
# “You’d Better Get My Loot, That’s All I Know”

## Detroit Political Corruption, Hillary Clinton and the Flint Water Crisis

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The 92ers

"You'd better get my loot; that's all I know."
Detroit Political Corruption, Hillary Clinton and the Politicization of the Flint Water Crisis

Salient Points

- Flint River water was a valid source of raw water for Flint, Michigan
- The Flint River was Flint's primary source of water when Flint was much larger (1960s)
- Detroit, through the Detroit Water and Sewerage Department, (DWSD), provides water to communities throughout southeastern Michigan. Flint received water from DWSD
- In spite of being adjacent to a large freshwater lake, DWSD water is very expensive
- Widespread graft and political corruption in Detroit play a key role in DWSD's high cost
- Detroit city government was deeply in debt. However, because it provided water to other cities, there was a lot of money in DWSD. Detroit politicians tried to steal all of it.
- As economic circumstances in Flint declined, the cost of water became a larger concern
- Eventually the cost of water from Detroit became such an acute problem, that in March 2013 the Flint City Council voted to join the Karegnondi Water Authority (KWA)
- The KWA was building a pipeline from Lake Huron, and this would be Flint's future source of water (DWSD also gets its water from Lake Huron)
- Flint's decision to join the KWA came two weeks after a large DWSD corruption trial
- Flint needed to obtain water from the Flint River while the KWA pipeline was built
- Flint needed to modify its water treatment plant to treat Flint River water
- Soon after switching to the Flint River, there were many complaints about water quality
- Many of these involved discoloration, but state officials identified high bacteria levels
- State officials later identified unacceptably high levels of "TTHM," a carcinogen
- The high TTHM prompted Flint to hire a consultant to review water treatment operations
- Several recommendations were made; the one related to TTHM was soon implemented
- After the consultant's report, the Flint city council voted to return to DWSD water
- The concern was the time to implement the consultant's recommendations, *not lead*
- Flint's emergency manager refused to allow the city to return to DWSD water
- The vote to return to DWSD water was in March 2015. The previous month high lead levels had been found in the water at several Flint households
- Lead in drinking water almost always comes from the system and not the treatment plant
- High lead levels at a few locations in a large system don't necessarily indicate a problem
- The government's "lead and copper" rule requires testing at "high risk" sites
- Flint had been monitoring water for lead but may not have selected proper high risk sites
- In October 2015 Michigan's governor ordered Flint to return to DWSD water
- The Flint water crisis involved complicated regulations, and the difficulty associated with switching to the Flint River was exacerbated by a very cold winter (water main breaks)
- Hillary Clinton used the Flint crisis for grandstanding & to salvage her political career
- With her eye to an upcoming primary, she implied the crisis was created by racial animus
- Hillary Clinton conveniently ignored the technical nuances of the regulations, the economics of Flint's decision to join the KWA, the collapse of the auto industry and the large role Detroit – read "exclusively Democratic" – corruption all played in the crisis.

**September 04, 2001** – Jeffrey G. Collins selected as US Attorney for Eastern Michigan
President Bush selects Collins as US attorney for eastern Michigan, including Detroit and Wayne County. Collins replaces Saul Green. Before serving as attorney general, Green had been Wayne County corporation counsel for local political heavyweight Ed McNamara. In contrast, Collins, although a native Detroiter and Michigan judge, had never worked in local politics.

**November 2001** – Kwame Kilpatrick elected mayor of Detroit
The fox is placed in charge of the henhouse.

**December 2001** – Longtime Wayne County executive announces he won't run for re-election
Ed McNamara had been Wayne County executive since 1987. Wayne County is the largest county in Michigan and includes Detroit. McNamara was a power broker in Michigan politics and had nurtured the careers of many politicians including Bernard Kilpatrick and Jennifer Granholm. Bernard Kilpatrick, Kwame Kilpatrick's father, served as McNamara's chief of staff while Granholm served as Wayne County's corporation counsel. Granholm was later elected governor. Not only was Kwame Kilpatrick's father a political mover and shaker in Detroit, his mother, Carolyn Cheeks Kilpatrick, served in the US House of Representatives from 1997-2011.

