

FRIDAY MORNING: NASTY HABITS



[image: Eric Shoemaker via Flickr]

I got nasty habits; I take tea at three.
— Mick Jagger

Hah. Just be careful what water you use to make that tea, Mick. Could be an entirely different realm of nasty.

Late start here, too much to read this morning. I'll keep updating this as I write. Start your day off, though, by reading Marcy's post from last night. The claws are coming out, the life boats are getting punctured.

Many WordPress-powered sites infected with ransomware

Your next assignment this morning: check and update applications as out-of-date versions of Adobe Flash Player, Adobe Reader, Microsoft Silverlight, or Internet Explorer are most prone to this new wave of ransomware affecting WordPress sites. Back up all your data files to offline media in case you are hit with ransomware, and make it a habit to back up data files more frequently.

Planes inbound to the UK from regions with Zika virus may be sprayed

Take one tightly-closed oversized can, spray interior with insecticide, then insert humans before sealing for several hours. This sounds like a spectacularly bad idea to me. What about you? Yet this is what the UK is poised to do with planes flying in from areas with frequent Zika infections.

Comcast a possible smartphone service provider NO. I don't even have Comcast, yet I think this company is one of the worst suited to offering smartphones and service to their users. The company has expressed interest in bidding on spectrum for wireless, however. Comcast has struggled for years with one of – if not THE – worst reps for customer service. How do they think they will manage to expand their service offering without pissing off more customers?

AT&T obstructing muni broadband

No surprise here that AT&T is lobbying hard against more broadband, especially that offered by communities. The public knows there's a problem with marketplace competition when they don't have multiple choices for broadband, and they want solutions even if they have to build it themselves. When AT&T annoys a Republican lawmaker while squelching competition, they've gone too far. Keep an eye on this one as it may shape muni broadband everywhere.

Volkswagen roundup

VW delayed both its earnings report scheduled March 10th and its annual meeting scheduled April 21. The car maker says it needs more time to assess impact of the emissions control scandal on its books. New dates for the report and meeting have not been announced.

Volkswagen Financial Services, the banking arm of VW's holding company structure which finances auto sales and leases, suffers from the ongoing scandal. Ratings firms have downgraded both the bank and parent firm. Not mentioned in the article: potential negative impact of emissions control scandal on VW's captive reinsurer, Volkswagen Insurance Company Ltd (VICO).

Both the Justice Department and the Environmental Protection Agency filed a civil suit against VW in Detroit this week. Separate criminal charges are still possible.

That's a wrap, I'm all caught up on my usual read-feed. Get nasty as you want come 5:00 p.m. because it's Friday!

DEQ EMPLOYEES SEEM UNWILLING TO TAKE THE FALL FOR FLINT

During yesterday's Congressional hearing – and really, since the Governor's hand-picked Task Force first gave him an interim report in December – employees from Michigan's Department of Environmental Quality have come in for most of the blame for poisoning Flint.

But today, Progress Michigan published some emails that suggest DEQ's employees are unwilling to take the fall, at least not by themselves. They show that in March of last year, a supervisor in Genesee County's health department wrote people in Flint and at DEQ asking for help with data on water quality after getting no response to a FOIA in January 2015.

To: Howard Croft <hcroft@cityofflint.com>, "Mike Prysby (DEQ)" <prysbym@michigan.gov>, Elizabeth Murphy <emurphy@cityofflint.com>, "Natasha Henderson" <nhenderson@cityofflint.com>, Jerry Ambrose <gambrose49@gmail.com>, Dayne Walling <dwalling@cityofflint.com>
Cc: "Valacak, Mark" <MVALACAK@gchd.us>, "Cupal, Suzanne" <scupal@gchd.us>, "Hasan, Shurooq" <shasan@gchd.us>, "Childs, Bonnie" <BCILDS@gchd.us>, "Hallwood, Dawn" <dhallwood@gchd.us>, "Johnson, M.D., Gary" <GJOHNSON@gchd.us>
Subject: Information Request and Documentation

In the email, the supervisor noted that a spike in Legionnaires coincided with the switch to Flint's water. Jerry Ambrose was then the Emergency Manager of Flint; it's unclear why he was using a GMail address as EM.

In the next few days, officials at DEQ exchanged some panicked emails, pretty much blaming Flint for the non-response, noting that DEQ "became

peripherally aware” of the spike in Legionnaires, but also bitching about the Genesee County supervisor suggesting that it might be tied to the switch to Flint river water.

Thelen, Mary Beth (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Friday, March 13, 2015 6:49 PM
To: Hollins, Harvey (GOV)
Cc: Wyant, Dan (DEQ)
Subject: Part II
Attachments: FOIA Request Flint Water.doc
Importance: High

OK D-

This is the second issue I mentioned earlier today. In December, our staff became peripherally aware that the hospitals in Genesee were seeing an uptick in Legionnaires cases.

Legionnaires is a water-borne illness. It essentially is a type of pneumonia caused by a bacteria. It is treated with antibiotics. Untreated, it can be deadly. It most often manifests in nursing homes and assisted living facilities, because the transmission is through water vapor getting into lungs – via air conditioners, vaporizers or low-flow shower heads that produce a lot of misting. You can drink water with this bacteria in it and not get sick – it has to enter the lungs in vapor.

I don't have any details on the cases, but here is what I understand to this point:

- More than 40 cases reported since last April. That's a significant uptick – more than all the cases in the last five years or more combined.
- April / May is usually the start of Legionnaires season – it proliferates in warmer months – but April also is the point at which the city switched to the Flint River as a source.

