



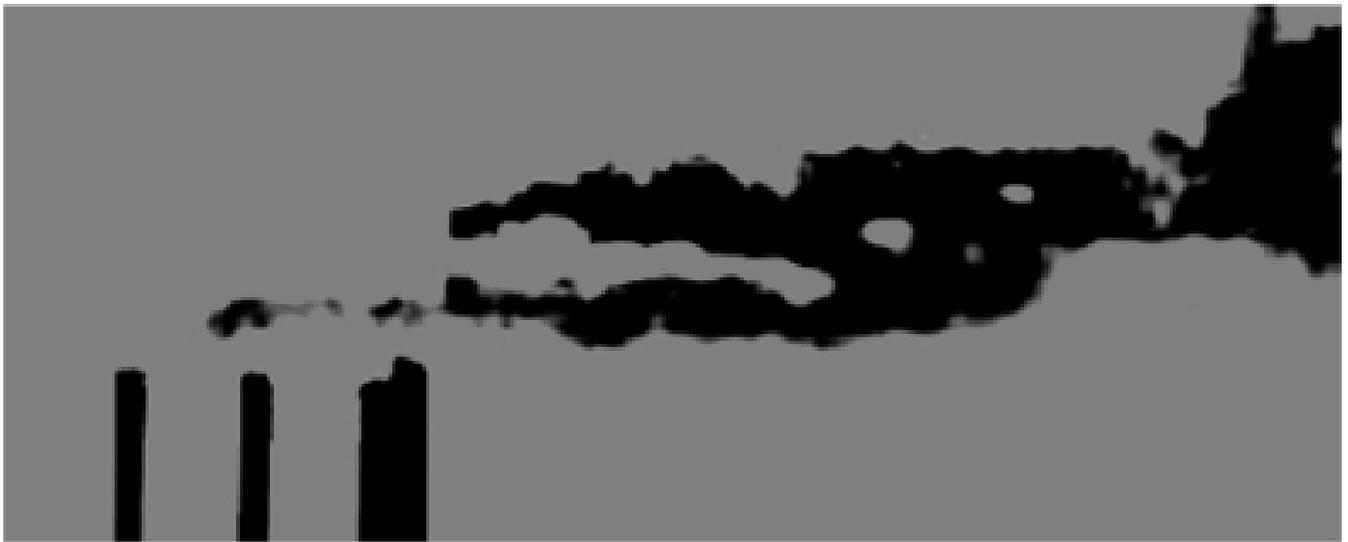
# 25 YEARS OF THE DIRTY DOZEN:



**PAST AND CURRENT POLLUTION THREATS IN NEW ENGLAND**



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# Acknowledgements

We would like to thank the members of the Dirty Dozen Selection committee for their assistance in choosing the sites to recognize. We would also like to thank the community activists who nominated sites to receive Dirty Dozen Awards and whose tireless work to clean up and prevent pollution in neighborhoods across the region has resulted in a cleaner and healthier environment for New England.

For 25 years, Toxics Action Center has assisted residents and community groups across New England to address toxic pollution issues. For more information about Toxics Action Center, please contact our offices at the number below or online at [www.toxicsaction.org](http://www.toxicsaction.org).

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# Introduction

As Toxics Action Center celebrates its 25th anniversary this year and reflects on two decades of work to prevent and cleanup pollution in New England, we present *25 Years of the Dirty Dozen: Past and Current Pollution Threats in New England*. Over the past two decades, the Dirty Dozen Awards have shined a spotlight on egregious polluters and toxic threats in New England. During this time, a number of award winners have changed their poor practices and cleaned up their acts while others have not. This report highlights twelve bad actors, a compilation of the region's worst offenders. Some have previously received a Dirty Dozen Award and have failed to make substantial improvements to their pollution problems, while others are newer threats. This report also reflects on pollution trends over the recent history of the toxics movement in New England, how these trends have impacted Dirty Dozen Award winners' actions, and recommendations for long-term solutions to pollution problems.

The initial Dirty Dozen Awards were given only to Massachusetts polluters. As Toxics Action Center expanded its work throughout New England, the Dirty Dozen Awards also expanded - first to Connecticut, then to Maine and to all other New England states. Each year citizens affected by pollution or potential pollution threats have nominated sites for the Dirty Dozen Awards. Over the years, more than 500 sites have been nominated. A selection committee of legal, environmental, public and worker health and safety experts have chosen more than 200 award winners in total. These winners were "honored" with media events and physical awards, bringing attention to their pollution problems and demanding a positive solution.

To choose this year's Dirty Dozen Awards, Toxics Action Center staff received nominations from community activists and concerned citizens directly affected by pollution and toxic threats. These were sites that demonstrated a serious and repeated threat to public health and the environment, and they also included notable emerging threats to human health and the environment across the region. More than 60 nominations were reviewed by Toxics Action Center staff who chose 25 sites to present to the selection committee. The final 12 winners were chosen by the selection committee, consisting of 14 legal, environmental, public and worker health and safety experts. Their names and affiliations, added for identification purposes only, are listed below:

- **Anne Hulick**, Coordinator, Coalition for a Safe and Healthy Connecticut
- **Danny Faber**, Professor of Sociology, Northeastern University
- **David Brown**, Public Health Toxicologist, Environment and Human Health, Inc.
- **Dick Clapp**, Adjunct Professor, Environment and Human Health, UMass Lowell
- **Doug Ruley**, Director, Environment and Natural Resources Law Clinic, Vermont Law School

- **Jamie Rhodes**, Rhode Island Director, Clean Water Action
- **Jonathan Peress**, Vice President and Director of Clean Energy and Climate Change, Conservation Law Foundation
- **Mark Mitchell**, Principal, Mitchell Environmental Health Associates and Founder, Connecticut Coalition for Environmental Justice
- **Mary Booth**, Founder, Partnership for Policy Integrity
- **Paul Burns**, Executive Director, VPIRG
- **Paul Morse**, Project Director, UMass Lowell
- **Sean Mahoney**, Vice President and Director, Maine Advocacy Center, Conservation Law Foundation
- **Sylvia Broude**, Executive Director, Toxics Action Center

The 2012 Dirty Dozen Award sites highlight a wide array of toxic hazards including dangerous nuclear power plants, dirty landfills, and an industry group for pesticide applicators. All of these sites pose a significant threat to public health and the environment and need immediate action by industry and/or government officials.

## **2012 Dirty Dozen Award Winners**

### **Advanced Disposal Services, Moretown, VT and South Hadley, MA**

#### **The Toxic Threat**

Advanced Disposal Services, Inc. is a national company that collects, transfers, and disposes of waste and includes operations in Alabama, Florida, Georgia, Maryland, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Tennessee and Vermont. They have more than 1,300 trucks running routes daily. They are the largest privately owned waste management company in the United States [1].

The Environmental Protection Agency says that all landfills eventually leak, so claims made by waste industry representatives that “state of the art technology,” will protect our groundwater and our communities from waste are never true. In addition to groundwater threats, landfills give off potentially harmful gases, and odors will often permeate nearby neighborhoods. Some studies show that cancer and birth defects increase in communities surrounding landfills [2]. Landfills are often classified by the type of waste they can accept: Municipal waste, medical waste, special waste, or hazardous waste landfills are four common types. Because even our household waste contains toxic chemicals, it is not significantly safer to live near a municipal or special waste landfill than one that accepts more toxic waste.

One particular concern with landfills is the post-closure period, in which many facilities are used as a base for athletic fields, playground, parking lots or other facilities after their active period is over. Post-closure uses such as these can lead to cracks in the cover, and subsequent leakage. In addition, waste industry companies are responsible for the liability for such problems for often no more than 30 years. People living near landfills suffer loss of quality of life, horrific odor, decreased property value, and high traffic in their neighborhoods during operation.

#### **Moretown, VT**

The Moretown Landfill, operated by Moretown Landfill, Inc. is owned by Advanced Disposal Services, Inc. Moretown Landfill, Inc. owns over 200 acres but only occupies 20 acres of the site. The landfill, which sits adjacent to the Winooski River, currently consists of three cells and is projected to reach capacity this upcoming March. The landfill operator recently proposed construction of a fourth cell that would allow the landfill to operate for another 15-18 years, a plan initially denied by regulators in 2011.

Years of dumping into an old unlined cell led to groundwater contamination with high levels arsenic and manganese. The water is currently under review by the Groundwater Classification Committee for possible reclassification to non-potable Class IV water.

Methane and fugitive odors are pervasive. The Moretown Dump accepts municipal sewage sludge from several out of state sources, possibly exacerbating the odor problems [9]. Frequent blasting at the landfill site has led to noise complaints in the

neighborhood and structural damage to homes [8]. Dust created through blasting operations has greatly affected air quality, aesthetics and property enjoyment for nearby residences. A proposed new cell would create a mountain of trash 746 feet tall.

### **South Hadley, MA**

Like so many landfills, the South Hadley dump spews noxious odors and excessive dust into the nearby community, and trash trucks often spill debris along nearby roads. The landfill is owned by the town of South Hadley and operated by South Hadley Landfill LLC, a subsidiary of Advanced Disposal Services, Inc. (formerly Interstate Waste Services). South Hadley Landfill, LLC was fined more \$20,000 in 2012 for “willful” odor violations and a “pattern of non-compliance” [3].

Residential neighborhoods abut the landfill on three sides, and within a two-mile radius are a daycare center, elementary school, middle school, and Mt. Holyoke College. Even by landfill standards, the South Hadley site is dirty. In the 1960's and 1970's, it was a dumping ground for barrels of the industrial solvent 1,4 dioxane, which causes cancer in lab animals and has resulted in several fatal workplace accidents around the country [4]. In 1992, the Massachusetts Department of Environmental Protection (MassDEP) found that the unlined South Hadley landfill was leaking 1,4-dioxane into groundwater.

The landfill is on the Massachusetts state superfund list, designated a priority “21E site” by state regulatory agencies. This contamination of groundwater continues being assessed for its threat to public health and to determine what remedial action needs to be taken. Owners of wells in the vicinity were notified and advised to use municipal water. Surface waters in the area are also being monitored for contamination, and Buttery Brook has been posted to alert the public to avoid using the waters for recreation [5].

South Hadley Landfill, LLC, which was not the operator at the time of the dioxane dumping, has since installed groundwater treatment facilities to remove the dioxane and has double-lined the landfill to prevent leaching, but the operator has a sketchy safety record at best. In 2010, they built an engineered berm, a wall of compressed dirt to hold back the ever-growing mountain of garbage; two years later, inspectors from the MassDEP found a 20-foot crack in the wall [6]. MassDEP stated that the crack poses a threat to the health and safety of the public and to the environment [7]. The mountain of waste shows no signs of shrinking: with an intake of 500 tons of solid waste every day, the owners of South Hadley Landfill, LLC are gearing up for expansion into town conservation lands.

