

A large black pipe is shown pouring a dark, granular substance into a large pile. The pipe is angled from the top left towards the center. The pile is dark and textured, resembling coal or a similar residue. The background consists of lush green trees and foliage. The overall scene is outdoors.

# Residuals Management in Vermont

VT DEC  
Residuals Management Section  
Fall 2014

## Vermont's sludge timeline...

**1962** VT DOH address pathogen concerns from sludge managed via land application

**1970s** VT DEC develops draft guidelines for solids management, including numeric pollutant limits

**1989** the first VT Solid Waste Management Rules – revised 7 times since – most recently in 2012

**1993** 40 CFR Part 503 “*Standards for the Use or Disposal of Sewage Sludge*”

**1998** VT seeks federal delegation to administer sludge management programs – since withdrawn

**Vermont Solid Waste Management Plan** “*shall set forth a comprehensive statewide program for the collection, treatment, beneficial use, and disposal of septage and sludge.*”

## Vermont residuals quick facts:

- ~57,000 wet tons of sludge produced by 94 municipal WWTFs in 2013:  
beneficial use: 17%
  - 1,030 acres of Ag land is certified for land application
    - biosolids ~780 acres
    - septage ~250 acres
  - ~ 0.08% of the VT's estimated 1.22 million acres in Ag (USDA 2009)  
(similar to US national average)
- 

- ~55% of VT residences utilize septic systems – highest % in the U.S.
- 44 M gallons of septage was pumped from VT septic tanks in 2013:  
beneficial use: 24% (direct or WWTP land app)

# Where does sludge go in VT?

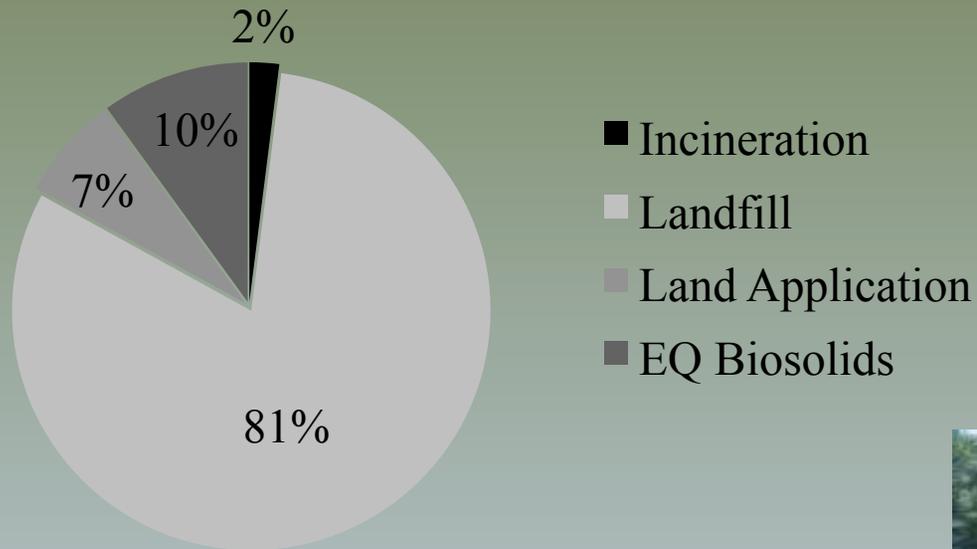
Sludge disposal option percentages (%) and dry weights by New England states in 2011.

