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Journal Investigates

Violations found at licensed wastewater outfalls

Many wastewater operators say DEP's oversight is sufficient

By Jordan Bailey | May 21, 2014



A wastewater outfall on Mack Point in Searsport.

Photo by: Jordan Bailey

An investigation by the Republican Journal into Maine Pollutant Discharge Elimination System (MEPDES) licensed wastewater discharges in Knox and Waldo counties found two facilities in violation of license limits for pH or chlorine, with discrepancies in their reporting.

On March 5, Friends of Penobscot Bay led a talk on how wastewater discharge is monitored under MEPDES, the state implementation of the Clean Water Act's National Pollution Discharge Elimination System. In it, Friends of

Penobscot Bay President Ron Huber called on citizen scientists to sample and test the wastewater from outfall pipes to supplement the self-monitoring done by the licensed facilities.

The issues raised at this meeting interested me because of my work at the Mount Desert Island Biological Laboratory where I have been involved in many water quality monitoring projects including acting as the 2013 Maine Healthy Beaches monitor responsible for testing swim-beach water samples.

On a weekend in late March I sampled a nearby outfall pipe coming from the Penobscot McCrum facility and discharging onto a Belfast beach near the Route 1 bridge. I tested the pH of the sample and the meter read 10.18 — well above the license limit of 8.5 for that facility. I tested the meter in several other liquids, and tested the sample with another meter; it was reading accurately. I resampled the discharge from that outfall pipe again a few days later and tested the pH. The meter read 10.85.

These measurements prompted a closer look at the MEPDES-licensed facilities in Knox and Waldo counties.

Sampling

To find out if violations might be widespread, outfalls to be sampled were located using the Department of Environmental Protection's map of wastewater outfalls available on the department's website. Most outfalls were inaccessible because they were on private property or because they extended below the low water mark, where any sample obtained would be diluted by seawater. Only one discharge pipe on the map in Knox county was accessible, at East Wind Inn in Tenants Harbor, but the owner, Randy Deutsch, said he had replaced the overboard discharge system in 2012 and was no longer discharging any waste into the bay. DEP confirmed that the pipe was not his and the site no longer had a wastewater license.

In Waldo County, there were several pipes accessible from shore on Mack Point. Samples from those pipes were tested for pH and chlorine. A Hanna pHep 5 meter with 0.01 resolution was used to measure pH, and total residual chlorine was measured with a LaMotte model 1200 colorimeter, a device which “meets or exceeds EPA design specification for NPDWR and NPDES chlorine monitoring programs,” according to the LaMotte website. The meters were calibrated before each measurement and the samples were measured within 15 minutes of collection. The results of the testing are listed below, along with the facility's license limits as listed on discharge monitoring reports obtained from DEP, or its wastewater permit available on the Environmental Protection Agency website. If a measurement exceeded the license limit, the test was repeated another day. These are one person's measurements and have not been verified by DEP.

Wastewater outfall monitoring by The Republican Journal

Facility	Date	Time	pH	License	Total	License
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			measured	range	Residual Chlorine	Limit
Penobscot McCrum	3/23/2014	10:05 a.m.	10.18	6-8.5	not tested	0.2 mg/L
Penobscot McCrum	3/26/2014	2:30 p.m.	10.85	6-8.5	not tested	0.2 mg/L
Penobscot McCrum	4/2/2014	2:41 p.m.	11.11	6-8.5	0.12 ppm	0.2 mg/L
Sprague 002	4/3/2014	8:56 a.m.	7.50	6-9	0.18 ppm	13 ug/l*
Irving N	4/7/2014	11:45 a.m.	7.46	n/a	0	13 ug/l*
Irving S	4/7/2014	11:48 a.m.	7.27	n/a	0	13 ug/l*
Sprague 002	4/9/2014	11:20 a.m.	7.68	6-9	0.08 ppm	13 ug/l*
Unidentified Pipe	4/9/2014	11:24 a.m.	7.78		0	
Penobscot McCrum	4/10/2014	2:56 p.m.	11.00	6-8.5	0.15 ppm	0.2 mg/L
Penobscot McCrum	4/10/2014	3:00 p.m.	11.02	6-8.5	0.18 ppm	0.2 mg/L

* ug/l signifies micrograms per liter. One part per million (ppm) is approximately 1,000 micrograms per liter or 1 milligram.