It appears that panicked email was printed out by then DEQ Director Dan Wyant's assistant, Mary Beth Thelen, then initialed by Wyant, presumably indicating he had read it.

Also included on that email, though, was Harvey Hollins.

As I noted here, in December, in response to a recommendation from Governor Snyder's hand-picked Flint Task Force, the governor picked Hollins to be the single “independent” person overseeing response to the Flint crisis. It was absurd to pick him in the first place, because (as this shows) Hollins had been personally involved all along. But he is, at least on paper, in charge of response.

In other words, the email chain shows that both Snyder's hand-picked EM and the guy in charge of liaising with Flint knew, over a year ago, that Legionnaires (which has since killed at least 9 people) might be tied to the water switchover.

Progress Michigan doesn't note how they came by this email. But it's pretty clear it was Wyant's personal copy of it. In December – in response to another suggestion by the Task Force – Snyder

had Wyant resign. Since then, Attorney General Bill Schuette pointed to Wyant's resignation (which he originally expressed sadness about) to justify opening up his own investigation into the crisis.

All of which suggests to me that Wyant is unwilling to be the sole scapegoat for this crisis.

WHY IS THE POSTAL INSPECTION SERVICE INVESTIGATING THE FLINT WATER CRISIS?

I hope to have a further update about the ongoing effort to bury the Flint water crisis before the Oversight and Government Reform hearing on Wednesday morning.

But in the meantime I wanted to point to this passage, helpfully dropped out of the US Attorney's investigation in Detroit:

The Federal Bureau of Investigation said on Tuesday it was joining a criminal investigation of lead-contaminated drinking water in Flint, Michigan, exploring whether laws were broken in a crisis that has captured international attention.

Federal prosecutors in Michigan were working with an investigative team that included the FBI, the U.S. Postal Inspection Service, the U.S. Environmental Protection Agency's Office of Inspector General and the EPA's Criminal Investigation Division, a spokeswoman for the U.S. Attorney's Office in Detroit said.

An FBI spokeswoman said the agency was determining whether federal laws were broken, but declined further comment.

I'm actually not at all surprised FBI is involved in this investigation. That sort of comes with the territory of a US Attorney investigation, it seems.

But the US Postal Inspection Service? Here's the kind of crime they investigate:

Report these issues to the U.S. Postal Inspection Service online:

- *Mail fraud May include scams or deceptive ads via the mail, or postage fraud.*
- *Mail theft Under Inquiry Type, select Problem. Under Customer Service, select Support, and Mail Theft. Under Additional Information, explain why your complaint is mail theft-related.*
- *Identity theft*
- *Unsolicited Sexually Oriented Advertising*

If you believe you're a victim of fraud related to the U.S. Mail, including mailed sweepstakes, lotteries, on-line auctions, work-at-home scams or chain letters, report your concern to the U.S. Postal Inspection Service as mail fraud.

They often get brought in as an investigative partner if the government needs to track what

has been mailed, and mail fraud charges can serve as hand add-on charges in cases where someone used the mail to help commit a crime.

I can imagine a lot of things the FBI might be investigating. But I know of no facts, thus far, that involve mail-related crimes.

TUESDAY MORNING: DON'T DRIVE ANGRY

Okay, campers, rise and shine! It's Groundhog Day! Like that genius film Groundhog Day we are stuck in an unending, repeating hell – like the dark circus that is our general election cycle in the U.S.

The lesson: it's hell by choice. Let's choose better. What'll we choose today?

BPS, replacement for plastic additive BPA, not so safe after all

Here's a questionable choice we could examine: using BPS in "BPA-free" plastics. A study by Geffen School of Medicine at UCLA found that BPS negatively affects reproductive organs and increased the likelihood of "premature birth" in zebrafish, accelerating development of the embryos. Relatively small amounts and short exposures produced effects.

As disturbing as this finding may be, the FDA's approach to BPA is worrisome. Unchanged since 2014 in spite of the many studies on BPA, the FDA's website says BPA is safe. Wonder how long it will be before the FDA's site says BPS is likewise safe?

Exoskeleton assists paraplegic for only \$40,000
Adjustable to its wearer's body, SuitX's exoskeleton helps paraplegic users to walk, though crutches are still needed. It's not a perfect answer to mobility given the amount of

time it takes to put on the gear, but it could help paraplegics avoid injuries due to sitting for too long in wheelchairs. It's much less expensive than a competing exoskeleton at \$70K; the price is expected to fall over time.

SuitX received an NSF grant of \$750,000 last April for its exoskeleton work. Seems like a ridiculous bargain considering how much we've already invested in DARPA and other MIC-development of exoskeletons with nothing commercial to show for it. Perhaps we should choose to fund more NSF grants instead of DOD research?

Patches and more patches – Cisco, Android, Microsoft

- Networking equipment manufacturer Cisco pushed 11 patches last week to eliminate Denial of Service vulnerabilities across 42 products.
- Google pushed an over-the-air update to their Android-based Nexus devices to patch exposures in Broadcom Wi-Fi.
- Microsoft Windows 10 update released last week Wednesday if you haven't already seen it. No Patch Tuesdays for Win 10. And if Microsoft has its way, no more Patch Tuesdays for any upgrade holdouts as it will push Win 10 even more aggressively down our throats.

Dudes behaving badly

- Former Secret Service agent involved in the Silk Road investigation and later charged with theft of \$800K in Bitcoins has been arrested just one day before he was to begin serving his sentence for theft. This Silk Road stuff is a movie or cable series waiting to happen.
- Massachusetts's Rep. Katherine Clark, who proposed the Interstate Swatting Hoax Act last November, was swatted this weekend. Fortunately, the local police used a low-key approach to the hoax call. Way to make the case for the bill's passage, swatters, let alone increased law enforcement surveillance.

