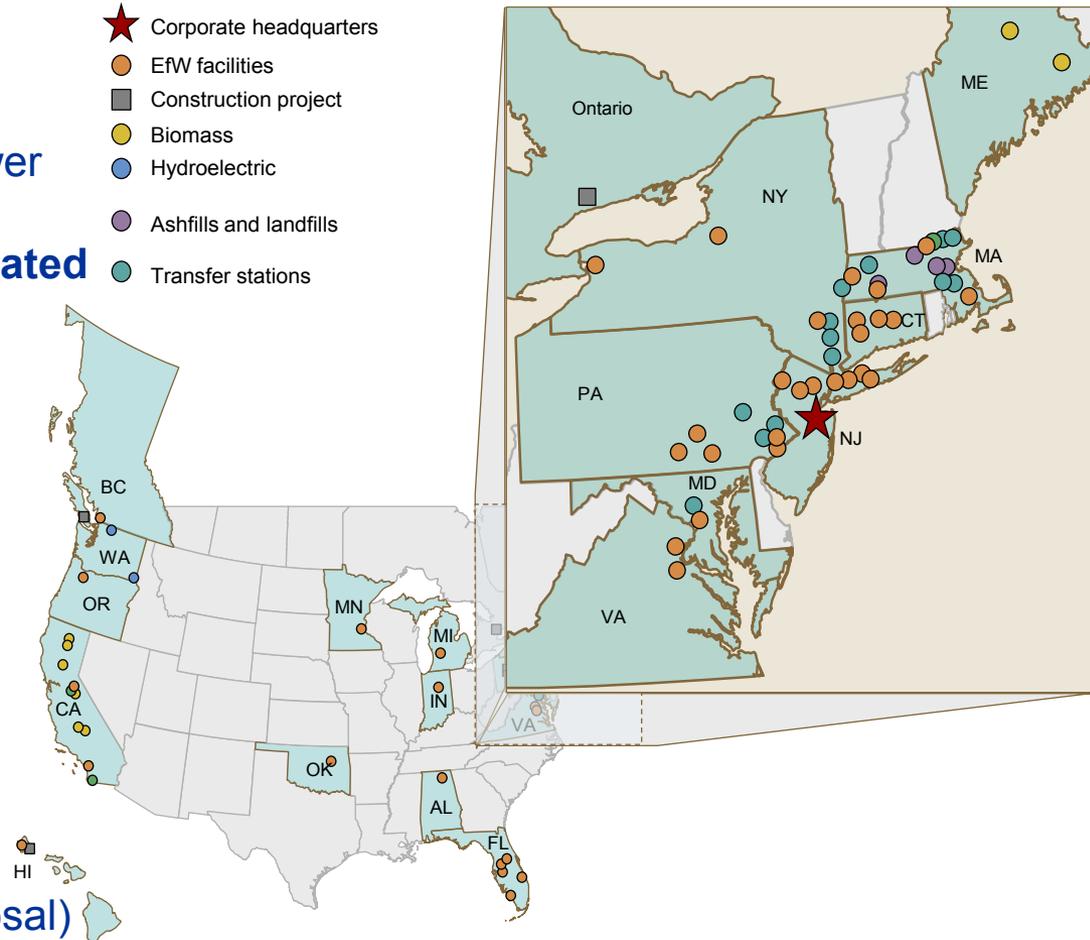
- High waste disposal prices
- Liquid electricity markets