Each sample taken at Sprague Energy's outfall 002 in Searsport was measured at above its license limit for chlorine and each sample taken at Penobscot McCrum's outfall 002 in Belfast was measured at above its license limit for pH.

According to the "Water Pollution and Fish Physiology," by Alan G. Heath, chlorine destroys gill filaments of fish causing hyperventillation, hypoxia (a lack of oxygen) in tissue cells, and can cause death by asphyxiation. William Brungs writes in "Effects of wastewater and cooling water chlorination on aquatic life," "Total residual chlorine is acutely lethal to some aquatic organisms at levels below the usual detectable analytic limit."

Numerous sources list a pH range of 6-9 as preferable to fish species, a pH of above 8.5 as harmful to fish larvae and mollusks, and a pH of 11 as lethal to all fish species, though the discharge would be diluted in seawater at high tide.

Penobscot McCrum

Penobscot McCrum, a potato processing company that supplies potato skins for T.G.I. Friday's and other restaurants, denied a request for a site visit.

"It's very cut and dry," said Jay McCrum, managing partner at Penobscot McCrum. "It is monitored by the DEP. It is not necessary to visit here," he said.

McCrum questioned why The Journal thought readers would have any interest in their wastewater discharge. He then said he had a problem with giving out "internal documents" because they are subject to interpretation.

The reports, which are public documents, were instead obtained from the DEP. The March report listed a maximum measured pH value of 7.53 for the month, although The Journal had measured a pH of 10.85 in that period. The report for the month of April had not been submitted as of publication.

McCrum did not wish to comment on the discrepancy between the reported value and the Journal's measurement, because he said he was not aware of there being a problem at that pipe. He said that they have since changed their wastewater system so that the discharge from outfall 002 (from the cooling system) will now go through the same treatment as the process wastewater, and will be discharged from another outfall pipe that extends into deeper water. He said they monitor that wastewater continuously with testing every hour. At that pipe, many more parameters including copper and mercury must also be monitored and reported by Penobscot McCrum.

The Journal notified the DEP of its measurements of Penobscot McCrum's wastewater at which point DEP Communications Director Jessamine Logan requested information on the location of the pipe sampled and indicated that inspectors would look into the matter at their next visit. She also stated "Penobscot McCrum measures the pH themselves, which is how the entire MEPDES program operates."

Sprague Energy

A request for a site visit and interview at the Sprague terminal was denied. Terminal Manager Paul Brannigan passed on the message from Sprague's PR division: "We are closely regulated and monitored by the state. Our permit and plan are available to view through the state, but we will not be able to provide an avenue for a site tour or interview."

The April discharge monitoring reports were not available from DEP at the time of publication, but chlorine measurements have not been reported in any of their discharge monitoring reports from January 2009 to March 2014.

Sprague's permit was available on the EPA website. The chlorine limit for Outfall 002 is listed as 13 ug/L (micrograms per liter), "based on EPA's acute criteria maximum concentration of 13 ug/L for marine waters," to be measured once per discharge. Because the chlorine meters typically used measure chlorine to the hundredth part per million, the permit later states: "Compliance with the daily maximum limitations will be based on EPA's minimum level of

detection of 50 ug/L (0.05 mg/L). All analytical test results shall be reported to the department including results which are detected below the minimum level of 0.05 mg/L."

The Journal's maximum measurement of chlorine from Outfall 002 equates to 180 micrograms per liter — nearly 14 times the amount allowed by Sprague's permit. The second sample at that site measured 80 micrograms per liter.

The Journal notified DEP about its measurements of the Sprague outfall. Requests for comment from Sprague Energy were not responded to by the time of printing.

DEP's enforcement policies

DEP officials explained the monitoring and enforcement of MEPDES licenses. DEP Water Quality Management Director Brian Kavanah said in a phone interview: "the foundation of the whole program is self-monitoring. There must be a certified operator at the site who monitors effluent according to certain specifications [laid out in the license] and who reports to us."

DEP's non-compliance response guidelines list among its enforcement objectives to encourage voluntary compliance with environmental licenses and to remove incentives or opportunities gained by violating environmental requirements.

The frequency of monitoring required is different for each parameter measured. When asked what would prevent a facility from dumping waste that falls outside of its license limits at times when they are not monitoring Logan said, "That is against the law and there are penalties and enforcement actions that would result." She said that kind of activities would be detected through unplanned inspections. "There is nation-wide regulation against that kind of activity," she added.