I know I've missed something I meant to post, but I'll choose to post it tomorrow and crawl back into my nest this morning to avoid my shadow. In the meantime, don't drive angry!

**HARVEY HOLLINS IS
SUPPOSED TO BE
LEADING FLINT**

RESPONSE BUT SNYDER SENT RICHARD BAIRD INSTEAD

In my posts on Flint, I've alluded to a guy named Rich Baird, whom Governor Rick Snyder calls his "Transformation Manager."

This morning, the Detroit News reported Snyder is sending Baird to oversee his Flint response.

The governor is dispatching his fixer and confidant, Rich Baird, to Flint to help coordinate the state response and to reassure the city's elected leaders of direct, daily contact with the governor's office.

Eclectablog has written several important posts on who Baird is and, importantly, how he was originally funded.

Baird, who had recently retired from PricewaterhouseCoopers, set up a consulting firm called MI Partners and took on one client: Governor Rick Snyder. He makes \$100,000 year, paid for by unknown donors to the NERD fund, and sits at the right hand of the governor. His office is literally in the governor's executive office suite. If you look at the Executive Office directory (pdf), there is Richard Baird's name, listed along with the normal staffers paid like most other government officials with taxpayer money:

The important point though is that Baird, who has been a critical figure in Snyder's emergency management schemes, started as a public/private fixer, working for private entities we can't know about. In advance of the reelection campaign, at a time when people were demanding

to know *who* had been paying Baird's salary, Baird was brought onto state payroll. But he is a key figure in Snyder's corporate driven effort to loot Michigan.

There are two reasons I'm interested in the report that Baird is overseeing Snyder's response.

First, back in early December, Snyder's hand-picked Task Force for responding to the Flint crisis met with him to tell him of their initial observations. One of their key recommendations, as made clear by a meeting summary they shared with him, was that he appoint one single person to handle the response. (See PDF 240ff)

We also believe it important that a single person or entity-potentially independent of any one particular state agency and mutually agreeable to this Task Force and you, Governor-be established to provide effective coordination of ongoing activities and reporting on the status of mitigation measures.

[snip]

Accordingly, in advance of our final report, we would like to ensure the independent coordinator suggested above engage trusted community groups to begin rebuilding community trust in state actions.

Snyder responded by "appointing" Harvey Hollins, his Director of Urban Initiatives, as that person "independent" of the "involved state agencies."

You make a solid suggestion about establishing a person who is independent of any one of the involved state agencies to serve as the point person to coordinate the ongoing work. I am recommending that Harvey Hollins, director of the Office of Urban

Initiatives, carry out this effort.
Harvey Is well-versed in the issues and
the challenges faced by our cities
and will be effective in this role.
Senior members of our executive team
will continue to engage with your task
force and provide direction and support
to Harvey to ensure you will have
continued support and cooperation.

The thing is, Hollins was in no way
“independent” of the decisions that poisoned
Flint. He has been involved at every phase, down
to coordinating Snyder’s hush-hush water filters
when he was still trying to cover it up. So
basically Snyder just “appointed” the guy he had
“appointed” to oversee all the decisions that
got Flint poisoned in the first place.

But now he’s putting (or the press is reporting
that he already did put) someone else – Baird –
in charge of his response.

Which brings us to what Snyder’s emails show
about the involvement of Baird.

Now, I hope to get around to posting evidence
from his released emails that Snyder has a
second email account, and that much of what we
see in the released emails are efforts to keep
certain things off the books (not just in that
second account but in phone or face-to-face
conversations). So – as MotorCity Muckraker
pointed out – it’s perhaps not surprising that
Baird doesn’t appear to send Snyder many emails
(on this account) but it is notable.

When he does appear in emails is interesting,
however.

Baird appears in emails forwarded with public
announcements relating to Flint in 2014.

- PDF 5: January 15, 2014:
Public announcement of
federal funding
- PDF 26: April 30, 2014:

Flint EM's budget talking points

Then Baird didn't show up in emails again until the shit started hitting the fan in October 2015. It's quite clear from these emails that Baird had a key role in responding to this crisis, including as the go-between with the Task Force Snyder set up to make the whole problem go away.

- PDF 110: October 06, 2014: Public distribution of water filters
- PDF 217: November 17, 2015: DEQ's (significantly misleading) self-report to Snyder's Task Force
- PDF 240: December 7, 2015: Task Force (Ken Sikkema)'s formal conveyance of its report to Snyder
- PDF 243: December 10, 2015: Response to Task Force, reflecting input from Baird
- PDF 246: December 11, 2015: DHHS testing data
- PDF 250: December 24, 2015: Office of Auditor General response to State Senator Jim Ananich
- PDF 252: December 28, 2015: DEQ concurring in OAG's analysis
- PDF 269: December 28, 2015: Response to pre-shared copy of Task Force report, reflecting conference call involving Baird, noting a

phone call to follow

- PDF: December 29, 2015:
Snyder's statement about
Task Force response, with
note that Baird would meet
face-to-face with Task Force
on follow-up

By late December, it's clear the governor's staff was avoiding putting certain things in writing. In some key moments, in fact, Baird was involved in conversations about the response.

None of this is surprising. But it does make it clear that Snyder's real response here is being led by his public-private fixer.