## **Cleanup Response**

### **Moretown, VT**

Instead of cleaning up the Moretown landfill, Advanced Disposal is proposing a massive expansion. Cell 3 of this landfill currently operates without an updated landfill certification, and has done so for more than two years. The inability to secure renewed certification is primarily due to the inability of the applicant to demonstrate compliance with both groundwater and off-site odor standards. Currently the Vermont Agency of Natural Resources (ANR) is reviewing application for landfill certification.

The ANR is tasked with ensuring that landfills are not causing undue environmental contamination. The current Vermont Solid Waste Management Rules, which establish General Performance Standards for disposal facilities, state (excerpted from Section 6-606): “(1) Facilities shall be designed to minimize the possibility of an emission or discharge of contaminants[...] (2) Facilities shall be designed to identify a means to control odor[...] (3) Facilities shall be designed to protect surface water, groundwater and the air.”

The proposed Moretown Landfill expansion, which includes the construction of Cell 4, is currently under review by the Moretown Development Review Board, the ANR, and the District 5 Environmental Commission.

### **South Hadley, MA**

In April 2012, MassDEP began monitoring the crack in the landfill berm. The landfill operator subsequently filled the 20-foot crack with grout. In July 2012, MassDEP fined the landfill \$20,000 for odor violations. Surface waters are being monitored and signs have been posted at the nearby Buttery Brook warning of the contamination. In September 2012, the South Hadley Board of Health questioned the landfill operators and motioned to schedule a tour of the landfill for town residents and to continue discussions relating to the landfill.

### **Why Now?**

Advanced Disposal Services, Inc. is being awarded a 2012 Dirty Dozen Award for its ongoing contamination of precious air and water resources and aggressive pattern of dangerous landfill expansions. As landfills continue to expand and accept more and more waste, the potential hazards to surrounding communities also multiply. As more and more local residents are impacted by living next to nuisance landfills, it is crucial to move to cleaner, more sustainable solutions.

### **Solution**

Landfilling waste poses a significant threat to the health of residents nearby, and incineration is no better. Advanced Disposal Services, Inc. needs to take steps away from burning and burying its trash, which pollutes air and water and threatens public health. In addition to increasing recycling, state agencies must reduce waste at its source. Advanced Disposal Services, Inc. needs incentives to reduce waste rather than continuing to profit off of more and more waste being dumped.

Cities and towns in Massachusetts and Vermont need to move towards a zero waste. Zero waste includes ‘recycling’ but goes beyond it by taking a ‘whole system’ approach to the vast flow of resources and waste through society. Zero waste maximizes recycling, minimizes waste, reduces consumption and ideally ensures that products are made to be reused, repaired or recycled back into nature or the marketplace. Economic incentives should promote closed-loops, bringing consumer discards back to manufacturers and contractors to reprocess and reuse.

# Brayton Point Coal Power Station, Somerset, MA

## Toxic Threat

Somerset, Massachusetts is a suburban town of about 18,000 people on the South Coast of Massachusetts, and its largest industry is the coal industry. The town is home to the most polluting power plant in New England, a massive coal-burning plant called Brayton Point Power Station, and until 2010, it also hosted a small and ancient coal-burner called Somerset Station, known in town as the 'Montaup Electric Plant.'

NRG Energy, the owner of Somerset Station, had committed to clean up or close its old coal plant by 2010 to meet clean air regulations. Instead, in 2008 the company applied to retrofit the plant with gasification technology and burn a toxic mix of coal and waste for fuel, continuing to emit almost two tons of lead into the air every year. Local residents sprang into action, launching the Coalition for Clean Air South Coast to call on the company to uphold its promise. Finally in March 2011, NRG announced they would close the Montaup coal plant for good [1]. This victory has allowed the group to turn its attention to the bigger threat to public health and the environment: Brayton Point.

Closing Montaup allowed Somerset residents a breath of fresh air, or at least a sigh of relief, but Brayton Point continues to spew pollution.

Brayton Point Power Station, built in 1963, is located on 306 acres of land at the head of Mount Hope Bay in Somerset, Massachusetts. The largest fossil-fuel power plant in New England, it burns primarily coal, consisting of three coal-fired units – the 243-megawatt Unit 1, 240-megawatt Unit 2, and 612-megawatt Unit 3 – the 435-megawatt Unit 4, which uses natural gas or oil, and three diesel-generators with a combined output of 7.6 megawatts [2]. At peak capacity, the plant burns 40,000 tons of coal every three days, which produces ninety-five percent of the electricity at the plant, and burning 300,000 tons of toxic fly ash each year [3]. In 2008, the Brayton Point Station burned 2,316,800 tons of coal, from Colombia, Venezuela, and two sources in the United States [4].

## Air pollution

Brayton Point has a long legacy of pollution. When the U.S. Congress amended the Clean Air Act to adopt stricter emission controls on electrical generating plants in 1970, Congress and many utility officials believed that most of the industry's older coal plants, like Brayton Point, would retire within 20-30 years. In response, Congress purposefully exempted or "grandfathered" existing plants from the new tighter emissions regulations, and as a result, 14 power plants in New England were not required to operate under the Clean Air Act's emissions standard for new plants, and many of these plants were up to ten times dirtier than newer coal plants. Brayton Point fell into this category, responsible for more than 14,686 tons of nitrogen oxide pollution, 48,225 tons of sulfur dioxide, 603 pounds of mercury, and nearly 8.7 million tons of carbon dioxide in 1997 [5].

Researchers at Harvard School of Public Health calculated that actual pollution levels at Brayton Point between 1996-1998 were responsible for 106 premature deaths per year, 1,140 emergency room visits per year, 28,900 asthma attacks per year, and 199,000 daily incidents of upper respiratory symptoms [6].

Brayton Point's toxic legacy includes more than just smokestack pollution: on more than one occasion, coal dust from the Brayton Point Station has blanketed the nearby

neighborhood, with incidents as recent as 2008 and 2009. The coal dust has been carried from Brayton Station while deliveries of coal were unloaded from ships on windy days, and in 2009, coal dust covered 36 homes [7,8]. Coal dust has been linked to cancer in animals, and to lung damage, bronchitis and emphysema in humans [9].

### **Water pollution**

Brayton Point's location off the Mount Hope Bay places it at the mouth of the Taunton River. Mount Hope Bay rests along Rhode Island and Massachusetts, and feeds into the larger Narragansett Bay, and provides important spawning, nursery and migratory habitat for many species of fish. Mount Hope Bay "is a designated estuary of national significance under the federal Clean Water Act." [10]

Before upgrading to modern pollution controls, each day Brayton Point withdrew more than one billion gallons of water from the Bay and circulated it through the facility to condense the steam used to produce electricity. This amount of water is "equivalent to the entire 53 billion gallons of Mount Hope Bay circulated through the facility seven times a year." [11] The water was then discharged back to the Bay at elevated temperatures of up to 95 degrees Fahrenheit, laced with chemicals from metal cleaning waste and low volume waste such as boiler blowdown waste and water treatment wastes, damaging or killing many aquatic organisms. This pollution turned part of Narragansett Bay into a dead zone for fish life [12, 13]. The final agreement to install closed-cycle cooling was the result of years of advocacy and pressure by environmental organizations and state environmental agencies.

The Brayton Point Power Station creates 300,000 tons of fly ash per year.[6] Until the 1980's, fly ash was dumped in a lined landfill owned by National Grid on Brayton Point Road [14]. In March 2008, erosion from rain and dirt bikes and all-terrain vehicles caused a tear in the lining, resulting in approximately 2,500 pounds of fly ash to wash out into a nearby wetland [15].

### **Cleanup efforts over the years**

In 2005, Brayton Point was purchased by Dominion from PG&E. The owner, Dominion Resources, with over \$45 billion in assets, is one of the largest energy companies in the United States and is also one of the nation's largest polluters. Since 2005, Dominion has spent more than \$1 billion on mandated pollution controls at Brayton Point, including technology to remove mercury, sulfur dioxide and nitrogen oxide, devices to capture fly ash, and two massive \$500 million 500-foot-tall cooling towers that reduced by 95 percent the amount of water drawn from Mount Hope Bay to cool the plant [16]. The cooling towers were a result of an agreement Dominion reached in 2007 with the U.S. EPA to lessen its environmental impact on the bay. Dominion and the EPA had attempted to negotiate a settlement since 2003, when the EPA required the plant to make significant reductions in the amount of water it pumped from and into the bay. The company appealed the order because it claimed other factors were contributing to problems in the bay, like over-fishing and pollution from runoff.

## **Why now?**

Even after Dominion spent more than \$1 billion in mandated environmental improvements, installing new mercury scrubbers and closed cycle cooling towers, along with other pollution upgrades, Dominion continues to violate the Clean Air Act and they continue to be the biggest toxics polluter for all of New England. Over the past five years, they have self-reported opacity violations, reporting violations, and monitoring violations.

According to the U. S. EPA in 2008, Brayton Point emitted more than 37,000 tons of toxic chemicals into the air, [17] making it the largest polluter in Massachusetts and all of New England. Studies show this pollution doesn't only affect Somerset: the majority spreads and settles in cities and towns across a 30-mile radius from the power plant. Mercury is a major concern because it is a neurotoxin, with no safe levels of exposure, and in 2010, Brayton Point was responsible for nearly half of all mercury emissions for the state of Massachusetts [18].

This spring in its State of the Air 2012 Report, the American Lung Association gave Bristol County, where Somerset is located, a failing grade for ozone air pollution [19] – the ONLY county in the state to go from bad to worse. Dominion, the owner of Brayton Point, is the biggest offender [20] and Brayton Point continues to be the biggest emitter of global warming pollution for the region, emitting over 6.3 million ton of carbon dioxide in 2010. In 2010, coal plants in Massachusetts generated 8% of the state's energy and emitted more than 8 million tons of carbon dioxide [21]. So while the coal plant has spent millions of dollars to clean up its act, it continues to pose a threat to human health and the environment.

## **Solution**

There are signs that the winds are changing and coal is on its way out: Montaup shut down in 2010, the Salem Harbor Coal Plant (also owned by Dominion) will close in 2014, and the Mt. Tom Coal Plant in Holyoke operated at less than 10% capacity in 2011. Brayton Point has recently operated at less than one-third of its capacity. Fortunately, we don't need coal to meet our energy needs. Massachusetts can and should continue to be a leader on clean energy and efficiency. The Department of Energy Resources estimates that it's technically feasible and economic by 2020 to add more than 3,000 MW capacity to the grid from wind, solar, river and ocean sources, more than double the amount generated at Brayton Point.