**November 22, 2002** – FBI raids Wayne County Executive Offices
The Wayne County political machine had been – and would continue to be – subject of speculation over all sorts of pay for play schemes related to the Detroit airport. (The main terminal at the Detroit airport is the "Edward McNamara Terminal.") A local newspaper report of the raid claimed that as FBI agents poured through Wayne County records, county executive McNamara looked like an "elderly turtle caught in the headlights of a semi."[1] While never proven in a court of law, the pay for play schemes suspected at the airport likely provided a template for what the Kilpatrick's had in mind for the Detroit Water and Sewerage Department (DWSD). The FBI would revisit Wayne County in October 2011.

**November 2005** – Kwame Kilpatrick re-elected mayor of Detroit
The fox is still in charge of the henhouse.

**November 2007** – Monica Conyers, "You'd better get my loot, that's all I know."
Conyers - the wife of long-time Detroit area congressman, John Conyers, and the president of the Detroit City Council – famously instructs her aide, Sam Riddle, "You'd better get my loot." The "loot" was part of a shakedown of a local restaurant owner. More importantly to the Flint water crisis, Conyers also accepted bribes to influence the outcome of a massive sludge hauling contract with the DWSD. The bribes were offered by Synagro, and Synagro was eventually awarded the $1.1-billion contract. The conversation between Riddle and Conyers – which reached legendary status in Detroit - was wiretapped and recorded by the federal government.[2] Conyers would plead guilty to corruption and was sentenced to 37-months in jail.

**March 05, 2008** –Bernard Kilpatrick offers sage advice on the nuances of bribing officials
Bernard Kilpatrick meets with James Rosendall of Synagro Michigan and upbraids him for Rosendall's clumsy attempt to pass him $2500 in cash at a Detroit restaurant. Among the myriad things Bernard Kilpatrick was ignorant of was Rosendall was a cooperating witness in the government's investigation of the "Kilpatrick Enterprise." Rosendall secretly records their conversation which proceeds, in part, as follows;

> *(Kilpatrick to Rosendall) "I am pissed about the other thing. I'm talking, you talking, and then you take that twenty-five hundred and hand it to me in a restaurant, like this, with (unintelligible name) sitting right there….I don't know why you do shit like that…I don't ever want anybody to see me take some money."*[3]

**September 04, 2008** – Kwame Kilpatrick pleads guilty to felony obstruction of justice
Mayor Kilpatrick pleads guilty to obstruction of justice and is sentenced to four months in jail. The charges stem from Kilpatrick lying under oath during a wrongful termination lawsuit against the city brought by two police offers – Gary Brown and Harold Nelthrope.

**September 18, 2008** – Kilpatrick resigns as mayor of Detroit

**January 27, 2009** – Synagro Michigan executive pleads guilty to bribery charges
James Rosendall of Synagro Michigan pleads guilty to offering bribes as part of his successful effort to land Synagro a $1.1-billion contract to haul sludge for Detroit and DWSD. Rosendall and bribes related to DWSD work will figure prominently in the trials of local political heavyweights Monica Conyers, Bernard Kilpatrick and Kwame Kilpatrick.

**January 29, 2009** – Detroit & Synagro cancel $1.1-billion contract at center of Conyers scandal
At this point, only Conyers – and not the Kilpatrick's – is embroiled in the Synagro bribery scandal. However, behind the scenes, the FBI is preparing an indictment against the Kilpatrick's and others that alleges widespread corruption in the awarding of DWSD contracts.

**February 03, 2009** – Kwame Kilpatrick released from jail
Kilpatrick had served 99-days of his four months sentence and was released early for good behavior. Kilpatrick serves his probation in Texas.