BILL SCHUETTE'S BOGUS EXCUSE FOR HIS BELATED INVESTIGATION INTO FLINT

This morning, Michigan's Attorney General and aspiring gubernatorial candidate Bill Schuette appointed a lawyer who has donated \$10,200 to his own state-wide elections and chunks more to other Republicans (as well as a smaller donation to Jennifer Granholm in 2005) to lead the "state" investigation into Flint (this is, of course, an investigation carried out by two private citizens granted the authority of the state, not the state itself – yet more private contractors who will make money off the screw-ups of Snyder's emergency managers).

Just as interesting as the financial ties Todd Flood has with the Republican party is the

excuse Schuette gave for all of a sudden deciding he needed to conduct an investigation just after the story leaked on January 5 that Detroit's US Attorney, Barb McQuade, is investigating. Schuette said he decided to act in the wake of some resignations from staffers from the Department of Environmental Quality.

Initially Schuette had declined to investigate the Flint water crisis, but said that in early January new information including the resignation of Michigan Department of Environmental Quality officials had changed his mind.

This claim suggests some pretty whacky timing. The DEQ employees who had resigned by the time Schuette announced his investigation on January 15 were DEQ Director Dan Wyant and Spokesperson Brad Wurfel (Snyder subsequently announced the suspension of two unnamed DEQ employees on January 22).

But Schuette sure as hell didn't sound like he thought Wyant's resignation merited an investigation on December 29, when he released this statement.

I am saddened to hear of the resignation of Department of Environment Quality Director Dan Wyant. In my 20-plus years of knowing him, Dan has been a hardworking, dedicated public servant. I am committed to working with all parties, including the legislature and Governor, to ensure the public's health and the well being of Michigan residents.

On the contrary, Schuette sounded like it was a terrible thing that those mean poisoned Flint kids brought about a career setback for his buddy.

Moreover, the emails Snyder released make it clear that the "resignations" and "suspensions" of these DEQ fall guys was very closely

orchestrated.

The day before the governor's Task Force on Water (directed by a GOP partisan but including the leader of an environmental group and some health academics) formally delivered an interim report to Snyder, December 28, someone sent an advance copy to the governor. (See PDF 269 for the advance copy and discussion that followed, and PDF 265 for the formal conveyance of the report to the governor.) Snyder's Chief of Staff, Jarrod Agen, his legal counsel, James Redford, his Director of Urban Initiatives, Harvey Hollins (who was involved in the Flint issues throughout, and whom Snyder laughably appointed as the "independent" person to oversee the Flint response in December), his privately-paid bully "Transformation Manager" Richard Baird, and his Communications Director Meegan Holland had a conference call to figure out how to respond. Agen's email to Snyder makes it clear that before that call, there had already been a plan to make "structural changes" at DEQ.

Attached is a letter from the Flint Water Task Force which will be formally sent to you tomorrow. The Task Force then plans to release this letter publicly on Wednesday morning.

You will see the letter is harsh against DEQ.

Rich, Redford, Harvey, Meegan, and myself all just gathered on a conference call to discuss our upcoming actions regarding Flint. While we don't think this letter should change any of our actions, we agreed we may need to accelerate some of the structural changes at DEQ.

Our suggestions:

- 1) Make structural changes at DEQ as early as tomorrow: The recommendations in this letter suggest profound change at DEQ and openly criticize Director

Wyant. If this is the path that the Task Force is on, it is best to make changes at DEQ sooner rather than later. That likely means accepting Dan's resignation. It also means moving up the termination of the 3 DEQ personnel previously planned for Jan 4 to tomorrow.

His notes also make it clear that there was already a plan to terminate 3 other DEQ personnel on January 4 (which presumably would be Wurfel and the two staffers who got suspended on January 22).

There's no indication that Schuette was involved in these discussions (though given that he was already defending Snyder in multiple lawsuits, you would think he was in communication with Redford).

Still, it's quite clear that the "resignation" of DEQ staffers was planned well in advance.

So why wasn't Schuette's investigation planned before it became clear that the US Attorney is also investigating?

At a time when MI is facing a \$1.9 million bill for Schuette's personal tirade against equality and can't pay to fix its roads, Schuette has launched this private investigation that will need a separate appropriation to compete with the pre-existing federal one.

He did not put a timeline or cost estimate on the investigations, though he said he was in discussions with legislative leaders regarding a possible need for additional appropriation to fund the operation.

Schuette's belated interest in seeing if any laws have been broken sure does stink.

THE CIRCUMSTANTIAL CASE FOR FLINT RIVER WATER AND HOT WATER TANKS LEADING TO FLINT'S LEGIONNAIRES' OUBREAK

Although the progressive community has been aware, for more than a year, of the water quality crisis in Flint that was created when the state-appointed emergency manager switched Flint from Detroit's water system to a supply from the nearby Flint River, national attention is only now starting to focus on it. Today's New York Times features an editorial denouncing the "depraved indifference" Governor Rick Snyder's administration showed toward Flint as the crisis unfolded.

The basics of what happened are clear. Water from the Flint River is much more corrosive than that from the Detroit water system (from Lake Huron). Even though this water leaves the Flint processing facility fairly clean and appearing to meet most standards, its corrosive nature results in the pipes in the aged Flint distribution system corroding. Both iron and lead leach into the water as a result of this corrosion, leaving the water with a reddish-orange tint and unsafe levels of lead. Children in the area have already shown elevated levels of lead in their systems. Sadly, lead damage is irreversible.

A bit of digging shows that the corrosive nature of the Flint River water comes from its high chloride content. [Note: free chloride ions (Cl^-) are distinct from intact molecular chlorine (Cl_2) and have very different chemical

effects in the systems being described here. For brevity, they will be referred to as chloride and chlorine, respectively.] That high chloride content very likely results from heavy application of salt to roads during winter and subsequent runoff of the salt into tributaries and the river. The Flint River has a chloride content about eight or nine times higher than Lake Huron.