Governor Patrick has made Massachusetts a national leader on energy efficiency, and he has committed to vastly expanding clean renewable energy, especially solar power. Now he should support a Coal-Free Massachusetts by 2020, and use all the tools in his toolbox to get there: (1) Fully enforce the Global Warming Solutions Act, a bill he signed into law in 2008 that gives him power to hold polluters like Brayton Point responsible for their pollution and (2) Ensure communities like Somerset have a just transition with support for workers, property redevelopment, and municipal revenues. Dominion and other coal companies should be responsible for decommissioning and cleanup when coal plants shut down. We've seen communities across the country successfully redevelop coal plant sites, and we need to make that vision a reality here in Somerset.

# Casella Waste Management, Old Town, ME and Statewide

## Toxic Threat

Casella Waste Systems is one of the largest solid waste collection and disposal firms in the Northeast. Casella's typical business strategy is to enter a community, expand dramatically and fight off attempts by local municipalities to control their expansion plans and operations. The result is that a number of municipalities across New England host large Casella waste facilities whose operations threaten the health and safety of the community.

The EPA says that that all landfills eventually leak, so claims that "state of the art technology," will protect our groundwater and our communities by waste industry representatives are never true. In addition to threats to groundwater, landfills give off potentially harmful gases, and odors will often permeate the neighborhoods. Incinerators spew a wide array of dangerous pollutants into the air, including hazardous dioxins, for which there is no safe level of exposure; heavy metals and furans. Airborne pollutants from incineration settle to the ground, potentially contaminating soil and water or combine with atmospheric moisture, leading to acid rain.

Casella owns 13 landfills across the Northeast, six of which are in New England. The Juniper Ridge Landfill, in Old Town, ME is the only dump controlled by Casella that is licensed to take Construction and Demolition Debris (CDD). This sets up Juniper Ridge to be a funnel for CDD throughout New England. To handle the waste, numerous expansions have been proposed for the Juniper Ridge Landfill and threaten the health and safety of residents.

Casella's KTI "processing facility" in Lewiston accepts 85% of its waste from Massachusetts, 43% of which continues to Juniper Ridge Landfill after it is processed to become "in-state waste [1]." In Massachusetts, putting CDD into landfills is banned, so Casella works to help people in Massachusetts sidestep state regulations by enabling waste to be sent to Old Town [2].

Casella also runs the Maine Energy Recovery Company (MERC) incinerator, which has a track record of skirting around waste limitations. In the 1990s, Casella had limitations on municipal solid waste tonnage that could go to Maine Energy. Over time, normal operations at MERC were altered to allow more municipal solid waste to be diverted to the facility. When waste is diverted to the facility, it becomes in-state waste and can be funneled to other landfills that otherwise only take in-state waste. For MERC, this is a profitable venture because they make premium on tipping fees from out of state waste, although MERC is now slated for closure.

Casella also owns Casella Organics, previously New England Organics, which produces sewage sludge. Although sludge, the residue of waste-water treatment plants, is often laden with toxic chemicals and contaminants, Casella markets it as "recycled" fertilizer. There is also concern that Casella's planned "transfer station" in Westbrook, ME will become a conduit for non-Maine waste to come to the Juniper Ridge landfill.

## **Cleanup Response**

Casella has been working to expand the Juniper Ridge landfill since 2005. Over the years, numerous public meetings have been held by the Maine Department of Environmental Protection (DEP) to determine the public benefit of expanding the landfill. At a public benefit determination hearing in January 2012, the Maine Department of Environmental Protection said the public would benefit from a 9.35 million cubic yard expansion in waste capacity at the Juniper Ridge landfill. This decision came after Juniper Ridge applied for a 21 million cubic yard expansion in 2011 [3].

In July, the Biddeford City Council voted to authorize the city to buy the MERC trash-to-energy incinerator for \$6.65 million from Casella Waste. In October, the Maine DEP accepted a complete application from the state's Bureau of General Services and Casella Waste Systems Inc. that aims to remove restrictions and limitations placed on in-state municipal solid waste disposal at the Juniper Ridge Landfill in Old Town [4]. If approved, this licensing would allow the Juniper Ridge Landfill to accept municipal solid waste currently processed in Biddeford.

DEP Commissioner Patricia Aho has said she likely would accept a hearing request based on past controversies regarding the landfill and how the state will handle waste in the future.

## **Why now?**

Casella has a long track record for taking over municipal control of waste operations and expansions. Local communities continue to experience public health and environmental threats as a result of Casella's deals to control and expand their waste operations in the state. The residents of Westbrook are about to play host to a Casella Waste-owned trash transfer station, and residents of Old Town continue to bear the brunt of the state's trash at the Juniper Ridge landfill. With Casella's expansions throughout New England, the threat of Maine taking out-of-state waste continues.

## **Solution**

The state of Maine must take a two-pronged approach when it comes to reducing trash. First, the DEP must focus on increasing diversion of waste generated in Maine from landfills and incinerators. Our recycling rate has hardly budged in more than a decade, and there are steps we can take to fix this. Programs like SMART (Saving Money and Reducing Trash), which creates disincentives to wasting and financial incentives for recycling, waste reduction and reuse, can help municipalities jump-start increasing their recycling rate. Large-scale composting can begin to tackle waste – food scraps, yard waste and other sources – that makes up a full third of the waste stream. DEP should set ambitious goals to get Maine on the path towards zero waste and provide technical assistance to towns and businesses to help on these measures and others.

The second prong in the approach is to draw a line in the sand when it comes to out-of-state waste. Maine has been importing about half a million tons of waste each year from other states [5]. This is a considerable amount – we're currently generating 1.7 million tons of waste each year in Maine, so the amount of out-of-state waste we import is approaching one-third [6]. Currently, most of this out-of-state waste goes straight to

MERC and a handful of other incinerators, so the demand for this waste should be largely eliminated once MERC is closed. Maine should not be a dumping ground for the rest of New England, and state leaders should not look to continue the trend of importing waste from our neighbors to the south.

In essence, let's reduce, reuse and recycle – and stop importing trash. We need to move away from burning and burying our trash and get on the path towards zero waste.

## **Central Landfill, Johnston, RI**

### **Toxic Threat**

This active landfill is currently owned and operated by the Rhode Island Resource Recovery Corporation - RIRRC (formerly the Rhode Island Solid Waste Management Corporation) and takes in approximately 55 percent of Rhode Island's solid waste. This means it processes approximately 2,500 tons of waste per day. The landfill is currently comprised of five distinct areas. One of these areas, a 121-acre area (sometimes called the Phase 1 area), was used prior to 1980 for the disposal of municipal and hazardous waste. The other four areas (Phases 2, 3, 4 and 5) have been used for the disposal of municipal solid waste. Landfilling in the Phase 2 and 3 areas ceased in July 2003. There are also plans for additional expansions beyond the Phase 5 area [1].

Located within the 121-acres, Phase 1 area is an approximately half-acre area where more than 1.5 million gallons of documented hazardous wastes were disposed of between 1976 and 1979. Within this half-acre hazardous waste area, bulk liquid waste was dumped into trenches that had previously been excavated into bedrock. The wastes disposed of in this area included latex waste, acid waste, corrosive waste, water soluble oils and waste solvents, including methylene chloride, toluene, trichlorethane and tetrachloroethylene (PCE). EPA believes that, prior to 1976, a large quantity of non-manifested liquid hazardous waste was also disposed of in this half-acre area. In 1982, the owner complied with a state order to close the areas that had received hazardous material. These areas have been excavated, backfilled, and capped to minimize further contamination of the groundwater and surface water, and re-vegetated as part of the closure plan [1].

On-site groundwater is contaminated with volatile organic compounds (VOCs) such as benzene, chlorobenzene, toluene, vinyl chloride, methyl ethyl ketone, bisphthalate and dichlorobenzene, and heavy metals including arsenic, beryllium, cadmium, lead, manganese, and vanadium. Adjacent surface waters, sediments, and wetlands have also been affected by low levels of contamination. The bedrock aquifer underlying the site has been contaminated. This site was added to the Superfund National Priorities List in 1986 [1].

This past summer, residents in surrounding communities reported smelling a putrid odor emanating from the landfill, detectable in many new areas that had previously been sheltered from the smell [2]. Approximately 4,000 people live within three miles of the site [1].

### **Cleanup Response**

Government bodies have taken some action to mitigate effects from pollution and odors on local residents, but the history of the landfill also includes a pattern of failure by the landfill operator to comply with government mandates. In December 2002, the Rhode Island Resource Recovery Corp. was ordered to pay over five million dollars to install mandated odor reduction technologies. This included \$321,000 worth of fines for numerous Clean Air Act violations. Specifically, the landfill was ordered to install 14 horizontal landfill gas collection trenches, install cover and capping materials to trap

escaping landfill gas, limit water infiltration into the waste, and increase the efficiency of already existing collection and control systems, and install an ultra-low emissions flare which would burn landfill gas substantially more cleanly than most flares on the market [3]. Ten years later, in February of 2012, the Department of Environmental Management fined the landfill operators \$55,000 for failing to completely follow these mandates and prevent objectionable odors from escaping the site [4]. In May 2012, a special legislative committee met to discuss ways to reduce odors at the site after many residents complained and expressed anger at having to deal with the smells day after day. The lawmakers installed gas flares and wells to eliminate some of the odors, but were working towards a more permanent solution. Since the addition of these gas flares and wells, resident complaints have decreased [5]. In June 2012, Rhode Island lawmakers mandated that air quality detectors be installed near the landfill [6].

## **Why Now?**

The RIRRC's Central Landfill is being awarded a 2012 Dirty Dozen Award due to its ongoing contamination of precious air and water resources in Rhode Island, and the lack of progress made by RIRRC to commit to reduce, reuse, recycle and getting Rhode Island on a path towards zero waste. As the landfill continues to expand and accept more and more of Rhode Island's waste, the potential hazards to surrounding communities only increase. As more and more local residents experience dangerous effects of living nearby this hazardous landfill, it is crucial to move to cleaner, more sustainable solutions.