- **~90% of Covanta revenue**

## Portfolio

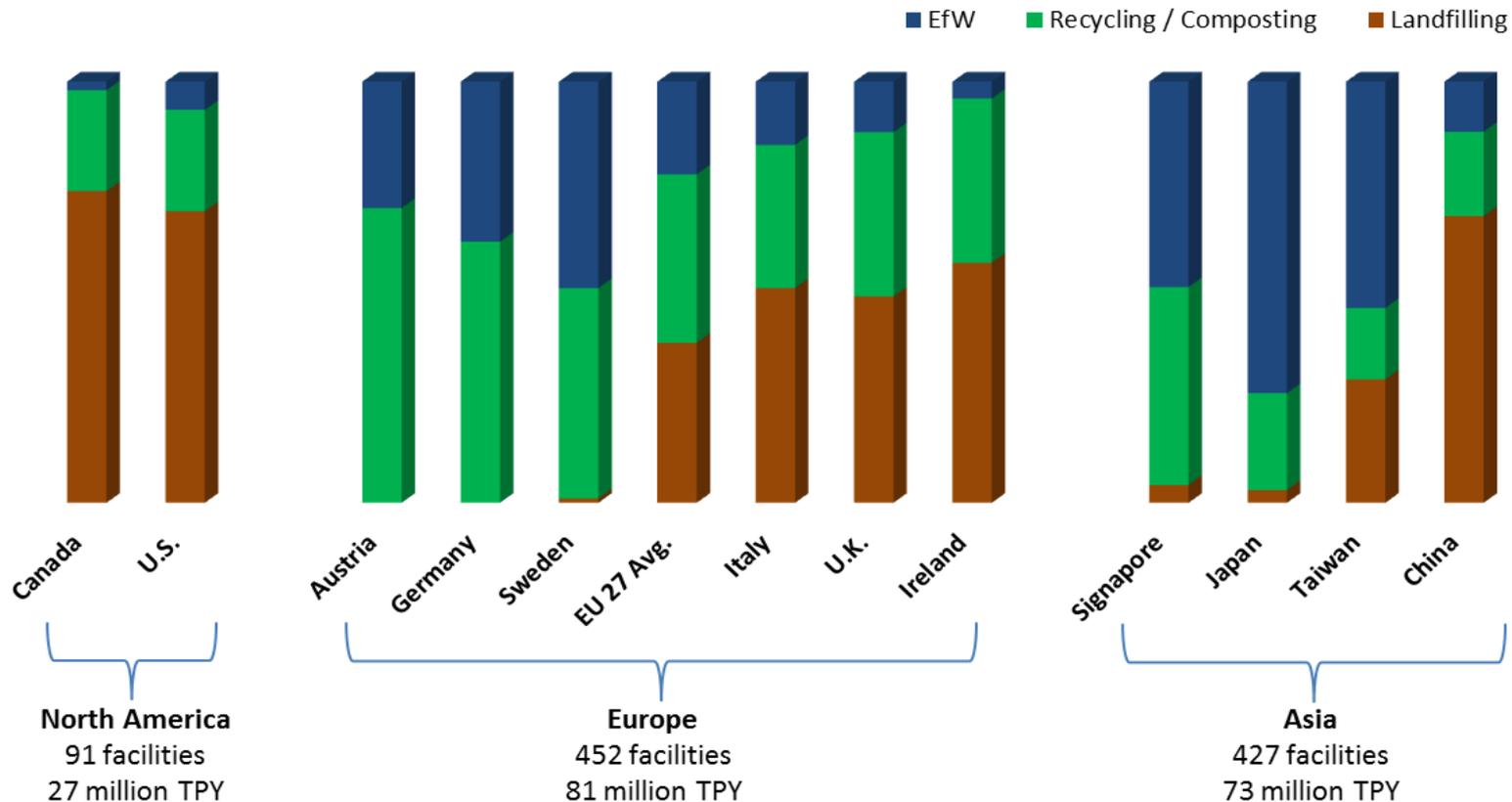
- **Over 40 EfW facilities**
- **Other renewable generation**
  - 8 wood biomass facilities
  - 4 hydroelectric facilities
- **Complementary waste operations**
  - 13 transfer stations
  - 4 landfills (primarily for ash disposal)

- ★ Corporate headquarters
- EfW facilities
- Construction project
- Biomass
- Hydroelectric
- Ashfills and landfills
- Transfer stations