**March 10, 2010** – Monica Conyers sentenced to 37-months for bribery in the Synagro scandal

**May 25, 2010**- Kwame Kilpatrick sentenced to 18-months in jail for violating his probation

As part of his sentence for pleading guilty to obstruction of justice, Kilpatrick was also required to pay $1-million in restitution. Kilpatrick was found guilty of hiding his assets to avoid paying restitution and returned to jail.

**December 15, 2010** – Federal indictment against the "Kilpatrick Enterprise"
The federal government files charges against Kwame Kilpatrick, Bernard Kilpatrick, Victor Mercado, DWSD director, and a local businessman, Bobby Ferguson. The "enterprise" was charged with "financially enriching Enterprise members, associates and their families by using the power and authority of Kwame Kilpatrick's position as a member of the Michigan House of Representatives and Mayor of the City of Detroit to commit extortion, bribery and fraud."[4]

The enterprise was essentially an extortion racket. In it, Kwame Kilpatrick used his position as DWSD special administrator to force contractors to include companies controlled by Bobby Ferguson, a childhood friend of Kilpatrick's, in their contracts with DWSD. In addition, Kilpatrick's father, Bernard, established a company called "Maestro Associates," which seemed to do little more than shakedown contractors seeking business with DWSD for access to his son.

**October 19, 2011** – FBI serves a "slew of subpoenas"[5] at Wayne County headquarters
Robert Ficano succeeded Ed McNamara as county executive in 2002. Recall that the FBI raided the Wayne County offices in 2002, around the time McNamara retired. A new administration in Wayne County apparently did not convince the FBI that things in Wayne County had changed very much. The FBI's interest in Wayne County was prompted by a $200,000 severance payment to a county employee, Turkia Mullin, who then became CEO of the Detroit Airport – (famous for its Ed McNamara Terminal). The FBI's investigation into Wayne County corruption ultimately led to several officials being convicted of various crimes including bribery and obstruction of justice. Among those sentenced and their sentences were Michael Grundy (7-1/2 years), Tahir Kazmi (57-months), Zayd Alebban (41-months) and David Edwards (12-months). Ficano was never charged, but by 2014 voters clearly had enough. The incumbent Ficano finished fifth in the Democratic primary with just 6% of the vote.

**January 11, 2012** – DWSD files $60-million suit as a result of Kilpatrick corruption probe
The DWSD sues several contractors implicated in the Kilpatrick indictment. The size of the suit gives some idea of the size of the fraud perpetrated by Kilpatrick and his cohorts. To put some perspective on the sheer size of the Kilpatrick fraud and its significance to the subsequent Flint water crisis, Flint paid the DWSD about $13-million for the water it used from Detroit.[6]

**January 2013** – Former New Orleans mayor Ray Nagin charged with corruption
Another large city - long-suffering under a thoroughly corrupt, local one-party political machine - is sent reeling by charges brought against a former mayor. Nagin was mayor when Hurricane Katrina struck the city, and was accused of using his position to profit from the rebuilding.

**March 11, 2013** – Kwame Kilpatrick and "the enterprise" found guilty of corruption
The "Kilpatrick Enterprise" is routed by the federal government. Kwame Kilpatrick receives a sentence of 28-years for his role in the corruption scandal. Bobby Ferguson is sentenced to 21-years. Millions of dollars – desperately needed to maintain the water system in Detroit, Flint and elsewhere – have been lost to political corruption; corruption *exclusively* perpetuated by life-long Democrats. Hillary Clinton's subsequent politicization of the Flint water crisis for personal political gain completely ignores the huge role Detroit corruption played in the crisis.