	CT	MA	ME	NH	RI	VT
Incinerate	99	36	0	16	76	<b>2</b>
Landfill	0	25	26	18	2	<b>69</b>
Reuse (land app & EQ biosolids)	1	49	74	66	22	<b>29</b>
Dry Weight (dry US Tons/year)	118000	201700	29900	28300	27500	<b>8400</b>



# Disposal in VT?

## Vermont biosolids disposals in 2013



# Act 148 : Organics Landfill Ban

- does NOT ban sludge from landfills
- beneficial use rate of 75% remains the goal of VTANR-DEC
- CSWD and Casella via Grasslands Facility in Chateaugay, NY greatly increasing Vermont's rate in 2014



## The bottom line...

Comparative cost of sewage sludge disposal options (per wet ton)			
	NH *	PA **	VT (CSWD) ***
<b>Landfill</b>	\$75	\$75	\$93
<b>Land Application</b>	\$40	\$62	\$41 (class A) \$68 (class B) \$87 (Grasslands)
<b>Incineration</b>	\$71	\$71	No Data

\* NH Legislative Commission: <http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/hb699report.pdf>

\*\* Center for Rural Pennsylvania: <http://www.rural.palegislature.us/biosolids07.pdf>

\*\*\* Data provided by Chittenden Solid Waste District (CSWD)

# How does VT compare to Fed Regs?

**Comparison of pollutant concentration (mg/kg, dry wt.) standards for land application.**

	<b>As</b>	<b>Cd</b>	<b>Cr</b>	<b>Cu</b>	<b>Pb</b>	<b>Hg</b>	<b>Mo</b>	<b>Ni</b>	<b>Se</b>	<b>Zn</b>	<b>PCB</b>
<b>EPA 503.13 Table 1</b>	75	85	N/R	4300	840	57	75	420	100	7500	N/R
<b>EPA 503.13 Table 3</b>	41	39	N/R	1500	300	17	N/R	420	100	2800	N/R
<b>VT</b>	15	21	1200	1500	300	10	75	420	100	2800	10

**N/R = no regulatory standard established**

# How does VT compare to Fed Regs?

Comparison of monitoring requirements for land application sites		
	Vermont	40 CFR 503.16
Biosolids	Every batch applied or a minimum of once per year	Varies based on mass produced
Groundwater	Minimum: once per year	None
Soil	Minimum: once per year	None
Plant Tissue	Once per permit cycle	None

## How does VT compare to Fed Regs?

<b>Comparison of minimum required isolation distance requirements for diffuse disposal</b>		
	<b>Vermont</b>	<b>40 CFR 503</b>
<b>Water table (at time of app)</b>	3'	None
<b>Bedrock</b>	3'	None
<b>Surface water</b>	100' (injection = 50')	10 meters or ~33'
<b>Property line</b>	50'	None
<b>Residences, schools, etc.</b>	100'	None
<b>Drinking water sources *</b>	300'	None

However...



**Vermonters Against Toxic Sludge**  
Community

[Timeline](#)

[About](#)

[Photos](#)

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# SLUDGE HAPPENS

Are Vermonters OK Spreading Theirs Around?

Story: Ken Picard  
Art: Bill Volk



The nonprofit Lake Champlain International and a new group called Vermonters Against Toxic Sludge are in a stink over a proposal by the Chittenden Solid Waste District (CSWD) to ship sewage sludge across the lake to Chateaugay, New York for processing.



Sludge is the semi-solid gunk left behind from wastewater treatment plants after the water has been treated and discharged back into the environment. CSWD contends that recycling sludge as fertilizer is a cheap, eco-friendly, and EPA-approved practice.



It makes more sense than dumping it in the Coventry landfill, which is where more than half of Vermont's sludge currently ends up.

CSWD General Manager Tom Moreau agrees with the EPA's assessment that sludge is of "negligible risk" to crops, consumers, and the environment.

James Ehlers of Champlain International argues that the EPA has yet to adequately study all the chemicals that end up in sewage.



"Sewage" includes anything Vermonters flush or pour down a drain, like pharmaceuticals and motor oil!

Moreau admits that the EPA hasn't been able to keep up with the proliferation of these chemicals, and its regulatory standards need to be updated. Currently the EPA regulates about one percent of the chemicals that can end up in sewage.



It will require substantial efforts to separate fact from fiction.