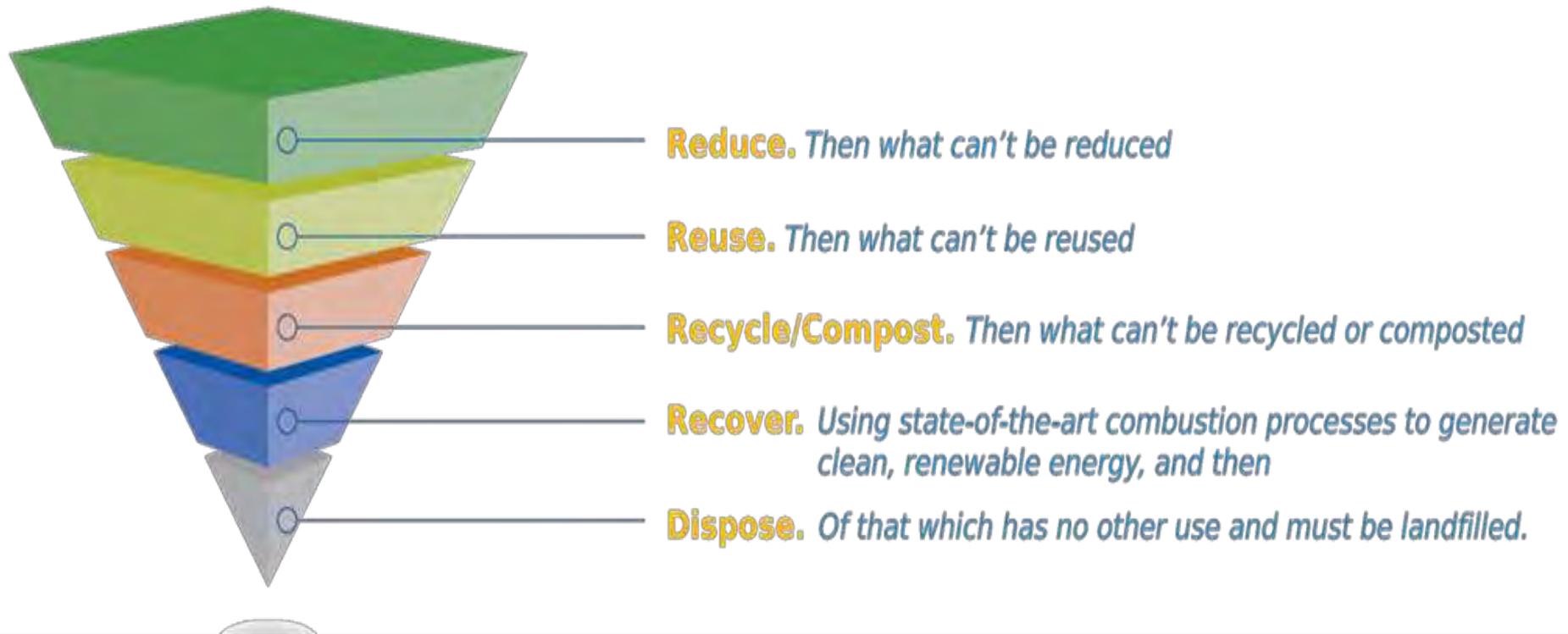
# EfW: A Global Perspective

- EfW is used extensively worldwide:
  - Over 1,000 facilities; 180 million tons per year (TPY)