## **Solution**

Landfilling waste poses a significant threat to the health of Rhode Island residents. The EPA states that all landfills eventually leak, and what they leak, both into groundwater supplies and into the air, is toxic. Rhode Island needs to take steps away from burning and burying its trash, and flaring off gas, which pollutes air and water and threatens public health. In addition to increasing recycling, state agencies must reduce waste at its source. Rhode Island should implement a "zero waste" plan and set an ambitious goal for waste reduction that includes aggressive recycling, commercial composting programs, and education programs focused on reducing waste. Zero waste includes 'recycling' but goes beyond it by taking a 'whole system' approach to the vast flow of resources and waste through society. Zero waste maximizes recycling, minimizes waste, reduces consumption and ideally ensures that products are made to be reused, repaired or recycled back into nature or the marketplace. Economic incentives should promote closed-loops, bringing consumer discards back to manufacturers and contractors to reprocess and reuse. For Rhode Island, this means making a firm commitment to no incineration, reversing short-sighted legislation that results in wasteful practices, such as landfilling of glass, and extremely low tipping fees at the Central Landfill. Rhode Island's largely public sector waste management system, RIRRC, provides a unique opportunity for transition to a zero waste program. Rhode Island needs to create a goal of zero waste and an implementation plan for how to reach it, before running out of space at this site, necessitating the opening of a new landfill.

# Connecticut Environmental Council, Marlborough and Statewide, CT

## The Toxic Threat

The Connecticut Environmental Council (CTEC) is the trade association for the pesticide applicator companies in Connecticut, based in Marlborough, CT. The CTEC consistently has attempted, and continues to attempt, to rollback the landmark legislation to protect children's health by banning the use of EPA registered lawn-care pesticides on the grounds of children's day-care centers and all Connecticut schools grades K-8.

Its members include:

- Connecticut Tree Protective Association
- Connecticut Association of Golf Course Superintendents
- Connecticut Grounds Keepers Association
- Connecticut Pest Control Association
- Connecticut Irrigation Contractors Association
- Connecticut Farm Bureau Association

Pesticides are chemicals or mixture of chemicals intended to prevent, destroy, repel or mitigate any pest. Lawn-care pesticides include insecticides, herbicides and fungicides. Pesticides are toxic by design and persist in the environment, threatening human health and groundwater resources.

Keeping pesticides off school grounds is vitally important for protecting the health of our children. Of the 30 most commonly used lawn pesticides, 19 have studies linking them with cancer, 13 are linked with birth defects, 21 with reproductive effects, 15 with neurotoxicity or abnormal brain development [1].

Children are particularly susceptible because of their rapid growth and decreased ability to detoxify toxins [2], [3]. This is particularly true for the developing child *in utero*. Studies link some lawn pesticides to hyperactivity, developmental delays, behavioral disorder, and motor dysfunction [4]. Furthermore, the lag time between environmental exposure and the development of lymphoma can be as long as 20 years [5]. Lawn pesticides can be tracked inside of schools where they can persist for long periods of time contaminating air, dust, surfaces, and carpets and exposing children to these toxic chemicals even if they are not in contact with the grass [6].

In addition, there are significant gaps in the safety testing of toxic lawn pesticides [7]. Lawn pesticides are not tested for long-term toxicity unless they are also used on food crops. Lawn pesticides are not tested in the combinations and formulations in which they are actually used. Yet, these combinations and formulations can be more toxic than the pure active ingredient. It is the chemical companies themselves that supply the safety testing data to the Environmental Protection Agency. Lastly, lawn pesticides can

contaminate well water. Eleven percent of residential wells tested in a Connecticut town showed the presence of one or more lawn pesticides [8].

The law banning the use of these toxic chemicals on school grounds includes a provision for pesticide use if there is a threat to health and safety. For example, if there is an underground wasp nest or an infestation of poison ivy, local health departments can authorize pesticide use to eradicate the problem.

### **Why now?**

Each year the CTEC has tried to convince the public and Connecticut's public officials that they should roll back this important law that protects our children from pesticide exposures. Before this law went into full effect, the groundskeepers had three years to move from toxic pesticide use on athletic fields to using organic methods. As the CTEC efforts to roll back the law gets stronger, it becomes more important than ever that their misinformation and tactics be exposed.

### **The Solution**

There are safe, effective, affordable alternatives to using toxic lawn pesticides. A number of towns in Connecticut have successfully switched to pesticide-free organic lawn care [9].

Many landscapers and turf experts have proven that it is possible to cultivate organic turf fields that compete with pesticide-treated fields for quality and cost-effectiveness. For example, nationally acclaimed Osborne Organics has created a proven "Systems Approach to Natural Turf Management"™ integrating three concepts: the use of natural, organic products as dictated by soil testing; an understanding of the soil and its biomass; and sound cultural practices. This provides landscape professionals with a holistic, natural alternative and is fundamentally different from the conventional product approach to turf management.

It is important for the health and safety of our children that this law be upheld. We fault the Connecticut Environmental Council for trying to reverse it.

# Connecticut Resources Recovery Authority, Statewide, CT

## The Toxic Threat

In 1973, the state of Connecticut 'revolutionized' its waste system, moving away from town dumps and toward centralized landfills and incinerators [1]. At the time, the state believed that incineration was a sustainable, environmentally-friendly waste management strategy. Today, Connecticut has six trash incinerators, mostly bringing trash to low-income communities and communities of color to be burned. Two of the six incinerators are located in communities of color but they are responsible for two-thirds of the trash that is burned in the state. The Connecticut Resource Recovery Authority (CRRA), a quasi-government agency, oversees four of these. Every day, CRRA can burn up to 12 million pounds of garbage, making Connecticut "more reliant on waste-to-energy facilities [trash incinerators] than any other state in the country" [2].

This reliance on incinerators has become one of Connecticut's chronic toxic ailments. Incinerators emit a smorgasbord of toxins including heavy metals, dioxins, and many more [3]. It is impossible to know exactly what will come out of the smokestack on any given day because the composition of the trash varies based on what is thrown away in household trash on any day. This may include toxic materials and toxins in products that are thrown away.

Besides the toxins going into the air, another by-product of trash incineration is a concentrated residue referred to as incinerator ash. Burning trash does not eliminate waste; it releases part of the waste into the air and concentrates the rest in ash landfills, like the one being closed in North Hartford. Like all landfills, ash landfills leak, and because the ash is so concentrated, the effect of ash landfill leaks on water quality can be highly toxic [4].

In addition to polluting air and water, incinerators delay progress on waste reduction. Once an incinerator is built, CRRA has an incentive to keep supplying it with more trash to generate revenue and electricity. In 2004, Connecticut passed a waste milestone: more than one ton of municipal solid waste was generated for each resident [5], continuing a decades-long upward trend. As long as CRRA keeps its incinerators running instead of working in earnest to reduce waste, Connecticut's waste problem will continue to grow.

## Cleanup Response

Past Dirty Dozen awards have been highly effective in shedding light on CRRA's toxic practices. In 2008, CRRA's closure of Hartford's landfill to new trash was finally announced. The Host Community Agreement in place ensured that Hartford would receive millions of dollars from CRRA to retrofit diesel vehicles, fund recycling programs, and re-develop the landfill site into a safe, green public space.

## **Why Now?**

CRRA has continued to burn and bury trash at the expense of public health. In 2008, CRRA sought to build a new, 150-acre ash landfill in Franklin on the banks of the Shetucket River which would have threatened drinking water resources for the residents of the region. Franklin residents and a local community group called Residents of the Last Green Valley vehemently opposed the project, and with pressure from the Franklin Selectboard, Toxics Action Center and other statewide organizations, State Senator Edith Prague and other state officials, CRRA abandoned its proposal. This should have been a wake-up call to CRRA to stop producing incinerator ash and start working in earnest to reduce waste generation. Instead, CRRA began trucking its ash to a private landfill in Putnam [6].

In 2010, CRRA's Wallingford incinerator (operated by NJ-based Covanta) released dioxins in excess of permitted levels, the second time this had occurred at this plant in three years [7].

In 2012, the Hartford City Council passed a resolution calling for CRRA to close one of the three boilers in the Hartford incinerator by the end of the year, and supporting a goal of zero waste for the city. In spite of the outcry from impacted residents in Hartford and around the state, CRRA has made no indication that it intends to comply.

## **Solution**

It has been nearly forty years since Connecticut's last waste management 'revolution', and the time is ripe for a new paradigm. Individuals, corporations, and municipalities across the world are moving towards Zero Waste, a closed-loop system of production in which every part of every product is non-toxic and designed to be reused, repaired, recycled, or composted instead of burned or buried [8]. Hartford's 2012 zero waste resolution announced its commitment to a sustainable future. CRRA, meanwhile, refuses to treat its trash addiction. Connecticut should follow the example of Hartford and so many others by making zero waste its priority and creating and implementing a plan for how to reach it. Such a plan should include investment in sustainable waste collection infrastructure, an aggressive recycling program, large-scale composting or anaerobic digestion, an updated Bottle Bill, extended producer responsibility, and incentives for businesses to adopt zero-waste practices.

# **Entergy Nuclear Vernon, VT and Plymouth, MA**

## **The Toxic Threat**

### **Nuclear Power**

The meltdown at Fukushima in March of 2011, the near-catastrophe at Pennsylvania's Three Mile Island nuclear plant in 1979 and the very real 1986 disaster at Chernobyl all put the issue of nuclear safety in the spotlight. U.S. nuclear power stations, all of which were built before 1990 and some of which are as much as 40 years old, are not aging well.

Human exposure to radiation is a serious concern for community health. There are two ways that radiation can damage human health – immediately, through exposure to large doses of radiation, and over time, through cumulative exposure. Exposure to intense bursts of radiation, such as those that may have been experienced by some workers at the Fukushima plant, has the potential to cause nausea, weakness, hair loss, and, in some cases, death [1]. Pilgrim also releases radiation daily into the air and water. The National Academy of Sciences Committee on Biological Effects of Ionizing Radiation issued their most recent report in 2006 and stated that even very low doses of radiation pose a risk of cancer, reproductive disorders, birth defects and other health problems and there is no threshold below which exposure can be viewed as harmless [2].

A key long-term concern for nuclear power is the storage of radioactive nuclear waste on the site of the power stations, such as at Pilgrim and Vermont Yankee. All U.S. nuclear power stations currently store nuclear waste in “spent fuel pools” [3]. There are two primary methods of storing spent fuel on site: wet storage and dry cask. Dry cask is safer, yet facilities like Pilgrim are allowed to store dangerous spent fuel on site in wet storage pools. According to the Congressional Research Service, there were 62,683 metric tons of commercial spent fuel accumulated in the United States as of the end of 2009 [4]. A severe spent fuel pool accident could cause as many as 143,000 cancers within 500 miles [5].