Pamela Parker, wastewater enforcement coordinator for the DEP, said whenever there is a violation reported, the DEP follows up to determine if it was a lab error or if it was within 15 percent of the license limit in which case it would be disregarded. If the violation is between 15 and 140 percent of the license limit, she said, DEP will send the facility a warning that the violation needs to be addressed. If the violation is significant (over 140 percent of the license limit), the violation is discussed at the DEP's monthly compliance meeting where the facility's record for the past 16 months is reviewed to determine whether it was an isolated incident or lab error or there is a trend in severe violations. If there is a trend, it is referred to Parker's department which conducts a more in-depth look into the facility's track record and makes a recommendation as to whether to send a notice of violation or pursue formal enforcement.

"Sometimes it is pretty clear at the outset that these guys have been messing up enough that we need to proceed to an administrative consent agreement where we assess penalties," she said.

The consent agreement is a negotiated document which is signed by both parties and goes to public comment. If the parties can't come to agreement, the matter is referred to an internal legal department and the case goes through district court.

“If it's severe enough we refer it to Attorney General, which doesn't happen very often,” Parker said. “If it's a municipality, we refer that to Attorney General's Office.”

As for Knox and Waldo facilities, in the past four years, the DEP has entered into two enforcement agreements, with Northport Village Corporation and Winterport Water District, and it is in the process of negotiating a consent agreement with the city of Rockland.

Parker said that statewide there have been four cases settled in district court in the past five years. There have not been any cases brought to the Attorney General in the past five years, but between 2001 and 2005 there were three cases brought against licensed operators for falsifying records.

One former operator who was prosecuted for falsifying records and wishes to remain anonymous said he felt the penalties against operators deterred them from reporting serious non-compliance issues out of fear that they would be penalized. He said he felt his prosecution was unfair because he was doing his job as it was explained to him but he was the only one penalized.

“My employer was not mentioned once in the proceedings,” he said.

Current licensed operators and employees of several of the MEPDES-licensed facilities in Knox and Waldo counties who agreed to interviews thought DEP's oversight was adequate and effective, and some thought the department was overly strict.

City of Rockland

“If anything they're over-aggressive,” Terry Pinto, the licensed operator for the city of Rockland said of the DEP's monitoring and enforcement process. “But the only time an individual licensed operator would be prosecuted is if they were fraudulently making false reports or if they're not doing it the way they're supposed to,” he said.

About Rockland's consent agreement, Pinto said their site was audited for five years of reporting and DEP determined enforcement was necessary based on those records. He also said he thought DEP was biased against municipalities when deciding which facilities to pursue enforcement actions against.

“For example, we have industries that are connected in to our system,” he said. “If they do anything wrong, we get charged, which is absurd.” If industries discharge wastewater into the system that violates certain parameters, Rockland pursues corrective action but DEP cites the municipality for the violation, he explained.

However, Logan said "Rockland is legally responsible for ensuring that pollutants that enter a waste treatment facility from any user do not pass through the waste treatment facility or interfere with its operation or performance."

Pinto said he believed the DEP's oversight could be improved by redirecting enforcement action.

"When the community is trying to comply with new regulations, then the state and EPA should be helping them do that," he said. "A fine means you're funding the state agency rather than dealing with the problem. Municipal wastewater treatment facilities are the last line of defense to protect our waters. It is ludicrous to fine them for a malfunction of a piece of equipment. The only time there should be a fine is if the operator is deliberately doing something wrong."

Northport Village Corporation

Dick McElhaney, the utilities superintendent for Northport Village Corporation and consultant licensed operator, said that after 35-40 years working as a licensed operator in the pulp and paper industry, he sees no bias in the DEP's enforcement of municipalities versus commercial or industrial sites. "The issues are different but the oversight isn't different," he said.

"The inspectors are competent," he said. "They don't do any monitoring but they look at procedures and review the daily monitoring reports for issues. They're pretty strict and are becoming increasingly so. I have no complaints at all except perhaps hair splitting."

McElhaney said he believed the biggest deterrent to violations is the consent agreement process which is very expensive and time consuming for facilities with all the reporting they have to do. (Northport has just completed its required improvements and its consent agreement has been closed.) He also cited pride in his job and a desire to protect marine species as major deterrents to discharging pollutants.