Technical documentation of the Flint water crisis is almost entirely the work of a group of researchers directed by Professor Marc Edwards of the Department of Civil and Environmental Engineering at Virginia Tech (frequently updated at their website, flintwaterstudy.org). As the Times editorial noted, the Snyder administration tried to dismiss one group of critics as “anti-everything”. That won’t work with Edwards, who won a MacArthur Foundation Fellowship (often called a Genius Grant) in 2007 for his work on water quality.

One very simple and elegant study carried out by Edwards and his team is described in this post from August 24 of last year. The team took a clean-looking sample of Flint water and put it into a glass jar along with a piece of iron. The iron is present to mimic the effect of the Flint water coming into contact with iron pipes as it flows through the distribution system into people’s homes. An otherwise identical sample was prepared with water that came from the Detroit water system. After only five days, the jars looked dramatically different:

The water in the Flint jar looks just like what we have seen in countless photos of exasperated Flint residents wanting something done about the poor quality of the water coming out of their taps. Leached iron by itself could well be the cause of this discoloration that is common in Flint. We will come back to this same study in a bit.

In addition to the dire issue of unsafe lead levels in homes (and subsequently documented in children) that received Flint River water,

another problem may relate to the changed water source. Writing at Huffington Post earlier this week, Erin Schumaker documented an outbreak of Legionnaires' Disease in Flint. Remarkably, in a graphic created by Alissa Scheller, we see that the outbreak coincides quite precisely with the change in water source:

How could there be a pathway connecting the water source to a Legionnaires' outbreak? After all, the original outbreak for which the disease is named was the result of *Legionella* growing in the cooling tower for the air conditioning system of a large hotel. The victims then inhaled the bacteria as aerosols that migrated into the ventilation system from the cooling tower. Note that the "cooling tower" is actually quite hot and one of *Legionella's* distinctive characteristics is its love for elevated temperatures.

There is a further problem for how *Legionella* could have been in the water system. This study by the Edwards team showed that the standard test for bacterial contamination came up empty on Flint water. No coliform bacteria were found in Flint water collected at several sites, including from several homes.

This same study, however, found a huge warning sign. Although fecal bacterial contamination was not found, they found that many samples collected around town did not have any detectable levels of chlorine. Chlorine is needed in water systems to prevent growth of bacteria.

The August 24 study linked above went into further detail on this issue, where it was found that in the presence of iron, the corrosive nature of Flint water destroyed the chlorine that was present. This result leads to a very damning conclusion:

The high rates of iron corrosion from using Flint River water as a drinking water source are damaging the Flint distribution system. The corrosion is

also causing chlorine to disappear quickly, which may make it more likely for harmful bacteria to grow in the water. Furthermore, it is possible that with the existing unlined iron pipe system in Flint, and the relatively low water demand (due to declining population, loss of GM – which used a lot of water – as a water customer, and high rates), that it will very difficult to meet Federal standards for minimum chlorine levels no matter what is done to treat the water.

So it turns out that although the Flint treatment plant treated the river water sufficiently to kill the coliform bacteria, once the water left the plant, its corrosive nature in iron pipes means that there would be no residual level of chlorine to retain antimicrobial activity. This is especially bad in an aging water system, as the residual chlorine level would protect against low levels of bacteria introduced by failures in backflow control or small breaches in the system where surface or groundwater might be introduced into the system. In this same report, Edwards provides a link to reports of increased rates of water main leaks and breaks in Flint's aging system.

But when we move to consideration of *Legionella*, the situation gets much worse. Traditional water analysis for bacterial contamination, especially the fecal coliform test, would not reveal the presence of *Legionella*. The particularly difficult nature of culturing this bacterium led to prolonged confusion over the cause of the 1976 Philadelphia outbreak that gave the disease its name. So yes, *Legionella* likely would be eliminated just as the coliform bacteria were eliminated at the Flint treatment plant, but any *Legionella* introduced downstream could survive due to the low chlorine content. Further, *Legionella* would not be inactivated by the corrosive nature of the water. As for whether

Legionella would be present in the region, consider that the disease Pontiac Fever (named for an outbreak in 1968) is also a *Legionella* infection that fortunately is less lethal. Pontiac is only 36 miles from Flint.

When we go to the literature on routes of *Legionella* infection, we have this from WHO (pdf):

The most common route of infection is the inhalation of aerosols containing the bacteria. Such aerosols can be generated by contaminated cooling towers, warm water showers, humidifiers and spas.

Warm water showers, huh? This gets even more interesting when we look at the temperature profile for *Legionella* survival and information on the proper setting for hot water tanks. Consider this little nugget from energy.gov:

Although some manufacturers set water heater thermostats at 140°F, most households usually only require them to be set at 120°F, which also slows mineral buildup and corrosion in your water heater and pipes. Water heated at 140°F also poses a safety hazard—scalding.

Savings resulting from turning down your water heater temperature are based on two components: reduced standby losses (heat lost from water heater into surrounding basement area); and consumption (from water demand or use in your home). Set too high, or at 140°F, your water heater can waste anywhere from \$36 to \$61 annually in standby heat losses and more than \$400 in demand losses.

If you have a dishwasher without a booster heater, it may require a water temperature within a range of 130°F to 140°F for optimum cleaning. And while

there is a very slight risk of promoting legionellae bacteria when hot water tanks are maintained at 120°F, this level is still considered safe for the majority of the population. If you have a suppressed immune system or chronic respiratory disease, you may consider keeping your hot water tank at 140°F. However, this high temperature significantly increases the risk of scalding.