Entergy Corporation owns and operates two nuclear power stations in New England: Vermont Yankee and Massachusetts' Pilgrim Station. Both reactors are beyond their design life and are not operating in a manner ensures the protection of the public health, safety and the environment.

### **Vermont Yankee, Vernon, VT**

Opened in 1972, Vermont Yankee power-station sits on the banks of the Connecticut River in Vernon, Vermont. It threatens the safety of residents throughout Vermont, New Hampshire, and Massachusetts. As of 2010, it was reported that Vermont Yankee has a staggering 690 tons of spent fuel rods on site [6].

Vermont Yankee's safety record is a major concern for public health and environmental reasons. In 2004, Vermont Yankee finally reported to the Nuclear Regulatory Commission that they had lost two spent fuel rods sometime after 1980 [7]. Similarly in 2004, on June 18, Vermont Yankee experienced a fire in its main transformer [8]. In

2007, cooling tower collapsed on site causing a massive pipe to release gallons of water [18]. The NRC confirmed tritium leaks in 2005 from Vermont Yankee's pipe system, posing serious health and safety concerns [19]. Entergy's blatant disregard for public health and safety has earned the company four Dirty Dozen Awards in ten years.

### **Pilgrim Nuclear Power Plant in Plymouth, MA**

Pilgrim Nuclear Generating Station, also owned by Entergy, is located in the Manomet section of Plymouth on Cape Cod Bay. Like many similar plants, it was constructed by Bechtel, and is powered by a General Electric boiling water reactor and generator — a General Electric Mark I reactor of the same type and flawed design as the Fukushima I Nuclear Power Plant.

In the early 1980s significant releases of radioactive products occurred at the site, as did evidence of increased cases of radiation disease. This prompted the Massachusetts Department of Public Health to test the probability of adult leukemia in people near Pilgrim - the study showed a four-fold increase [9].

Entergy's operation of a once-through cooling water system is harming Cape Cod Bay. Pilgrim takes over half-billion gallons a day of sea-water from the Bay each day--that's 14,000 gallons per second. In the last 40 years, Pilgrim's cooling water operations have used an amount of water equal to the entire volume of the bay. Cooling water is discharged back to the Bay at high temperatures and polluted with chemicals.

Entergy's cooling water operations harm marine life and degrade biologically important habitats in Cape Cod Bay [10]. Pilgrim also routinely dumps process water contaminated with radioactive materials into the Bay.

Pilgrim has been leaking radioactive tritium into the groundwater since at least 2010, according to its own reports and Massachusetts Department of Public Health investigations. Entergy also discharges pollution to Plymouth's Sole Source Aquifer from an on-site waste disposal facility.

## **Cleanup Response**

### **Pilgrim Nuclear Power Plant**

Entergy's pollution of air, surface water, and groundwater with radioactive materials as well as other pollutants is not being adequately addressed by state and federal regulators. Citizen activists have identified and documented defects in regulatory oversight at Pilgrim. In October, 2012, local residents notified the federal Environmental Protection Agency and state regulators that they intended to bring suit to clean up water pollution if the agencies did not take action to enforce more than 33,000 violations of Pilgrim's existing Clean Water Act permit [11].

Members of the Pilgrim Coalition are actively pursuing appeals before the Nuclear Regulatory Commission (NRC) on the insufficiency of the NRC "Post-Fukushima Orders" that would enhance safety, and on an Enforcement Petition to address the lack of electric reliability needed to operate Pilgrim's safety systems.

On the issue of emergency planning, Pilgrim Coalition members are engaged in discussions with the Massachusetts Emergency Management Agency (MEMA), Barnstable County Officials, town officials, and the Plymouth and Duxbury Nuclear Matters Committees.

As to radioactive air emissions, Pilgrim Coalition is working with Massachusetts Department of Public Health (MDPH) to get real-time monitors installed at locations around the region to measure radioactive emissions from Pilgrim. The monitors will provide real-time information to MDPH and MEMA and in the event of a problem to local emergency planners. The data will be available to the public.

To protect Cape Cod Bay, members of Pilgrim Coalition are also advocating for better technology to end the destructive once-through cooling water system. They are urging the MassDEP to address groundwater pollution from the on-site waste disposal system. To address the groundwater pollution they are also urging the MDPH to move faster in identifying the specific source of Pilgrim's releases of tritium to Plymouth's Sole Source Aquifer. The efforts to identify and address the tritium leaks resulted from litigation by a Pilgrim Coalition member. Pilgrim Coalition continues to monitor progress on the tritium leaks issue.

### **Vermont Yankee**

In May 2006, the Vermont legislature unanimously passed Act 160, which gave the power to decide the future of the Vermont Yankee plant to Vermont's democratically elected representatives. Act 160 stipulates that detailed and independent studies must be conducted and that there be significant public input throughout the process. In February of 2010, the Vermont Senate voted 26 to 4 Wednesday to block operation of the Vermont Yankee nuclear plant after 2012, citing radioactive leaks, misstatements in testimony by plant officials and other problems.

In March of 2011, the NRC granted Vermont Yankee a 20-year operating extension, and Entergy sued Vermont state officials in April in an effort to keep the plant open.

The lawsuit challenges the constitutionality of Vermont's law giving the state Legislature veto power over the reactor's operation, as well as the right of any state utility commission to determine whether nuclear power should be part of a mix of electricity generation produced within the state.

### **Why Now?**

In the wake of the Fukushima catastrophe, the NRC recommended that Americans within a 50-mile radius of the power plant complex evacuate in case of disaster [12].

The recommendation came after a review of radiation data by the United States Nuclear Regulatory Commission, and was based on what the commission chairman at that time Gregory Jaczko said the NRC would recommend "in a comparable situation in the U.S." The average population within 10 miles of an American nuclear plant is 62,000; within 50 miles, it is about five million [13]. In fact, 1 in 3 people live within 50

miles of a nuclear power plant in the United States [14]. Nearly 5 million people live within the 50-mile mark of Pilgrim Nuclear power plant, including entire Greater Boston area. For Yankee, that number is still more 1.5 million people.

Meanwhile, every single day in routine operation, these nuclear reactors are emitting radiation, tritium, and creating radioactive nuclear waste.

Furthermore, officials from Entergy stated several times in sworn testimony that the Vermont Yankee reactor had no subterranean pipes capable of leaking radioactive material [15]. In early 2010, however, investigators discovered radioactive tritium in groundwater near Vermont Yankee. Initial findings were small, but test wells eventually revealed concentrations of up to 2.7 million picocuries/liter in certain areas – 135 times the federal safety standard for drinking water [16]. The leak was eventually traced to underground steam pipes. In early 2011, test wells again detected elevated levels of tritium, suggesting further contamination from an as-yet-undiscovered leak [17].

## **Solution**

Vermont Yankee and Pilgrim nuclear power plants should be taken off line and decommissioned. The decommissioning fund currently being amassed by Entergy should safely dismantle these nuclear plants. Spent nuclear rods should be encased in the highest standard concrete dry casks and held in earthen berms. Entergy should take responsibility for its aging nuclear plants and not pass the buck in order to protect profits.

## **General Electric, Pittsfield, MA**

### **The Toxic Threat**

In 1903, General Electric (GE) began manufacturing electrical transformers at its 254-acre manufacturing complex in Pittsfield, on the banks of the Housatonic River. Over the next seventy years, GE released as much as 1,500,000 pounds of polychlorinated biphenyls (PCBs) into the Housatonic, which flows 139 miles from the Berkshire mountains to Long Island Sound [1, 2]. PCBs are a group of synthetic chemicals that cause cancer and birth defects in laboratory animals and are probable human carcinogens [3]. They are highly persistent compounds that accumulate in fatty animal tissue. In 1979, the United States banned the production of PCBs. Exposure to PCBs occurs by three routes: ingestion of contaminated meats and fats, inhalation of volatilized particles, and dermal contact with contaminated substrates [4]. In 2011, citing persistent PCB pollution, the Massachusetts Department of Public Health (MDPH) declared fish and other game from the Housatonic unfit for human consumption [5].

### **Cleanup Response**

In 1997, EPA placed the site on its Superfund National Priorities List. To date, cleanup efforts have removed 240,500 cubic yards of contaminated soil and sediment from the river and sixteen other locations around Pittsfield. However, much of that contaminated soil, over 100,000 cubic yards, now resides in the infamous Hill 78. Hill 78 is a massive, unlined PCB dump covering five acres, and situated just fifty feet from the playground at Allendale Elementary School. To make matters worse, the cap on Hill 78 was also contaminated, with PCB levels exceeding 2 parts per million [6]. EPA and GE contend that the site is safe, and air tests performed at the school by EPA in 2009 and 2011 have not found airborne PCBs above the notification level [7, 8].

It is also possible that contamination remains on residential properties, schools, businesses, and community parks. In 1999, Housatonic River Initiative convinced the Massachusetts Department of Environmental Protection (MassDEP) to test 320 homes. More than half of these had to be excavated and cleaned up. Much of the community still has not been tested for contamination.

According to the Center for Public Integrity, as of 2006, GE and its subsidiaries were implicated in a total of 116 Superfund sites around the country [9].

### **Why Now?**

In 2010, GE went to court, arguing that the Superfund law violated the company's constitutional rights. A federal appeals court decided unanimously against the company, and in 2011 the Supreme Court upheld that ruling [10]. In 2012, GE refused to pay a \$1.56 million cleanup fee to EPA for work done at the site [11].

Cleanup has been slow and underfunded. In over a decade, only two miles of the river have been remediated. Over one hundred miles of the Housatonic remain contaminated, from the vernal pools and rivers of Berkshire County to the Bridgeport harbor [12]. GE believes the residents of the Housatonic River Valley should wait for

the river to heal itself naturally with minimal human interference to remove the contaminated sediments [13], a process which EPA says could take “hundreds of years” [14]. Unfortunately, in its latest statements, the Commonwealth of Massachusetts has favored a cleanup plan that would leave 75% of the contaminants in the river, letting GE off the hook for the bulk of its pollution [15].

## **Solution**

GE needs to take full responsibility for its actions and should sponsor a comprehensive cleanup of the Housatonic and surrounding areas. Instead, it is shirking the blame for its mess, cutting corners at every opportunity. The people of Pittsfield, not to mention the other hundreds of thousands of Massachusetts and Connecticut residents who live along the river, deserve to be able to fish, swim, hike, and otherwise enjoy the river and Long Island Sound without fearing for their health and safety. Young children especially ought to enjoy a risk- and worry-free environment, and Hill 78 near Allendale Elementary School should be excavated and treated or disposed of in a hazardous waste landfill. Meanwhile, GE and EPA should ensure that the children have a safe location to attend school, and should take all necessary precautions to protect the neighbors of this and other remediation sites from further PCB exposure.