GAC Chemical

GAC Chemical, a Searsport chemical company which Friends of Penobscot Bay had expressed the most concern over in their March 5 meeting, invited The Journal to do a site visit. President and CEO David Colter explained that their chemical manufacturing process is close-looped, meaning no process wastewater is ever discharged into the bay, and that GAC has a fully implemented Stormwater Pollution Prevention Plan to deal with pollutants picked up by stormwater from the legacy waste at the site left over from its historic uses.

John Pond, senior vice president and director of environmental field services of CES, an environmental consulting firm that acts as the licensed operator for the GAC facility, was also present at the meeting. "If GAC wasn't here," he said, "the stormwater would be running off pollution into the bay."

Pond said the site gets a high level of scrutiny by DEP and EPA. “In 30 years of experience I’ve done more site walks with regulators here than anywhere else because of past environmental issues prior to ownership,” he said.

Regarding a lawsuit brought against the company by Conservation Law Foundation in 2002 for license violations, Colter said though GAC disagreed with what was alleged in the suit, the company agreed to a settlement to fund an environmental study of Stockton Harbor. GAC worked to ensure that the settlement it paid to the state was used for that study, which was conducted by Woodward and Curran and concluded: “no analyzed chemical constituents were detected in surface water,” and “no oil based compounds were detected in the sediment.”

When asked what he thought was the biggest deterrent to violating their license and discharging waste into the bay, Colter said: “We have a set of rules put forth by the EPA and Maine DEP that are there for a reason. We operate on a daily basis to stay within those regulations. We like being in Searsport. We’ve got a group of wonderful employees who live in this area. We don’t want to do anything to jeopardize our standing in the community and in the eyes of our employees.”

Pond added that CES is an independent contractor and has ethical standards and licensure, and that there are strong legal implications if that license is not adhered to.

"Data that goes through the system is vetted in many ways through quality control and quality assurance protocols, and there are many professional licenses and reputations on the line from the chemical analysts, to the consultant oversight operator, to regulatory overseers to the independent laboratory," Pond said, "We have to sign documents saying they are true and accurate, or face fines and imprisonment."

“Our data is being validated,” Pond added, “whereas when there’s someone running around the shore taking samples, there is no validation of the data or of the expertise of the person.”

A role for citizen science in the MEPDES?

Camden Wastewater Superintendent Ross Parker and FMC Corporation Plant Manager Jeff LaBrozzi also had positive assessment of the effectiveness of DEP's oversight. Though not all licensees contacted agreed to an interview or returned calls, those who did described a system functioning as it was intended: with transparency and checks and balances among multiple independent professionals and with most operators indicating good-faith voluntary compliance with the MEPDES program. But with so few outfalls accessible and so few parameters testable with the instruments available, it was alarming to find two out of the four facilities tested in violation and without proper reporting. The possibility is there for violations to go unnoticed on a regular basis. In cases where operators are employees of the facility and wastewater monitoring is considered a private process, the honor-system approach would

not be enough to deter non-compliance or falsification of reports. Having discharge monitoring reports readily available to the public online would be one step to bringing more transparency to the program.

The DEP's non-compliance response guidelines state: "Where DEP discovers non-compliance during a compliance inspection or as a result of complaints from the public the likelihood of an enforcement response is significantly greater than where a party voluntarily requests compliance or technical assistance, or where non-compliance is self reported upon diligent discovery."

Frequent surprise inspections with monitoring would be needed to detect and deter those violations but this is not the current practice of the DEP. In fact, most operators interviewed said inspectors never monitor their wastewater. Some of that monitoring could be accomplished with volunteer monitors.