And there we have it. A Flint home downstream of a discontinuity in the water system that introduces a small amount of *Legionella* would be at risk since the water would be likely to have insufficient chlorine to kill the *Legionella*. Further, if the household has its hot water tank thermostat set too low, the *Legionella* could thrive in the tank and then infect an immune compromised individual who inhales aerosols of the bacteria while showering.

Update 9 pm Friday Evening

MILive is now reporting that *Legionella* was found in the water supply of a Flint hospital in 2014, after the switch in the supply:

"After the City of Flint switched to the Flint River as its water source in April of 2014, we noticed an increase in the number of Legionella cases that were coming to McLaren for treatment, as well as those being reported across the county and at other hospitals," McLaren spokeswoman, Laurie Prochazka said. "Because of that concern, and concern over the quality of water that we were receiving from the city, we began aggressively testing our water supply. An early test result indicated the presence of a low level Legionella."

TUESDAY MORNING: WOW, YOU SURVIVED BUSINESS DAY 1

The post-holiday season debris field continues to thin out, making its way by the truckful to the landfill. I wonder how much oil the season's plastic wrappings consumed.

Here's what the trash man left behind this morning.

Hackers caused power outage – the first of its kind?

Marcy's already posted about the electrical power disruption in Ukraine this past week, labeled by some as the first known hacker-caused outage. I find the location of this malware-based outage disturbing due to its location in western Ukraine. Given the level of tensions with Russia along the eastern portion of the country, particularly near Donetsk over the past couple of years, an outage in the west seems counterintuitive if the hackers were motivated by Ukraine-Russian conflict.

And hey, look, the hackers may have used backdoors! Hoocudanode hackers would use backdoors?!

Fortunately, one government is clued in: the Dutch grok the risks inherent in government-mandated backdoors and are willing to support better encryption.

'Netflix and chill' in a new Volvo
I've never been offered a compelling case for self-driving cars. Every excuse offered – like greater fuel efficiency and reduced traffic jams – only make greater arguments for more and better public transportation.

The latest excuse: watching streaming video

while not-driving is Volvo's rationalization for developing automotive artificial intelligence.

I'm not alone in my skepticism. I suspect Isaac Asimov is rolling in his grave.

US Govt sues pollution-cheater VW – while GOP Congress seeks bailout for VW

WHAT?! Is this nuts or what? A foreign car company deliberately broke U.S. laws, damaging the environment while lying to consumers and eating into U.S.-made automotive market share. The Environmental Protection Agency filed suit against Volkswagen for its use of illegal emissions control defeat systems. The violation of consumers' trust has yet to be addressed.

Thank goodness for the GOP-led House, which stands ready to offer a freaking bailout to a lying, cheating foreign carmaker which screwed the American public. Yeah, that'll fix everything.

Remember conservatives whining about bailing out General Motors during 2008's financial crisis? All of them really need a job working for VW.

Massive data breach affecting 191 million voters – and nobody wants to own up to the database problem

An infosec researcher disclosed last week a database containing records on 191 million voters was exposed. You probably heard about this already and shrugged, because data breaches happen almost daily now. No big deal, right?

Except that 191 million voters is more than the number of people who cast a vote in 2012 or even 2008 presidential elections. This database must represent more than a couple election cycles of voter data because of its size – and nobody's responding appropriately to the magnitude of the problem.

Nobody's owning up to the database or the problem, either.

Here's a novel idea: perhaps Congress, instead of bailing out lying, cheating foreign

automakers, ought to spend their time investigating violations of voters' data – those folks that put them in office?

Any member of Congress not concerned about this breach should also avoid bitching about voter fraud, because hypocrisy. Ditto the DNC and the Hillary Clinton campaign.

Whew, there it is, another mark on the 2016 resolution checklist. Have you checked anything off your list yet? Fess up.

OBAMA'S TERRORISM CANCER SPEECH, CARTER'S MALAISE SPEECH

The right wingers who insist on calling any attack by a Muslim "terrorism" – who insist on tying the San Bernardino attack to ISIS, even in the absence of evidence – do it to prioritize the fight against Islamic terrorists over all the other ills facing America: over other gun violence, over climate change, over the persistent economic struggles of most Americans. Theirs is a profoundly unpatriotic effort to put war over every other policy priority, even far more pressing ones. That stance has led to a disinvestment in America, with real consequences for everyone not getting rich off of arms sales.

Last week, President Obama capitulated to these forces, giving a speech designed to give the attack in San Bernardino precedence over all the other mass killings of late, to give its 14 dead victims more importance over all the other dead victims. Most strikingly, Obama called attacks that aren't, legally, terrorism, something his critics have long been demanding.

It is this type of attack that we saw at Fort Hood in 2009; in Chattanooga earlier this year; and now in San Bernardino.

And he lectured Muslims to reject any interpretation of Islam that is “incompatible” with “religious tolerance.”

That does not mean denying the fact that an extremist ideology has spread within some Muslim communities. This is a real problem that Muslims must confront, without excuse. Muslim leaders here and around the globe have to continue working with us to decisively and unequivocally reject the hateful ideology that groups like ISIL and al Qaeda promote; to speak out against not just acts of violence, but also those interpretations of Islam that are incompatible with the values of religious tolerance, mutual respect, and human dignity.

Not only does this give too little credit for the condemnation Muslims have long voiced against terrorist attacks, but it holds Muslims to a standard Obama doesn't demand from Christians spewing intolerance.

It was a horrible speech. But this line struck me.

I know that after so much war, many Americans are asking whether we are confronted by a cancer that has no immediate cure.