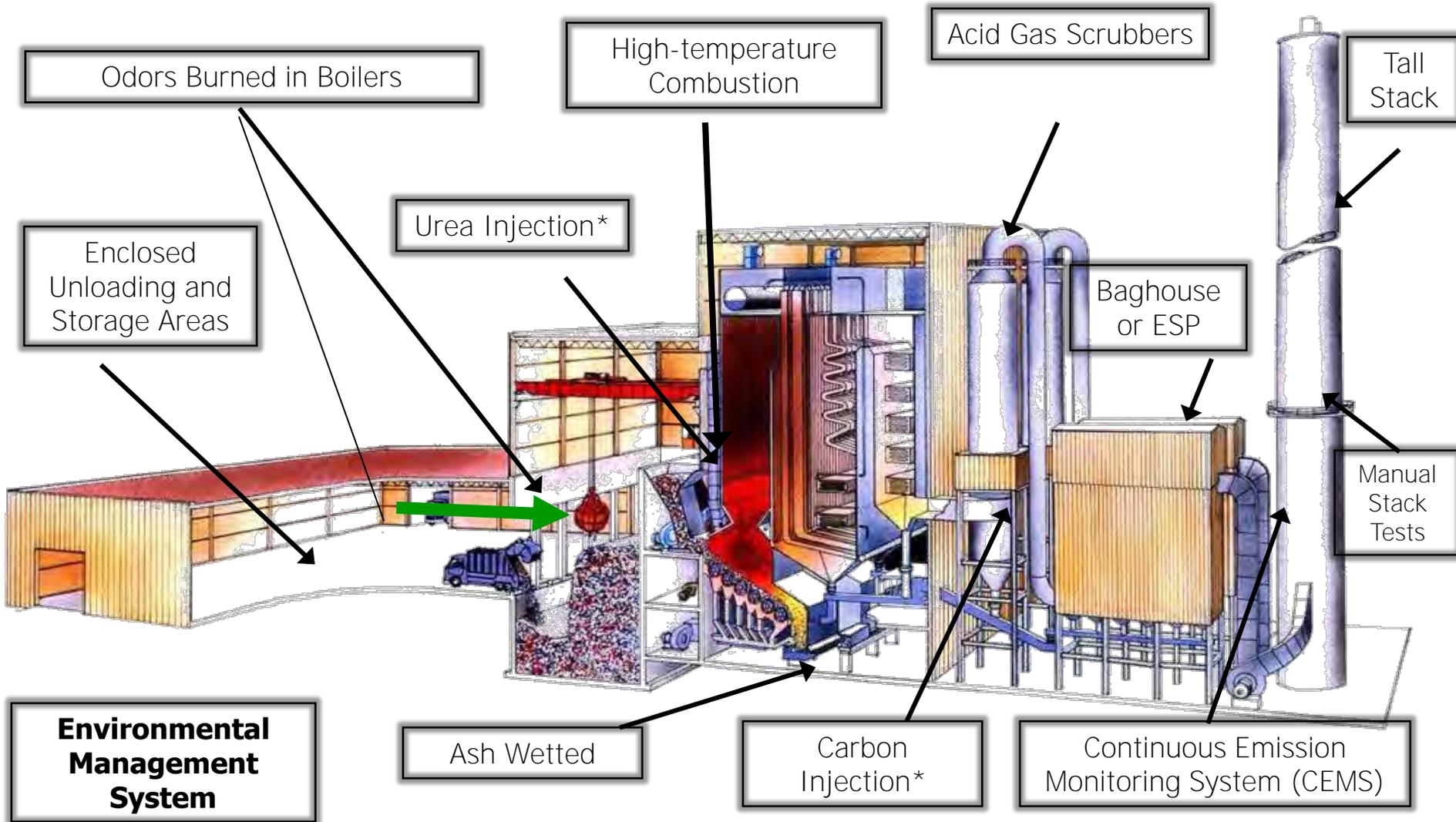




# Solid Waste Management Hierarchy



# Typical Energy from Waste Facility Air Pollution Control Systems

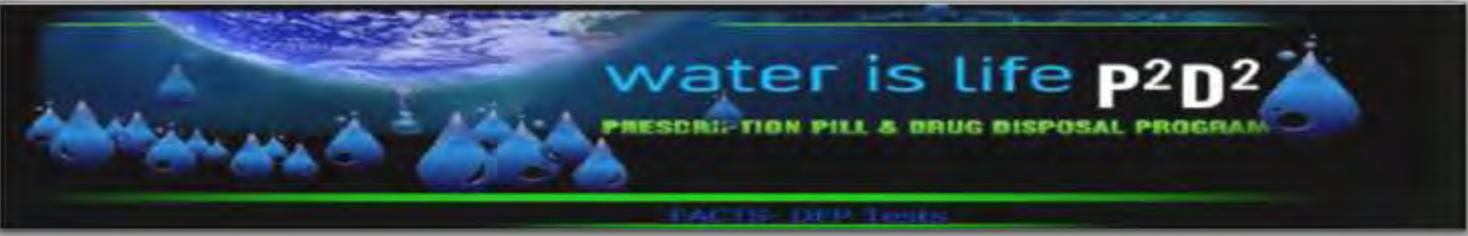


\* Some Plants



## Motivating Influences to Develop Covanta's Rx4Safety Program

- Waterways and drinking water being contaminated
- Drug abuse is a problem
- EfW does the job best