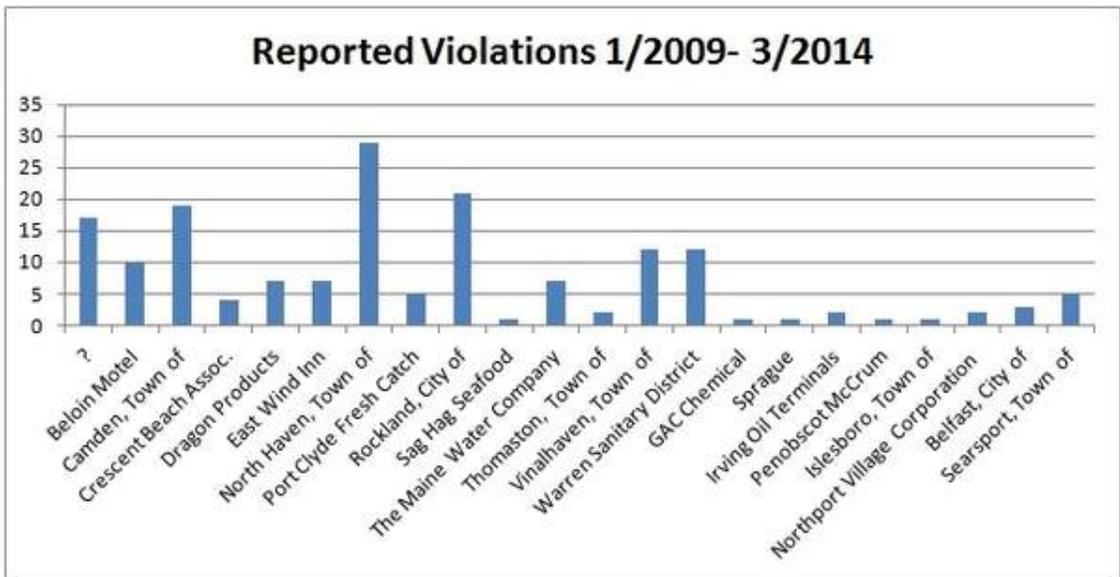
Attitudes about citizen science, or public participation in scientific research, are changing. Acadia National Park's 2014 Science Symposium held April 16 focused on the expanding role of citizen science and its potential uses. During his presentation, Rick Bonney, of the Cornell Ornithology Lab where he runs the popular bird-tracking web app eBird, cited hundreds of articles in peer-reviewed science journals that use citizen-scientist-collected data. A March 2014 article in the journal *Science* stated that "with appropriate protocols, training, and oversight, volunteers can collect data of quality equal to those collected by experts."

Acadia National Park Science Coordinator Abe Miller-Rushing said about his upcoming article in the journal *Ecology*, "A bottom line conclusion is that citizen science has been incredibly productive in contributing to scientific insights and has also informed many management and policy decisions." To be useful, he said citizen science programs "should be treated much like conventional science in their design, implementation and evaluation."

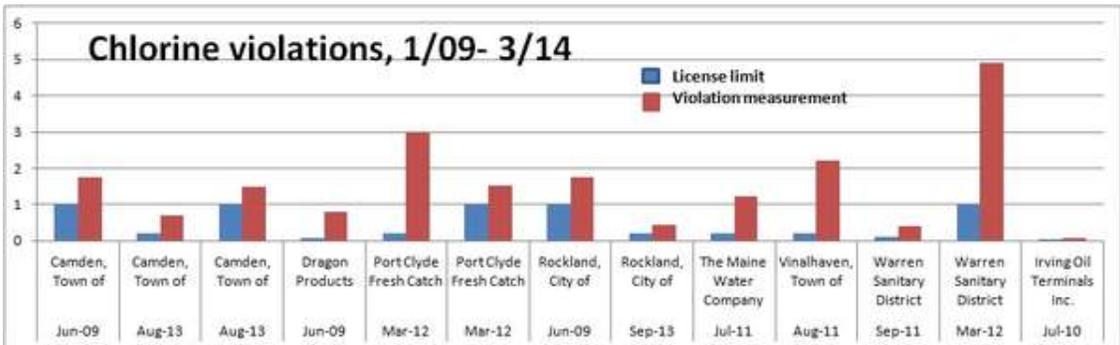
A citizen-science monitoring program established to work in partnership with DEP with appropriate protocols and oversight, which sends trained volunteers to sample and test wastewater for certain parameters at licensed facilities before discharge, would provide a needed external check to the self-monitoring process and remind licensees that their wastewater discharge is a public concern.

Jordan Bailey is copy editor at The Republican Journal. She can be reached at jbailey@villagesoup.com.