In context, it was about terrorism.

I know we see our kids in the faces of the young people killed in Paris. And I know that after so much war, many Americans are asking whether we are confronted by a cancer that has no

immediate cure.

Well, here's what I want you to know:
The threat from terrorism is real, but
we will overcome it

But, particularly coming as it did after invoking dead children, it shouldn't have been. Aside from those whose own kids narrowly missed being in Paris, why should we see our kids in the faces of the young people killed in Paris, rather than in the faces of the young people killed in the Umpqua Community College attack or the over 60 people under the age of 25 shot in Chicago between the Paris attack and Obama's speech? If we were to think of a cancer with no immediate cure, why wouldn't we be thinking of the 20 6-year olds killed in Newtown?

We have a cancer, but it's not terrorism. And it's not just exhibited in all our shootings. It is equally exhibited in our growing addiction rates, in the increasing mortality in some groups. Obama gave the speech, surely, to quiet the calls from those who demand he address terrorism more aggressively than he address the underlying cancer.

Obama's horrible, flatly delivered speech made me think – even as I was watching of it – of that far more famous malaise speech, delivered by Jimmy Carter, 36 years ago.

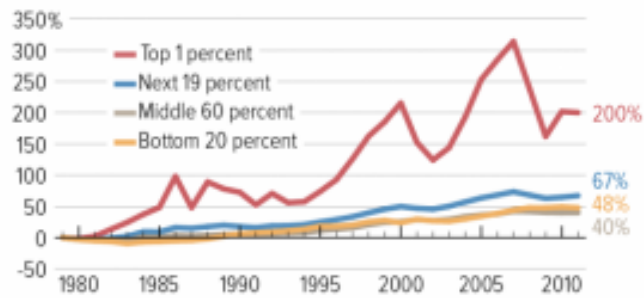
Carter's malaise speech, after all, was offered at the moment so much of the current malaise, the cancer, started. Inflation-adjusted wages for the middle class had already peaked, 6 years earlier. That was the moment when the rich and the super-rich started running off with greater and greater portion of the benefits of America's productivity.

FIGURE 2



Income Gains at the Top Dwarf Those of Low- and Middle-Income Households

Percent change in real after-tax income since 1979



Source: Congressional Budget Office

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And the overthrow of our client dictator in Iran months earlier would set off our decades-long dance with Islamic extremists. Indeed, just 12 days before Carter delivered what would be dubbed the malaise speech, he authorized covert support for what would become the *mujahadeen* in Afghanistan. Our entanglement with the Saudis – and with it our refusal to ditch our oil addiction – has disastrously governed much of our foreign policy since, even while the petrodollar delayed the recognition that our economy isn't working anymore, not for average Americans.

Carter correctly diagnosed his moment. After making an effort to hear from Americans from all walks of life, he recognized that people believed – correctly, we now know – that the future might bring decline, not progress.

The erosion of our confidence in the future is threatening to destroy the social and the political fabric of America.

The confidence that we have always had as a people is not simply some romantic dream or a proverb in a dusty book that we read just on the Fourth of July.

It is the idea which founded our nation and has guided our development as a people. Confidence in the future has

supported everything else – public institutions and private enterprise, our own families, and the very Constitution of the United States. Confidence has defined our course and has served as a link between generations. We've always believed in something called progress. We've always had a faith that the days of our children would be better than our own.

Our people are losing that faith, not only in government itself but in the ability as citizens to serve as the ultimate rulers and shapers of our democracy. As a people we know our past and we are proud of it. Our progress has been part of the living history of America, even the world. We always believed that we were part of a great movement of humanity itself called democracy, involved in the search for freedom, and that belief has always strengthened us in our purpose. But just as we are losing our confidence in the future, we are also beginning to close the door on our past.

In a nation that was proud of hard work, strong families, close-knit communities, and our faith in God, too many of us now tend to worship self-indulgence and consumption. Human identity is no longer defined by what one does, but by what one owns. But we've discovered that owning things and consuming things does not satisfy our longing for meaning. We've learned that piling up material goods cannot fill the emptiness of lives which have no confidence or purpose.

The symptoms of this crisis of the American spirit are all around us. For the first time in the history of our country a majority of our people believe that the next five years will be worse than the past five years.

He saw the gap growing between Washington's policy wonks and the people they purportedly served.

Looking for a way out of this crisis, our people have turned to the Federal government and found it isolated from the mainstream of our nation's life. Washington, D.C., has become an island. The gap between our citizens and our government has never been so wide. The people are looking for honest answers, not easy answers; clear leadership, not false claims and evasiveness and politics as usual.

What you see too often in Washington and elsewhere around the country is a system of government that seems incapable of action. You see a Congress twisted and pulled in every direction by hundreds of well-financed and powerful special interests. You see every extreme position defended to the last vote, almost to the last breath by one unyielding group or another. You often see a balanced and a fair approach that demands sacrifice, a little sacrifice from everyone, abandoned like an orphan without support and without friends.

36 years ago, Carter saw that the nation was at a turning point, a moment where it could choose to continue down the path it was (and remains on) or come together again.

We are at a turning point in our history. There are two paths to choose. One is a path I've warned about tonight, the path that leads to fragmentation and self-interest. Down that road lies a mistaken idea of freedom, the right to grasp for ourselves some advantage over others. That path would be one of constant conflict between narrow interests ending in chaos and immobility. It is a certain route to

failure.

All the traditions of our past, all the lessons of our heritage, all the promises of our future point to another path, the path of common purpose and the restoration of American values. That path leads to true freedom for our nation and ourselves. We can take the first steps down that path as we begin to solve our energy problem.