DEP Tests Show Prescription Drugs Leaching From Landfills  
 01/14/2010 05:50 PM ET  
 The Maine Department of Environmental Protection says it now has enough evidence to

**‘The Maine Department of Environmental Protection’  
 found that ‘three Maine landfills show[ed] high  
 concentrations of... pharmaceuticals’**

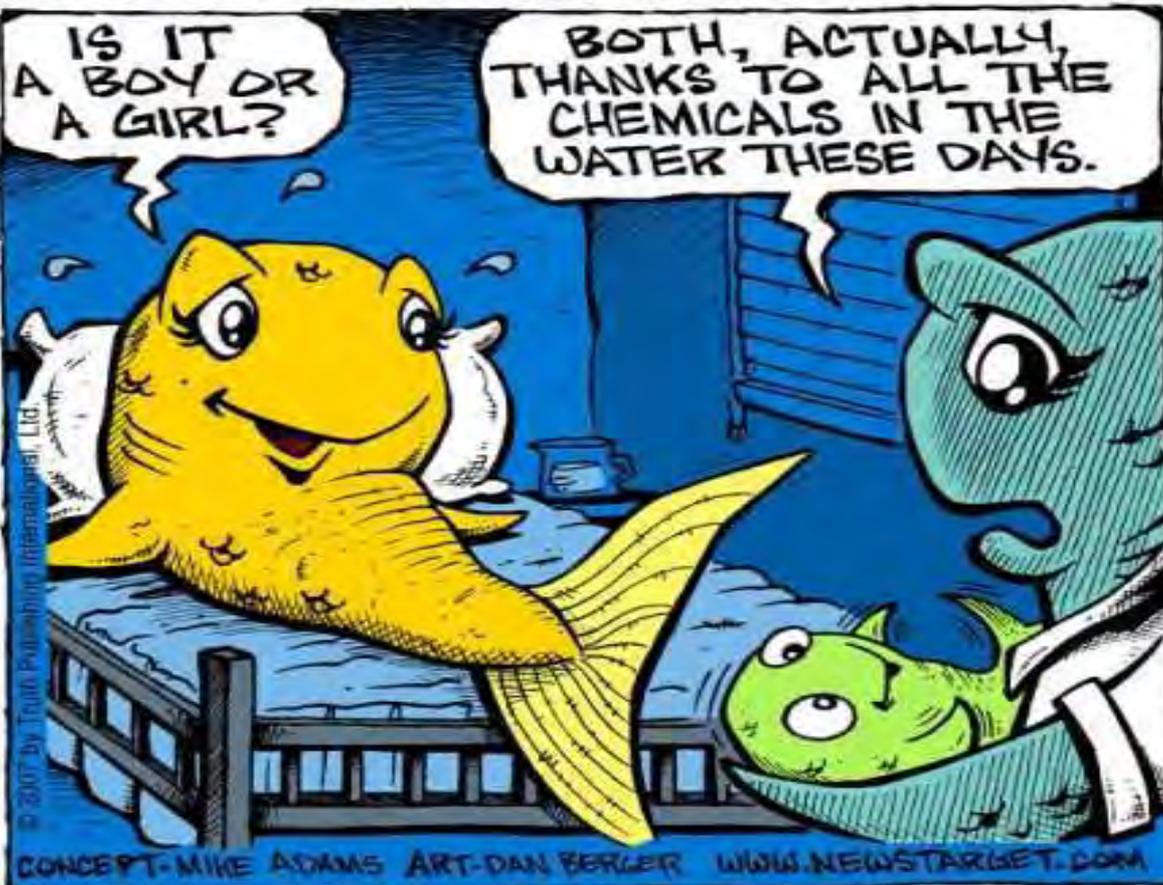
But now Hyland says he can prove that prescription drugs are showing up in water that collects at three Maine landfills: in Augusta, Brunswick and Bath. "And what we found was that the landfill leachate includes things like antidepressants, antibiotics, steroids, hormones, heart and asthma medications and a lot of pain medications, kind of the usual group of pharmaceuticals that you would see anywhere," Hyland says.

Leachate, the rainwater that percolates through the landfill and collects at the bottom, typically flows to a wastewater treatment plant. But unlike human waste that can be treated, pharmaceuticals cannot. And this contaminated water negatively affects aquatic organisms, fish and other wildlife.