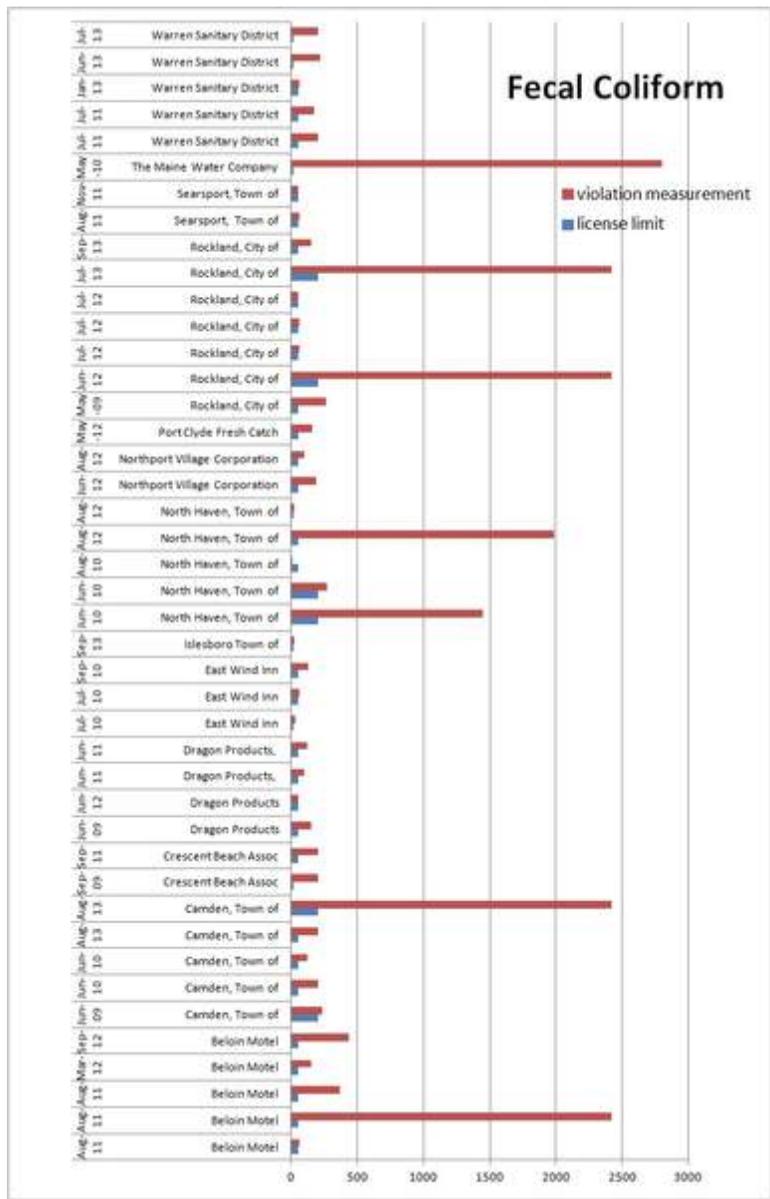
**this story was updated to remove a listing for East Wind Inn in the table of samples taken by The Journal. The pipe sampled does not belong to East Wind Inn and the owner has not been identified. The sample from that pipe had no detectable chlorine and neutral pH.*