There are parts of Carter's speech that grate, now. Given his singular focus on energy independence, he pushed hard for coal and shale oil exploitation. Carter's endorsement of saying something nice about America dismisses the possibility some introspection about America's mistakes was in order.

Moreover, some areas of strength, the areas where Carter believed America would endure, have not.

I do not mean our political and civil liberties. They will endure. And I do not refer to the outward strength of America, a nation that is at peace tonight everywhere in the world, with unmatched economic power and military might.

We still have unmatched military might and the largest economy, but that hasn't brought us peace or respect for civil liberties. Instead, the monster Carter and his advisor Zbigniew Brzezinski first unleashed led us to double down on our own malaise, one which led, after many years, to Obama's cancer speech.

And while the initial response to the speech was quite positive, Carter squandered the value of the speech.

Obama was, in my opinion, wrong to capitulate to those who want to focus singularly on terrorism rather than on America's problems more

generally. Because both here and abroad, our failure to address the malaise Carter identified decades ago remains the more critical problem.

TEN BILLION: A KICK IN THE ASS WE'VE NEEDED

[Note: You can join Professor Stephen Emmott for a @reddit AMA TODAY Friday 04-DEC-2015 at 4:00 pm (UK) / 11:00 am EST.]

If we learned a cataclysmic, extinction-level event was hurtling toward our planet, how would we respond? How should we respond if we know we can minimize the threat?

This is in essence the question asked of us by *Ten Billion*, a film based on Professor Stephen Emmott's eponymous book. The film premieres this Saturday at 22:00 UTC on SkyTV.

I was fortunate to screen *Ten Billion* recently. Crafted by director Peter Webber, it deftly evokes *Koyaanisqatsi* (1982), its name based on the Hopi word for "life out of balance." *Ten Billion* similarly shows us a world even more off kilter, its resources relentlessly consumed by humans. Where *Koyaanisqatsi*'s Philip Glass score was reflective and elegiac, *Ten Billion*'s Alex Heffes' score underlines the mounting urgency of crises.

These crises are many, pegged directly to population growth and its corresponding rate of consumption. The film's use of a timeline depicting past and future projections of population are effective, like watching the tipping point of a virus infecting its host.

Effective, too, are comparisons between recent and archival photos depicting the changes

wrought by humans. Evidence of glaciation loss is horrific, as one example.

Photos of earth from the International Space Station remind us that we are all in this together. There is no escape, no way around this; this is home, and we must work together to save it.

My sole critique is about the diversity of "climate migrants" – so-called in the film, but we know now that many who flee political instability are really "climate refugees." *Ten Billion* depicts the plight of peoples affected most by climate change. Most live closer to the equator, and are therefore darker skinned. They have been too easily ignored by light-skinned northern cultures. We see that now with the response to Syrian refugees, whose home country began to fall apart due to severe drought long before overt military action began against Bashar al-Assad's regime and ISIS.

We also see the same blindness in western response to world-record typhoons Bopha, Haiyan, Hagupit, Koppu hitting the Philippines year after year; cyclone Pam nearly wiping away Vanuatu this past March; and the combination of severe drought and catastrophic flooding affecting Chennai, India even now. There is little if any news coverage here in the U.S., and a nominal amount in the U.K. and EU, as if Asians and Pacific Islanders don't even exist though they number in the billions. We ignore our role in exporting not only manufacturing jobs but associated air pollution to India and China.

Ten Billion would have been more effective holding a mirror up to the pale faces of northern climes, forcing them to see they, too, are affected. Whites fled both New Orleans and the Gulf Coast ahead of hurricanes like Katrina. They fled the coast of New Jersey and New York after Hurricane Sandy – some who stayed and returned to the affected area are still dealing with post-storm damage years later. There will be more internal climate refugees again whenever

the next Category 4 or 5 hurricane hits U.S.

And there will be refugees from drought, when the need for water in states like California finally exceeds the ability of other states to sell and ship enough to meet the shortfall. We are not prepared to deal with this generation's version of the Okies fleeing a new Dust Bowl.

Until the west – especially the U.S. based on its consumption habits and political reach – realizes its own pale skin is invested in these crises, it may continue to look the other way while making idle greenwashed gestures like COP21 in Paris this week.

I am on the fence about Emmott's understatement about his own background in this film. If he had been more explicit about his role as a scientist, would the public take his plea in *Ten Billion* more seriously?

It's important to note this film may be part of a growing trend – scientists bypassing the suffocation of politicized corporate media, in order to reach the public.

We've seen this recently with the op-ed by NASA Jet Propulsion Laboratory/Caltech senior water scientist Professor Jay Famiglietti, warning California only had one year of water left in its reservoirs. Famiglietti didn't wait for a report issued from either NASA or academia to filter its way into the stultifying news reporting process. He cut out the middle men and wrote an op-ed for the Los Angeles Times to convey urgency and effect immediate action.

Some will criticize this film as expository and hortatory, failing to provide solutions to the crises we've created. This is not that film. This is not meant to guide us toward help, when so many other scientists have already told us for decades what is wrong and what action we must take to minimize the threat to our planet and ourselves.

This film is meant to be a much-needed kick in the ass, to propel us to action appropriate to a

cataclysmic, extinction-level event.

Because as Emmott says, in concise terms familiar to civilians and scientists alike, we're fucked if do not take immediate, appropriate action.

You can join Professor Emmott for a @reddit AMA TODAY Friday 04-DEC-2015 at 4:00 pm (UK) / 11:00 am EST. Emmott also has an op-ed today in The Guardian.