Hyland says the wide-ranging spectrum of medication found in the leachate and some of the high concentrations were surprising.



# COUNTERTHINK



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CONCEPT-MIKE ADAMS ART-DAN BERGER WWW.NEWSTARGET.COM

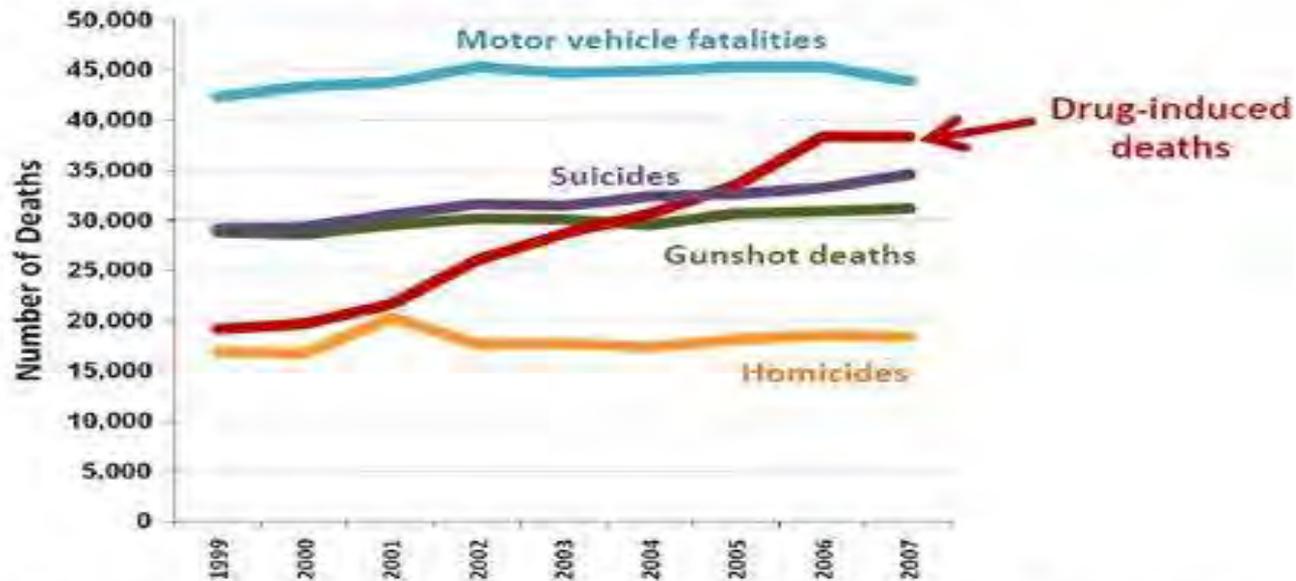
**FACT: PHARMACEUTICALS DESTROY  
AQUATIC ECOSYSTEMS.**





# Rx4Safety

**Drug-Induced Deaths Second Only to Motor Vehicle Fatalities, 1999–2007**



Source: National Center for Health Statistics, Centers for Disease Control and Prevention. National Vital Statistics Reports *Deaths: Final Data for the years 1999 to 2007 (2001 to 2010)*.



## Covanta Energy Extends Program to Safely and Securely Destroy Prescription Drugs Collected at Take-Back Events

*The Rx4Safety program aids in the proper destruction of potentially harmful prescription drugs*

**Morristown, NJ – December 17, 2010**—Based on evidence of pollution in waterways and drinking water, as well as an increase in pharmaceutical drug abuse, Covanta Energy Corporation developed the Prescription for Safety Program (Rx4Safety) to safely dispose of medications collected at community sponsored drug take-back programs, free of charge. The program was set to expire in 2010; however, based on the program's success and encouragement by its partners and clients, Covanta has elected to extend the program through the end of 2011.