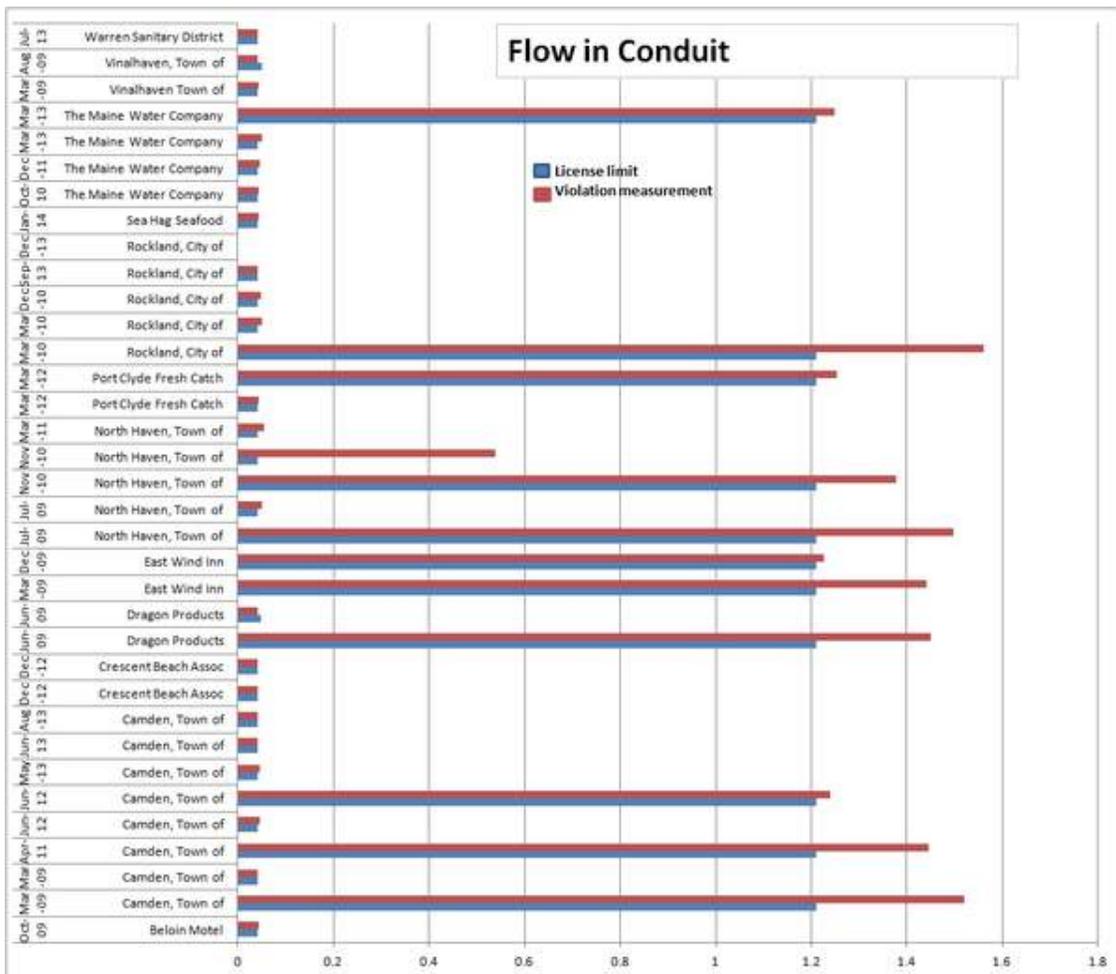
Graph of the number of reported violations per facility in Knox and Waldo counties between Jan. 1, 2009 and March 14, 2014. Winterport Water District, with 116 violations is not included in the graph. (Source: DEP)



Graph of the chlorine violations for Knox and Waldo counties between Jan. 1, 2009 and March 31, 2014. (Source: DEP)



Graph of fecal coliform violations for Knox and Waldo counties from Jan. 1, 2009 and March 14, 2014. The limit/measurement pairings either refer to daily maximum limits and measurements or rolling average limits and measurements. (Source: DEP)



Graph of flow volume violations for Knox and Waldo counties between Jan. 1, 2009 and March 31, 2014. (Source: DEP)



Penobscot McCrum's cooling wastewater outfall. *(Photo by: Jordan Bailey)*



The first sample of the pH of Penobscot McCrum's wastewater measured 10.18 standard units on March 23. (Photo by: Jordan Bailey)

Print Discharge Monitoring Report

Permitter Name/Address
 Name: PENOBSCOT MCCRUM LLC
 Address: PO BOX 129
 BELFAST, ME 04915-0229
 Facility: PENOBSCOT MCCRUM LLC
 Location: BELFAST
 Attn: Steven T Pernaoli

National Pollutant Discharge Elimination System (NPDES)
 Discharge Monitoring Report
 Permit Number: ME0023043
 Discharge Number: 001A
 Monitoring Period:
 01/01/2014 TO 03/31/2014

DMR Status: Accepted by DEP Inspector
 NODE:
 Minor: 27 CMRO
 Private:
 Inspector Initials: DFB