This is not Vermonters' first encounter with toxic sludge. In August 2004, Phish performed a "Farewell" show in Coventry.



About 66 acres of the 600-acre Festival site were used for sludge disposal.

Ordinarily, the public isn't allowed to walk on fields that have been applied with sludge. Somehow, the organizers of the Phish show got around that restriction.



Exposure to Class B biosolids, the kind that had been injected into the soil at the showgrounds, have been linked to a host of health problems, including eye rashes, gastrointestinal problems, respiratory problems, and flu-like symptoms.

Vermonters Against Toxic Sludge is a new environmentalist group headed by Kai Forlie.



This is the second time CSWD has moved to export sludge, and they're no closer to a safe alternative.

CSWD's plan is unethical, immoral, and unjust.



First, do no harm. Regulation is the lowest common denominator. The speed limit on the Interstate is 65 MPH, but a prudent person will still slow down when conditions are unsafe. Don't you agree?

Moreau said CSWD's board will look into the issues around "chemicals of emerging concern" before signing off on the contract. A decision is expected this summer.

**“CSWD plan to send sludge to N.Y. draws criticism”  
- VTDIGGER , Jan 2013**

“... (G)iven CSWD’s intent to potentially burden the taxpayers of its member communities with this unknown liability, CSWD, at the very least, should provide for public debate of all the issues involved, particularly with respect to endocrine disruptors. Then each member community should make it a ballot item. CSWD should only proceed if a majority of communities support a decision to spread sludge in any community. This is issue is too important, with potentially generational impacts, to be left to a few self-interested parties”

– James Ehlers, Lake Champlain International

## Pick your 'scary' acronym...

- Emerging Contaminants
- Compounds of Emerging Concern (CECs)
- Trace Organic Compounds (TOCs)
- Endocrine Disrupting Chemicals (EDCs)
- Pharmaceuticals and Personal Care Products (PPCPs)
- Organic Wastewater Contaminants (OWCs)
- Anthropogenic Waste Indicators (AWI)

# Response...

## **Public Forum: Biosolids Management in Vermont**

**November 2013**

### Stakeholder presentations:

Chittenden Solid Waste District (CSWD)

Casella/New England Organics

Resource Management Inc (RMI)

Vermonters Against Toxic Sludge / Toxic Actions Center

NEBRA

Rich Earth Institute (REI) – Urine Diversion

Local Farmers \*\*

VT DEC

## Draft White Paper:

### **“Wastewater Treatment Sludge and Septage Management in VT”**

Residual Waste and Biosolids

Current Biosolids Management: U.S., NewEngland, and Vermont

Biosolids Regulation: U.S. and Vermont

**Emerging Contaminants in Biosolids**

**Transport & Fate of Biosolids Bourne CECs in the Environment**

**Emerging Concerns for Pathogens**

Reported Adverse Impacts to Human and Animal Health

Septage

Economics

Potential Regulatory Changes

Public Education and Outreach

Infrastructure

Improvements

References

## Draft White Paper

### **“Wastewater Treatment Sludge and Septage Management in VT”**

“...to present a broad picture of the current state of biosolids management in Vermont and the scientific research examining both the concerns and supporting evidence for the numerous issues, both pro and con, raised at the forum”

“It is not the intent of this paper to establish policy or regulation or to promote one means of residuals management over another. Rather, the intent of this paper is to present an unbiased base of information upon which those decisions can ultimately be made”

## Draft White Paper

Review process:

- 1 – VT ANR/DEC (Solid Waste, etc)
- 2 – State Agencies (DOH, VAAFMM)
- 3 – Stakeholder Committee (WW operators, solid waste districts, environmental advocacy groups, etc) “state of science” as basis of discussion
- 4 – VTDEC drafts rules
- 5 – Public Process for Rule Making

Examples of potential Rule changes:

- Approval and tracking system for importation of out of state EQ material
- No numerical standard changes expected
- No management practices changes
- TCLP analysis

**Thank you**