**Rx4Safety™**  
A Covanta Energy Program

## Covanta Free Municipal Pharmaceutical Disposal

### FACT SHEET

**What is Covanta's program?** Started in 2010 and extended for 2011, Covanta is offering to provide free disposal at select Covanta Energy-from-Waste (EfW) facilities for municipally-collected household pharmaceutical waste. This program is available to all communities in the United States. To be eligible for acceptance at a Covanta facility, household pharmaceutical



## Key Issues Addressed In Product Stewardship Institute Review



- How clean are the emissions?
- Isn't hazardous waste incineration better?
- What happens with controlled substances?  
Hazardous pharmaceuticals?
- Do you take DOT-Hazardous materials?
- What organics are tested? What is the destruction efficiency?

# Indianapolis Energy-from-Waste Facility

## Actual vs. Allowable Emissions

	<u>Permit Limit</u>	<u>2010 – 2012 Actual Results</u>	<u>% Below Limit</u>
<b>Particulate (mg/dscm)</b>	<b>25</b>	<b>1.95</b>	<b>92.2</b>
<b>Dioxin/Furan (ng/dscm)</b>	<b>30</b>	<b>4.77</b>	<b>84.1</b>
<b>Mercury (µg/dscm)</b>	<b>50</b>	<b>2.64</b>	<b>94.7</b>
<b>Lead (µg/dscm)</b>	<b>400</b>	<b>9.64</b>	<b>97.6</b>
<b>Cadmium (µg/dscm)</b>	<b>35</b>	<b>1.31</b>	<b>96.2</b>

*Note: All concentrations corrected to 7% oxygen.*



## Organics and Destruction Efficiency

- Federal MACT (Maximum Achievable Control Technology) total dioxins/furans.
- Some plants:
  - PAHs (Polycyclic aromatic hydrocarbons)
  - PCBs (Polychlorinated biphenyls)
- Destruction efficiency tested to 99.9999%



***"Thermal destruction at Energy-from-Waste facilities, hazardous waste incinerators, or medical waste incinerators, provides for the ultimate destruction of these drugs."***

***Scott Cassel***

***Executive Director of the Product Stewardship Institute***



## How The Program Works

- E-mail to Covanta Secure Services
- Do the Paperwork
- Run the Program
- Deliver to a Designated Covanta Facility
- ***Please – No Iodine Containing Products***

**Instructions:** A complete Material Characterization Form (Sections 1 - 9) must be submitted for each waste stream requested for disposal. Section 1 to Section 6 must be completed for each distinct process generating a waste stream and Section 7 to Section 9 must be completed for each corresponding individual waste. Example: A pharmaceutical company with expired products would complete Section 1-6 twice (once all the waste is generated in the same manner i.e., expiring) and submit a separate Section 7-9 for each individual expired product being disposed.

**SECTION 1 - GENERATOR INFORMATION** (If multiple locations, include a listing of the location(s) \_\_\_\_\_)

Generator Name \* 1: \_\_\_\_\_

Address: \_\_\_\_\_

City / State / Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

\* - The Generator is bear the For



**Out of State Waste Certification Form**  
Covanta WBH, LLC  
2122 South Yukon Avenue  
Tulsa, Oklahoma 74107

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**NONHAZARDOUS CERTIFICATION BY**

Name of Waste: (as noted in Section 2.1 of the Material Characterization Form) \_\_\_\_\_

As an authorized representative, I certify that the waste described herein is not subject to the Act (RCRA) Part 4.5, Chapter \_\_\_\_\_ of the Code of \_\_\_\_\_.

This form is to be completed by the Generator only if the waste is to be disposed of at Covanta's facility located in California.

**CALIFORNIA DESTINATION ADDENDUM FORM**

Please fill out this form completely.

Generator Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_

Point of Generation Address: \_\_\_\_\_

City: \_\_\_\_\_

Generator Contact: \_\_\_\_\_

Contact Phone Number: \_\_\_\_\_

Do you generate hazardous waste? \_\_\_\_\_

If yes, what types and quantities? \_\_\_\_\_

Will you be arranging for transportation and recovery of this waste? \_\_\_\_\_

If yes, name of the transporter: \_\_\_\_\_

Describe this fee: \_\_\_\_\_

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DIVISION OF SOLID AND HAZARDOUS WASTE • BUREAU OF HAZARDOUS WASTE OPERATIONS  
635 BROADWAY, ALBANY, NEW YORK 12233-4077