Parameter		Quantity or Loading				Quality or Concentration				No. Ex	Freq. of Analysis	Sample Type
		Min	Avg	Max	Units	Min	Avg	Max	Units			
00145 - TOTAL PRODUCTION : 1 - EFFLUENT GROSS VALUE	Sample Month	*****	23.95	43.27	5 TON/DY	*****	*****	*****	*****	8	01/01	CA
	Permit Report	*****	REPORT MO AVG	REPORT DAILY MAX		*****	*****	*****			Daily	CA/CTD
00310 - BOD, 5-DAY (20 DEG. C) : 1 - EFFLUENT GROSS VALUE	Sample Month	*****	706		LB/DY	*****						
	Permit Report	*****	121 MO AVG	782 DAILY MAX		*****	189 MO AVG	218 DAILY MAX	MGL		Once per Week	COMP24
00400 - PH : 1 - EFFLUENT GROSS VALUE	Sample Month	*****	*****	*****	*****	7.83	*****	7.33		8	01/01	GR
	Permit Report	*****	*****	*****		6.0 MINIMUM	*****	8.1 MAXIMUM			Daily	GRAB
00510 - SOLIDS, TOTAL SUSPENDED : 1 - EFFLUENT GROSS VALUE	Sample Month	*****	9.4	8.4	1.06/DY	*****	20.0	20.0		8	01/08	24
	Permit Report	*****	134 MO AVG	182 DAILY MAX		*****	119 MO AVG	218 DAILY MAX	MGL		Once per Month	COMP24
00545 - SOLIDS, SETTLEABLE : 1 - EFFLUENT GROSS VALUE	Sample Month	*****	*****	*****	*****	*****	*****	-0.3		8	01/07	GR
	Permit Report	*****	*****	*****		*****	*****	0.2 DAILY MAX	MGL		Once per Week	GRAB
00652 - OIL AND GREASE, HEXANE EXTR METHOD : 1 - EFFLUENT GROSS VALUE	Sample Month	*****	*****	*****	*****	*****	*****	0.9		8	02/08	GR
	Permit Report	*****	*****	*****		*****	*****	15 DAILY MAX	MGL		Two per Month	GRAB
01042 - COPPER, TOTAL (AS CU) : 1 - EFFLUENT GROSS VALUE	Sample Month	*****	*****	NR	LB/DY	*****	*****	0.8				
	Permit Report	*****	*****	0.58 DAILY MAX		*****	*****	REPORT DAILY MAX	MGL		Annual	COMP24
50050 - FLOW, IN CONDUIT OR THRU TREATMENT PLANT : 1 - EFFLUENT GROSS VALUE	Sample Month	*****	0689	0689	MGD	*****	*****	*****	*****	8	04/09	SC
	Permit Report	*****	8.10 MO AVG	REPORT DAILY MAX		*****	*****	*****			Continuous	SC/ADR
30060 - CHLORINE, TOTAL RESIDUAL : 1 -	Parameter	Quantity or Loading				Quality or Concentration				No. Ex	Freq. of Analysis	Sample Type
		Min	Avg	Max	Units	Min	Avg	Max	Units			
30060 - CHLORINE, TOTAL RESIDUAL : 1 -	Sample Month	*****	*****	*****	*****	*****	*****	0.33		8	03/07	GR

<https://portal.lh.state.me.us/edmr/report.do?reportMonth=3&reportYear=2014>

4/30/2014

Penobscot McCrum's discharge monitoring report submitted to DEP for March 2014. (Courtesy of: DEP)

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Comments (2)

Edit POSTED BY: WELLINGTON DUNBAR | May 23, 2014 07:50

Northport Village Corporation aka Bayside continues to discharge through an outfall pipe. The Corporation received federal money from the Dept. of Agriculture to lengthen the pipe further into the bay. The real estate within the Village Corporation is some of the most expensive in all of Northport. Most are seasonal but many have been expanded to year round use. Most land use ordinances require that an expanded non conforming use meet conforming criteria. I live in Bayside but do not contribute to the waste water overboard discharge. I paid to have a waste water disposal system installed in my yard that has both primary and secondary treatment (tank and a leech bed). I pay an additional property tax to the Village Corporation as well as a property tax to the Town of Northport. I am on a private well and receive no services either water or sewer from the Village Corporation. Why is it okay for the Village to have only primary treatment (septic tanks only) and to use the bay as its secondary treatment? Why are expanded residential uses allowed thus increasing more waste water into the bay? Why aren't limits in place on the creation of more waste?

Edit POSTED BY: JUDITH H OLSON | May 22, 2014 11:20

Excellent, well researched article that should put the general population on notice as to the severity of the discrepancies involved in testing and testing results. Depends on WHO is doing the testing and WHOM the results affect.

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"She Was the Love of My Life" Roy Roger's Family Confirm the Rumors