# **Harbor Superfund Site and Parker Street Waste Site, New Bedford, MA**

## **The Toxic Threat**

New Bedford is a city in Southeastern Massachusetts with nearly 100,000 people. Nicknamed “The Whaling City,” during the 19<sup>th</sup> century, the city was one of the most important, if not the most important, whaling and fishing ports in the world. The whaling industry declined in the 1850s, when whalers left for the Gold Rush in California, and when petroleum, which would become a popular alternative to whale oil, was discovered.

As whaling declined, the Industrial Revolution was taking hold in Massachusetts. Over many decades industry flourished as New Bedford was the site of the first petroleum fuel refinery in the United States, early experimentation in coal gasification, and the burgeoning textile and tool and die industries. Companies locating facilities in New Bedford included Cornell-Dubilier, which opened an electronics manufacturing plant in New Bedford’s South End in 1940 that used polychlorinated biphenyls (PCBs), soon becoming “the largest maker of AC, high voltage, mica and aluminum electrolytic capacitors,” according to the company’s Web site [1]. PCBs are mixtures of man-made chlorinated compounds used as coolants and lubricants in electrical equipment. They were banned from manufacture in 1977 in the United States because of evidence they build up in the environment and can cause harmful health effects [3]. Today, New Bedford remains the most profitable fishing port in the country, [4] and manufacturing continues to play a role in the local economy, but the toxic legacy of New Bedford’s industrial past, in particular from electrical manufacturing, has left the harbor so polluted that fishing within the harbor has been banned for decades.

## **Parker Street Waste Site**

The City of New Bedford is riddled with toxic pollution, and one major site of concern continues to be the Parker Street Waste Site, a former city burn dump which was located at the current site of the New Bedford High School and Keith Middle School. The ‘Parker Street Burn Dump’ accepted industrial wastes containing PCBs and heavy metals during the 1930s and 1940s, and contaminated ash from the dump was later used as fill for surrounding wetlands. The filled-in wetlands were later developed for housing, churches, businesses, schools and athletic fields. Today, contamination sits within a roughly 104-acre hazardous waste site underneath residential and commercial properties, two schools, athletic fields, and wetlands, and the hazardous waste includes PCBs, dioxins, cadmium, nickel, chromium, lead, and arsenic [5]. According to the EPA, PCBs have been known to cause cancer and other adverse health effects on the immune system, reproductive system, nervous system, and endocrine system, and EPA banned their manufacture in 1977. Dioxin is also a major chemical of concern. A

chemical product that occurs when PCBs are burned, dioxin has been found in soil around the New Bedford High School and in elevated levels at the Keith Middle School [6].

Local activists, including the group Wasted Away and its successor, Citizens Leading Environmental Action Network (CLEAN), have shined a spotlight on contamination issues for nearly a decade, unsuccessfully protesting a plan to construct the Keith Middle School on top of the Parker Street dump, pushing for demolition and cleanup at the New Bedford High School, which at more than 40 years old, was built on top of hazardous waste, and advocating for the public to have a larger voice in the cleanup. The plan to build the more than \$53 million Keith Middle School on top of contamination on the Parker Street waste site received a 2004 Dirty Dozen Award from Toxics Action Center, Wasted Away, and local residents. More recently, research by Harvard and Boston University researchers in New Bedford links PCBs to human health impacts in schoolchildren, suggesting that PCBs, which were first linked to learning problems in children more than two decades ago, may play a role in attention-deficit hyperactivity disorder, among other health problems [7].

### **New Bedford Harbor Superfund Site**

The New Bedford Harbor is an 18,000-acre urban estuary with sediment highly contaminated with PCBs and heavy metals. For decades from 1940 until 1970, two manufacturing facilities improperly disposed of industrial wastes containing PCBs, contaminating the harbor bottom for about six miles from the Acushnet River into Buzzards Bay. The harbor was placed on EPA's National Priorities List in 1982, and continues to be one of the largest and most contaminated Superfund cleanup sites in the country. After extensive testing of water quality, harbor sediment, air quality and locally caught fish and shellfish, it was clear that the PCBs in the sediment posed a serious risk to human health and the environment. PCBs do not break down easily in the natural environment, and left untouched, continue to pose a risk within the food chain [8].

### **Cleanup Response**

One problem with cleaning up the Parker Street Waste Site is that no one really knows the exact boundaries of the contamination. Significant testing and remediation still remains to be done. In 2008, the New Bedford City Council voted in favor of purchasing six contaminated homes for demolition, but hazardous waste remains across the neighborhood, including nearby public housing, and under homes and a church. In 2011, City Solicitor Irene Schall argued that individual property owners should take responsibility for industrialized pollution rather than the city, and the *New Bedford Standard-Times* reported that the City of New Bedford refused to support EPA's continued testing for contamination removal on the peripheries of the original

boundaries of the 104-acre parcel unless the EPA pays for it [9]. These statements suggest that the City has made an effort to avoid additional testing to characterize the boundaries of the site. The state Department of Environmental Protection has named the City of New Bedford as a responsible party in the Parker Street dump cleanup, and the City has also identified several companies as potentially responsible, suing Cornell-Dubilier and Monsanto in 2009 along with other entities for more than \$5 million related to site assessment and cleanup.

The EPA says their goal is to make a harbor that has been off-limits to fishing since 1979 fishable again, and their primary strategy for cleaning up the Harbor has been hydraulic dredging, removing some of the highest levels of PCB contamination in hotspots. Just over 200,000 of the total 900,000 cubic yards of PCB-contaminated sediment has been addressed as required by a 1998 cleanup plan [10]. In October 2012, the EPA announced a \$366 million settlement with AVX, the largest company responsible for PCB pollution in the New Bedford Harbor to provide the majority of funding needed to clean the harbor over the next seven years. Local environmental groups are critical of the settlement, suggesting it is not enough and that over the years EPA has consistently underestimated the cost of the cleanup. Coalition for Buzzards Bay and Hands Across the River, two community groups, want all the polluted sediment to be trucked off site and properly dispose of, as has been the case until now, instead of being reburied in the harbor or placed in sealed containers along the shoreline. Furthermore, the proposed settlement may prevent EPA from going back to AVX for additional funds should the cleanup cost more than predicted [11]. Calculations from the EPA's website from 2010 estimate the total cleanup costs to be much higher than the settlement amount.

## **Solution**

Polluters shouldn't be able to walk away without cleaning up the mess they made. EPA's settlement with AVX is a step in the right direction towards cleaning up the harbor, but it may not be enough money to fix the problem, and the Department of Justice settlement should include a reopener clause to ensure a clean New Bedford Harbor. This would allow EPA to go back to AVX for more money should the cleanup cost more than expected, rather than having taxpayers foot the bill through the Superfund program. Furthermore, PCB-laden waste should be disposed of in a hazardous waste landfill rather than being reburied in the harbor or placed along the shoreline, both temporary fixes rather than a long-term solution.

Likewise the City of New Bedford and EPA need to work together to authorize more testing to determine the exact footprint of the Parker Street Waste Site and characterize contamination on the entire site. Significantly more testing must happen on both school grounds and perimeter of the New Bedford High School and Keith Middle School, and the public should have an opportunity to weigh in on future plans for testing. EPA has

done some testing on both school grounds and surrounding properties for PCBs, but their testing for dioxins has been much more limited. Dioxins may pose an even greater risk to health than PCBs and are often present at sites where PCB-laden materials were burned or dumped. Dioxin has been found in soil around the schools. It is possible that both schools are so contaminated that they need to be closed and demolished, but to this date not enough testing has occurred to recommend further remedial actions.

## **Public Service of New Hampshire, Portsmouth and Bow, NH**

### **The Toxic Threat**

Among all industrial sources of air pollution, none poses greater risks to human health and the environment than coal-fired power plants. Emissions from coal-fired power plants contribute to climate change, ground level ozone (smog), acid rain, regional haze, and—perhaps most damaging from a public health standpoint—fine particle pollution. Built in the 1950s and 1960s, Merrimack Station and Schiller Station are far and away the top toxic polluters in the state of New Hampshire, according to Toxic Release Inventory data. Together, in 2011, they were responsible for 84% of the toxic releases statewide (1.8 million pounds out of 2.1 million total pounds) [1]. The state of New Hampshire estimates that both plants combined emit 228 pounds per year of mercury, a known neurotoxin [2].

#### ***Merrimack Station in Bow, NH***

In 2011, Merrimack Station released 1,617,029 pounds of toxic chemicals into the air, including 4,400 pounds of ammonia, 261 pounds of barium compounds, 1,000,000 pounds of hydrochloric acid, 54,000 pounds of hydrogen fluoride, 11.8 pounds of lead compounds, 106.1 pounds of mercury compounds, and 555,000 pounds of sulfuric acid. Merrimack Station was also New Hampshire's leading source of greenhouse gases (2,216,309 tons), ozone and soot-producing nitrogen oxides (2,997 tons), and acid rain-causing sulfur dioxide (22,420 tons). Meanwhile, a citizen lawsuit against PSNH is pending, alleging that PSNH violated the federal Clean Air Act when it made certain changes at Merrimack Station without required permits, illegally avoiding mandates to install modern controls to reduce air pollutant emissions [3].

Furthermore, in a draft Clean Water Act permit issued in 2011, EPA highlighted the many harmful effects of the Merrimack plant's cooling water withdrawals and wastewater discharges to the Merrimack River [4].

#### ***Schiller Station in Portsmouth, NH***

In 2011, Schiller Station released 95,828 pounds of toxic chemicals into the air, including 8,200 pounds of ammonia, 82,000 pounds of hydrochloric acid, 4,900 pounds of sulfuric acid, 4.5 pounds of mercury compounds, and 5.7 pounds of lead compounds. Schiller Station was also a major source of greenhouse gases (784,145 tons), ozone and soot-producing nitrogen oxides (601.2 tons), and acid rain-causing sulfur dioxide (1,707 tons). Schiller Station is among the least efficient power plants in New England.

Schiller Station is also home to Northern Wood Power. In 2006, PSNH converted one of the coal boilers to burn wood chips. [5] This boiler qualified for renewable energy credits in Massachusetts until the Bay State raised the bar in 2011. [6] Massachusetts changed its regulations after studies showed that burning wood was not as climate friendly or efficient as originally thought. [7]

### **Cleanup Response**

Unsurprisingly, PSNH is fighting EPA's efforts to bring Merrimack's cooling water and wastewater practices into the 21st century [8]. Merrimack Station recently invested \$422 million in ratepayer funds to extend the life of the plant, installing a scrubber to control some pollutants. Schiller Station lacks similar pollution controls.