**APPLICATION FOR TREATMENT OR DISPOSAL OF AN INDUSTRIAL WASTE STREAM**

SEE APPLICATION INSTRUCTIONS ON REVERSE SIDE

**FOR STATE USE ONLY**

SITE NO.	APPLICATION NO.	DATE RECEIVED
DEPARTMENT ACTION	DATE	
<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		

1. NAME OF PROJECT/FACILITY <b>Covanta of Niagara</b>		2. COUNTY <b>Niagara</b>	3. SITE NUMBER <b>32-E-01</b>
4. NAME OF OWNER <b>Covanta Energy</b>		5. ADDRESS (Street, City, State, Zip Code) <b>100 Energy Blvd. &amp; 56<sup>th</sup> Street</b>	6. TELEPHONE NO. <b>(716) 278-8509</b>
7. NAME OF OPERATOR <b>Covanta Niagara</b>		8. ADDRESS (Street, City, State, Zip Code) <b>Niagara Falls, NY 14304</b>	9. TELEPHONE NO. <b>(716) 278-8509</b>
10. METHOD OF TREATMENT OR DISPOSAL <b>Energy-from-Waste</b>			
11. COMPANY GENERATING WASTE		12. ADDRESS OF FACILITY GENERATING WASTE (Street, City, State, Zip Code)	
13. REPRESENTATIVE OF WASTE GENERATOR		14. MAILING ADDRESS OF REPRESENTATIVE	
15. DESCRIPTION OF PROCESS PRODUCING WASTE		16. TELEPHONE NO.	
17. EXPECTED ANNUAL WASTE PRODUCTION Tons/Year _____ Gallons/Year _____		18. WASTE HALLED IN <input type="checkbox"/> Drum <input type="checkbox"/> Bulk Tank <input type="checkbox"/> Roll-Off Container <input type="checkbox"/> Other _____	
19. WASTE COMPOSITION 19A. Average Percent Solids _____		19B. PHYSICAL STATE <input type="checkbox"/> Liquid <input type="checkbox"/> Slurry <input type="checkbox"/> Sludge <input type="checkbox"/> Solid <input type="checkbox"/> Contained Gas _____	
19C. COMMENTS		19D. pH Range _____	
CONCENTRATION (Dry Weight)		UNIT (Check One)	

Form) \_\_\_\_\_

UTILITY \_\_\_\_\_

(Insert Company name, address, telephone number, and Title 22, Division 10, or analytical data, and signature of the transporter.)



# Types of Non-Hazardous Materials

## Pharmaceutical Waste

- DEA Schedule Drugs
- DEA List Drugs
- Rx Products
- Pills, Capsules & Powders
- Creams, Ointment & Syrups
- Ingredients & Intermediates
- Packaging Materials
- Veterinary Products
- Liquids and Water

Grinding Residue  
 Plant Trash

Line Purge Water  
 Petroleum Contaminated

## Waste

- Products
- cts
- ndloom & Tile
- K
- Cartridges
- Products
- re Products
- Supplements
- Water

## Industrial Waste

- Wood and Wood Fiber
- TSD Waste Streams
- Bulk Paint Powder
- Ink and Ink Wastes
- Tires & Rubber Waste
- Filter Cake and Sludge
- Contaminated Soil
- Manufacturing Debris
- Liquids and Water

## For Disposal and Reuse

- Products
- Waste Water

## Remediation Waste

- Coal Tar Soil
- Oily Debris and Soil
- Treated Wood
- Waste Water









## Remaining Issues

- DEA rules need to be written per the ‘Secure and Responsible Drug Disposal Act of 2010’
- A rationale conclusion should be achieved for hazardous pharmaceuticals
- Cost matters, ease matters, performance matters
- Don’t flush, burn



# Project Medicine Drop - A Favorite Program





## Conclusion

- Energy-from-Waste can fit in a Product Stewardship framework
- Pharmaceuticals need to be removed from abusers and never flushed
- Energy-from-Waste performance characteristics makes it ideal for pharmaceuticals destruction
- All pharmaceuticals should be subject to the Household Hazardous Waste exclusion



Have a nice day.....  
and a pleasant tomorrow