While most coal plants in New England would have to take the costs of installing needed pollution controls from their profits, PSNH passes the bill on to ratepayers. Likewise, regardless of the plants' performance and even when they do not operate at all, PSNH is guaranteed a profit – which is included in PSNH rates – on all its costs associated with the plants – including labor, operation, maintenance, and fuel.

As a result, PSNH's rates are among the highest in the region and are still going up, while other utilities' energy rates have gone down in recent years [9]. In fact, PSNH's energy rates are projected to be almost 50% more (exceeding 9 cents/kwh in 2013) than the rates charged by other New Hampshire utilities and PSNH's own Massachusetts affiliate NSTAR (around 6 to 7 cents/kwh). PSNH stubbornly refuses to consider retiring or selling off its plants, despite the economic damage they are causing New Hampshire [10].

### **Why now?**

PSNH deserves the Dirty Dozen award because its coal plants are dirty and outdated. Today coal is so antiquated that market and regulators are already making PSNH curtail its operations at its power plants – they simply can't justify turning them on when other cleaner power sources are available to meet PSNH customer needs. Large commercial and industrial ratepayers, with their substantial purchasing power, have voted with their feet and abandoned PSNH in droves. Ninety-eight percent of these businesses now obtain power from cleaner, more economic power sources. The people of New Hampshire are left to shoulder the immense costs of keeping these out-of-date and toxic plants operating. In effect, New Hampshire is paying PSNH a massive subsidy to keep these plants on life support, when they should have been retired.

### **The Solution**

New England as a whole is a connected grid of energy generation and consumption. To stave off the worst effects of climate change, protect our health and our communities we must all move towards a vision of clean, renewable sources of power like responsibly sited wind and solar.

A recent study found that the Northeast could achieve a 20% reduction in energy use through efficiency and conservation alone [11]. In New Hampshire, there is significant renewable energy resources and ranks 35th among states with wind energy potential. [12]. We should make prioritize first the types of energy production that minimize impacts on our health and our environment.

# Raymark Superfund Site, Stratford, CT

## The Toxic Threat

People who have lived in Stratford for a long time can remember digging up shredded brake pads in their backyards. Raymark Industries (formerly Raybestos and also known as Raytech) operated in the town of Stratford from 1919 to 1989, manufacturing gaskets, clutches and asbestos brake linings for the automobile industry. Raymark employed thousands of town residents and generated millions of dollars of revenue for the town, but its facade began to crumble in the 1980s when the public became increasingly aware of the health problems associated with asbestos exposure, including the lung disease asbestosis and increased risk of mesothelioma, a rare lung cancer. In fact, company documents show that longtime president Sumner Simpson had been aware of these health effects for decades without taking measures to protect employees from toxic exposure or even to notify them of the threat [1]. Workers began to file lawsuits against the company in the 1980s. Instead of taking responsibility for its misdeeds, Raymark filed for bankruptcy and reorganized its financial assets to avoid the consequences of its actions.

In the wake of its multiple bankruptcies, Raymark mixed waste from its industrial processes with soil and began distributing it to residents of Stratford for use in gardens and on lawns. Once again, Raymark failed to notify these people that the soil contained high levels of asbestos, lead, copper, polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs). Short-term and chronic exposure to excessive copper has been linked to liver and kidney toxicity [2]. VOCs, a large class of chemicals, can cause symptoms ranging from eye and throat irritation to cancer [3].

Raymark spread its contaminated soil on other sites across the town, including a baseball field, a public park, and forty-six residential properties. Wetlands along the Housatonic River suffered the same fate. When the town discovered that Raymark waste contained asbestos, lead, copper, PCBs, and VOCs, they called in the U.S. Environmental Protection Agency (EPA), which declared the toxic waste sites throughout town to be a federal Superfund site in 1995. The site is one of fourteen Superfund sites in Connecticut on the National Priorities List for cleanup.

## Cleanup Response

In 2001, after twelve years of bankruptcy, Raymark made history as the first company to be held liable for civil conspiracy in an asbestos case. Raymark paid \$6.8 billion in personal injury claims and unpaid retirement benefits to workers and hundreds of millions in environmental liabilities [4]. However, even this has not been enough to clean up all of their contamination. For over a decade, EPA spent more than \$200 million from its Superfund identifying toxic sites in Stratford and demolishing and cleaning up Raymark's former factory site. They partnered with other state and federal agencies, including the Connecticut Department of Energy and Environmental Protection (DEEP), the CT Department of Public Health, the Agency for Toxic Substances and Disease Registry, the National Oceanic and Atmospheric Administration, and the Army Corps of Engineers. Today the former factory site has

been capped and is home to a Home Depot, a Shaw's, and a Wal-Mart, but dozens more toxic waste sites still remain around Stratford. Still contamination remains all across town on residential, commercial, and public properties.

A toxic plume flows in the groundwater, seeping into homes through their very foundations, and the CT DEEP has installed air filters in over one hundred homes.

Newcomers to Stratford often move into houses without any information about the extent of the problem because neither the town nor Raymark nor anyone else has any legal obligation to inform them [5].

## **Why Now?**

Since 2001, the EPA and CT State DEEP have offered only one proposal for cleanup, and their plan would fail to cleanup the toxic Raymark waste, fix the problem or help Stratford. Instead, their proposal involves dumping large quantities of asbestos, lead and PCB's, and consolidating them on a contaminated ballfield, creating a massive toxic waste dump in the middle of densely populated residential neighborhoods [7]. In spite of years of negotiations between EPA and concerned citizens of Stratford, the federal agency's most recent plan proposes short-cuts instead of solutions. Their plan "will reduce but not eliminate potential direct exposure to Raymark waste" [6] by excavating the remaining toxic sites around town and consolidating the contaminated soil at sites in the middle of densely populated residential neighborhoods [7]. In 2007 residents formed the group SaveStratford.org out of concern for the health impacts of EPA's plan, especially the impact on the large number of children that live in the area and play nearby at Longbrook Park. SaveStratford is opposed to EPA's plans to consolidate toxic waste in residential neighborhoods and is working to convince the federal agency to provide a fully funded, comprehensive cleanup plan that removes or completely eliminates all or as much of the toxic Raymark waste as possible from Stratford.

## **Solution**

The members of SaveStratford successfully banned the dumping of asbestos-laden wastes in residential neighborhoods as part of Connecticut's landmark 2008 environmental justice law. SaveStratford also proposed alternatives to EPA's one and only proposal for dumping toxic waste in residential neighborhoods – including alternative remediation technologies[8]. Despite these efforts, both the EPA and State DEEP continue to pursue their substandard, underfunded plan that does not cleanup any of the waste.

Twenty-three years after the initial remediation began at Raymark, instead of a band-aid approach, the families, businesses and community of Stratford deserve a fully funded, comprehensive cleanup of the Toxic Raymark waste to protect public health, environment and quality of life.

## **Tar Sands Pipeline, VT, NH and South Portland, ME**

### **Toxic Threat**

The dirtiest oil in the world, tar sands oil, could soon be coursing through pipelines that cross some of New England's most important and beloved rivers, through the watershed of Sebago Lake that provides unfiltered drinking water to hundreds of thousands of people in Maine, and to be exported out of Casco Bay, an irreplaceable commercial and recreational asset.

In 2008, ExxonMobil owned Montreal Pipe Line Limited (MPLL) and Enbridge Incorporated collaborated on the "Trailbreaker" project that would link pipelines from Alberta Canada to the coast of Maine and reverse their flow [1]. While this plan was shelved a year later for economic reasons, recent actions indicate that it is being revived. In 2011, Enbridge took a step toward implementing this plan by filing a permit application with Canada's National Energy Board to reverse the flow of a portion of one of its pipelines. Less than a year later, they took another step forward in May 2012 announcing their plan to fully reverse their pipeline through Ontario and Quebec. The long term plan would reverse the direction of oil flowing through two major pipelines—Line 9 and the aging Portland-Montreal Pipe Line—along an approximately 750-mile route, running through central Canada and down to the New England seacoast for export. Under the plan, the pipeline would carry Canadian tar sands oil, the dirtiest oil on the planet [2].

Tar sands oil is much more corrosive than conventional oil. Pipeline spills can and do occur, and there are indications that due to its corrosive qualities, tar sands oil spills are more prevalent than conventional oil spills. Tar sands are like hot liquid sandpaper, corroding pipelines faster and risking oil spills along the route. A tar sands spill near rivers, lakes, and other waterbodies causes much more harm than a conventional oil spill because tar sands oil can sink and seriously complicate cleanup efforts. Thinners used to dilute the tar sands oil also evaporate in the event of spill, spewing a toxic cloud into the air. An Enbridge pipeline carrying tar sands spilled more than 840,000 gallons of diluted bitumen, the formal name for this toxic brew, into Michigan's Kalamazoo River in 2010, causing health problems and widespread damage to the ecosystem. Crews are still struggling to clean up the spill and the costs of cleanup are approaching \$1 billion. The pipeline project would transport tar sands oil through some of the most important natural and cultural places in Ontario, Quebec, Vermont, New Hampshire, and Maine. The pipeline would put a number of areas at risk in New England, including Lake Memphremagog, the Missisquoi River and Victory State Forest in Vermont, the Connecticut River (which runs more than 400 miles long through Vermont, New Hampshire, Massachusetts, and Connecticut), the Androscoggin River through New Hampshire and Maine, and Sebago Lake in Maine, which provides clean drinking water to Portland.

To transport tar sands oil from Alberta through New England, this project would require a reversal of the flow of the Portland-Montreal Pipe Line (PMPL), which currently carries conventional crude oil through New England to Quebec. The corporate structure of

PMPL shows that ExxonMobil has the majority stake in the Portland-Montreal Pipe Line[3].

The pipeline between Portland, Maine and Montreal has two direct corporate owners: Montreal Pipe Line Limited (MPLL), which owns the stretch in Canada, from Montreal to the U.S. border; [4] and the Portland Pipe Line Corporation, which owns the U.S. section and is a wholly-owned subsidiary of MPLL [5]. In turn, a direct subsidiary of ExxonMobil, Imperial Oil Limited, holds a majority interest (76 percent) in the pipeline [6]. A smaller portion, 24%, is owned by the Canadian giant Suncor Energy [7]. Imperial and Suncor are among the biggest developers of Alberta's tar sands and stand to benefit greatly from this project to transport tar sands oil across the region for export [8].

In addition, half of the ten-members of the Portland Pipe Line's Corporation's Board of Directors work for oil companies in Alberta, home of the tar sands, while others are from Ontario or Texas. Only one board member is from Maine, serving as president of the Portland Pipeline Corp. It's hard to see how ExxonMobil would have the best interests of New England's people and environment in mind for this project. Indeed, potential risks of having this toxic brew traversing New England far outweigh any benefit.

### **Why Now?**

ExxonMobil's Tar Sands Pipeline is given the Dirty Dozen Award because of its threat to public health and the environment. The 62-year-old Portland-Montreal Pipeline flows under, over, and through dozens of communities throughout New England and central Canada. Since pipeline spills can and do occur, transporting this environmentally disastrous product - disastrous in its origin, transport, and uses - poses an unacceptable threats to our waterways, our drinking water, and our most pristine places in New England. The extraction and processing of tar sands oil burns enough energy to make it the fastest growing contributor to greenhouse gas emissions.

### **Solution**

Transporting tar sands on this new route would only bring new environmental risks to central Canada and New England. Reversing existing pipelines is not necessary and should not be put into operation. In order to protect public safety and the environment:

- The Canadian Energy Board should treat Enbridge's Line 9 reversal permit application as part of a long-term plan to bring tar sands oil east to the New England seacoast.
- The Canadian and U.S. federal governments should complete more thorough reviews of plans to transport tar sands oil through central Canada and New England, evaluating the need for new safety regulations for tar sands pipeline.
- Give potential safety concerns, and that increasing reliance on dirty fuels like tar sands oil contradicts clean energy and climate policies, provincial, state, and local governments should actively engage to ensure these issues are thoroughly vetted in the regulatory process.
- Governments at all levels in Canada and the United States should develop long-range energy plans before committing to large-scale infrastructure projects that

would increase oil consumption, and evaluate policies that would reduce oil demand [9].

# Recommendations to Prevent Future Dirty Dozen Award Winners

Most of the Dirty Dozen Award winners are dinosaurs. Their business practices have not changed with the times and are becoming extinct. Below are recommendations on how these polluters can change to advance solutions that promote a clean and healthy environment, and also how policy makers and regulators can support that positive change. The Dirty Dozen Award winners fall into four main categories: hazardous waste clean up, solid waste management, dirty and dangerous energy, and current chemical use.

## **Hazardous Waste Cleanups Need Resources & True Solutions**

The best solution for dealing with hazardous waste is to not create it in the first place. As much as possible, we should be replacing the toxic chemicals used in today's society with safer, effective alternatives. Fortunately, some states have recently passed policies to do just that. Even though these policies will create a healthier, less toxic future, we will still need to tackle the hazardous waste problems of the past.

Over the last decade, the cornerstone environmental and public health laws that have protected our communities, the Clean Air Act and Clean Water Act, have been weakened and under-funded. In addition, the U.S. Environmental Protection Agency's (EPA) Superfund program is bankrupt, forcing taxpayers to foot cleanup bills or regulators to leave the pollution problems to "naturally attenuate." Since the beginning of the Superfund program, the most recent Bush Administration and the Obama Administration are the only administrations that have refused to support the polluter-pays principle, effectively allowing polluting companies to avoid paying for their toxic messes. In addition, the price tag on cleanups has greatly increased: from \$300 million in 1995 to more than \$1 billion in 2004 [1].

Even the cleanups that do occur are not a complete solution. Most hazardous waste from cleanups is dumped into lined landfills, which the EPA states will eventually leak, contaminating the surrounding communities. Remedial technologies can be prohibitively expensive, and in some cases have separate pollution concerns associated with them.

In order to truly address the issue of hazardous waste, decision-makers should pass preventative policies that restrict and ban hazardous chemical use. Our federal environmental laws must be strengthened, and the "polluter-pays" principle should be put back into the Superfund program. In addition, state environmental agencies should be granted appropriate resources in order to ensure that polluting companies are held accountable, and to launch prevention programs. The EPA should also put resources into the research and development of new, safe hazardous waste remedial technologies.

## **Moving Beyond Burning & Burying, Towards Zero Waste**

In today's system of waste management, the three R's - reduce, reuse, and recycle - only take us so far. It's time to add a fourth "R" - restructure, because that's what is needed in our waste management system if we are ever going to truly solve our waste problems.

Currently resources move through society in a linear fashion: raw materials are extracted, processed into consumer goods, consumed, and disposed of through burning and burial. Waste incinerators spew hazardous dioxins and furans, polychlorinated biphenyls (PCBs), and heavy metals into the air and export the remaining toxic ash to be landfilled [2]. Landfilling is not an appropriate solution to our waste problem either, as the EPA states that all landfills will eventually leak. Landfills can produce toxic leachate, carbon dioxide, methane, natural gas, and can leak a variety of hazardous volatile organic compounds, such as paint thinners, solvents, and pesticides [3].

In order to break the cycle of burning and burying waste, a zero waste goal and model should be adopted. A zero waste model offers a circular system of resource management – rather than linear – in which the resources discarded are looped back into the economy to be reused, reprocessed or composted. In treating discarded resources as actual resources, the pollution threats of waste disposal facilities are curbed and enormous amounts of energy are saved. The need for virgin material extraction is also reduced. In 2001, the nation achieved a waste diversion rate of 30%, which conserved the energy equivalent to the annual energy use of 6.5 million homes [4]. Furthermore, the infrastructure required by a zero waste model provides, per ton of discard, ten times more jobs than traditional waste disposal facilities [5].

Policy makers and regulators must create policies and plans to support a zero waste goal and model, cancel contracts with incinerators, and phase out the use of landfills. Traditional waste managers should shift their businesses to fit within a zero waste model. Hauling and sorting centers are at the crux of making a zero waste system work, and can be a lucrative and a positive investment in our future.

## **Ensuring a Safe, Renewable, Coal-Free and Nuclear-Free Future**

Nuclear power is dirty, dangerous and expensive. It creates millions of tons of highly radioactive waste and there are not any good treatment or storage solutions. The radiation created by this waste and other nuclear plant functions is a dangerous health hazard because it can destroy cells in the human body, leading to cancer and other health problems. Nuclear power is expensive due to the high cost of building, maintaining, insuring, securing and decommissioning nuclear reactors. In addition, the nuclear industry is highly subsidized by taxpayers. There are also grave concerns surrounding the safety of nuclear power plants, especially in a post September 11<sup>th</sup> world. An accident or terrorist attack on a nuclear plant could be catastrophic.

Coal-burning electricity plants produce fine soot pollution, which is responsible for an estimated 60,000 premature deaths each year. Coal burning power plants are also the

largest industrial source of toxic mercury emissions. Mercury in coal is released into the air and is rained into our lakes and streams where it accumulates in fish tissues, posing serious risks of neurological damage to those who eat the fish, particularly young children whose brains are in early stages of development. An estimated 8% of all American women who are of childbearing years have already consumed enough mercury-laden fish to threaten the development of their children.

The mining of coal also wreaks havoc on land and water. In West Virginia, an area half the size of the State of Rhode Island has been devastated by the practice of surface mining, which involves taking the tops off of mountains. Mining also results in wastes that pollute water downstream. And mining itself is a significant health threat. According to the National Institutes of Occupational Safety and Health, coal mine dust kills 2,000 U.S. miners yearly.

An increasing imperative to solve global warming, coupled with rising oil prices has breathed new life into the dormant U.S. nuclear industry. Nuclear power is not the answer to our energy needs, however. It is not a carbon dioxide-free form of power generation, especially when one considers the energy required to build, fuel, run and dismantle a nuclear plant. True solutions can be found in energy conservation and renewable energy sources. Existing nuclear and coal-burning facilities should be transitioned and decommissioned, not relicensed, and adequate resources should be provided by companies operating nuclear power plants for their decommissioning process. We need to plan ahead over the next decade to phase out coal and nuclear power in New England, and support host communities and workers with a just transition that provides support for jobs and municipal revenues. New nuclear and coal plants should not be permitted or built.

### **Phasing Out the Persistence of Toxic Chemicals**

Modern chemistry has done wonders to improve industrial capacity and extend human life. But too often, the chemicals used in pesticides, cleaning products and manufacturing processes also threaten our health and environment. Chemicals such as DDT and PCBs are reported to be a problem of the past, but these hazards have been replaced with pesticides, plasticizers and flame retardants. And these chemicals can be found in household products such as lotions, frying pans, cell phones and upholstery. Our bodies absorb chemicals and retain them for years.

Every year, the EPA reviews an average of 1,700 new chemical compounds. The 1976 Toxic Substances Control Act requires prior evidence of potential harm before requiring testing of a compound up for approval. Without this evidence, testing isn't required, and frequently, this type of information is not yet available for new chemicals, leading to the approval of about 90 percent of new chemicals without restriction. Only one quarter of the approximately 82,000 chemicals used in the U.S. have been tested for toxicity [1]

We are seeing chemicals take their toll on our health, as illnesses continue to rise. For example, over the last two decades, autism increased tenfold, male birth defects doubled and childhood brain cancer was up 40 percent [6]. According to the EPA, more than 70 active pesticide ingredients known to cause cancer in animals are allowed for use. Exposure to tiny amounts of mercury, lead, dioxins, PCBs or other chemicals, which may have little impact on an adult, can greatly harm children whose bodies are still developing. Additionally, the toxins that a mother is exposed to during pregnancy can be passed on to her developing child before birth.

Unnecessary chemical exposure is a regulatory problem: currently our government is not protecting us from toxic exposures. All chemicals on the market should be tested and approved from a precautionary viewpoint. We must ensure that unnecessary chemical use does not occur and that all chemicals used are the safest options.

## **Conclusion**

As noted previously, most of the Dirty Dozen Award winners are dinosaurs. Their business practices have not changed with the times and are becoming extinct. If the twelve Dirty Dozen Award winners, along with regulators and legislators adopted the recommendations outlined in this report, they would not only demonstrate an ability to change with the times, their efforts would also result in a cleaner, safer and healthier world.

Adding "polluter pays" back into Superfund would shift the financial burden of hazardous waste clean ups from the taxpayer to the polluter; adopting a zero waste model would strengthen our economy while moving from burning and burying trash to more sustainable practices. Phasing out nuclear power and storing the radioactive waste in the safest methods onsite as well as transitioning away from burning coal, would help to promote conservation and renewable energy options and could shift subsidies toward energy options like wind and solar. Finally, phasing out persistent toxic chemicals class by class will ensure healthier pregnancies, healthier children and a higher quality of life. Systems, industries and policies already exist to implement these recommendations, and the result would be a safer world for all of our families.

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