Comment: Here is FBI Special Agent Robert Beekman commenting to CNBC on the scale of the fraud perpetuated by Kwame Kilpatrick and Bobby Ferguson, *"There is absolutely no way to say exactly how much money was paid* (to Mayor Kilpatrick). *But as far as contracts that were extorted, and that shouldn't have gone to Ferguson but for criminal activity, the answer is $73-million."* Of Bernard Kilpatrick – maestro, protégé of political boss Ed McNamara, and work colleague of Hillary Clinton surrogate Jennifer Granholm,[7] - Beekman said, *"If Bernard Kilpatrick came and knocked on your door and suggested that you hire him, there was always the implied reality that if you didn't pay him, someone else would."* In a grotesquely unfair ruling, Bernard Kilpatrick only received a sentence of 15-months for tax evasion. The jury was unable to reach a verdict on whether Bernard Kilpatrick was guilty of extortion and racketeering like his son. Bernard Kilpatrick's sentence should have been much longer.

**March 25, 2013** – Flint city council votes to join Karegnondi Water Authority (KWA)
Two weeks after Kwame Kilpatrick and the "Kilpatrick Enterprise" are found guilty, the Flint city council votes to leave the DWSD and obtain water from the KWA. The vote is 7-1 and the lone "no" vote was to source water from the Flint River. The reason for switching to the KWA was cost. In spite of Detroit being adjacent to one of the *largest sources of fresh water in the world*, water from Detroit was very expensive. Flint simply could no longer afford it. The KWA was building a pipeline from Lake Huron and switching to the KWA was considered more economical in the long run. The recent scandal involving the millions of dollars of extorted DWSD contracts most likely also played a role in the vote's outcome – at least it should have.

**March 27, 2013 –** Fed oversight of the DWSD ends after 35-years
Federal Judge Sean Cox releases DWSD from federal oversight. In 1977 – after multiple violations of the Clean Water Act, (CWA), and its National Pollution Discharge Elimination System (NPDES) permit – local control of the DWSD was removed by a federal judge. As part of the federal oversight of DWSD, it was standard practice to place the mayor of Detroit in control of DWSD as its "special administrator." Ironically then, it was the federal government's takeover of DWSD in the interest of ensuring DWSD compliance with its clean water permit requirements that allowed Kwame Kilpatrick to obtain almost total control over DWSD. As a

result of the rampant corruption spawned by the Kilpatrick administration, the ability of the DWSD to operate within its permit limits in the future would be undermined.

Comment: In an interview with CNBC's "American Greed," FBI Special Agent Robert Beekman said of the combination of Kilpatrick being placed as "special administrator" of DWSD and the sheer volume of contracts issued by DWSD, *"The pieces were there. He had much more power with water contracts than he did in other areas of city government."*

**April 17, 2013** – DWSD gives notice of termination to Flint (effective 1-year later)
DWSD plays hardball with Flint and doesn't offer to work with Flint in their transition to another water source. DWSD still hopes to retain Flint as a customer for water services.

**April-May 2013** – DWSD offers Flint price reduction but only guarantees prices for one year
The DWSD, anxious to keep Flint as a customer and to undermine the KWA, offers large price reductions for water and sewerage to Flint. The reductions would essentially provide water at prices below those anticipated from the KWA. However, the lack of any sort of guarantee beyond the first year made the offer meaningless to Flint.[8]

**April 24, 2013** – Synagro files for bankruptcy

**July 18, 2013** – Detroit files for bankruptcy, the largest municipal bankruptcy in the US
A little over four months after the Kilpatrick Enterprise goes down in flames, the city of Detroit goes down and collapses into bankruptcy.

**February 12, 2014** – New Orleans mayor Ray Nagin found guilty on nearly all counts
Former New Orleans mayor Ray Nagin is found guilty on twenty out of the twenty-one charges against him. Nagin's corruption, like the Kilpatrick Enterprise's, was associated with influence peddling and pay for play schemes; the veritable bread and butter of big city political corruption everywhere. Unlike the Kilpatrick's corruption in Detroit – which had a direct impact on the future Flint water crisis – Nagin's corruption came in the aftermath of Katrina. Nagin's corruption was spawned by the huge amounts of money pouring in to New Orleans after Katrina.

Comment: Hurricane Katrina was politicized in much the same way the Flint water crisis would be. In particular, in both cases long-running contributors to the crises were completely ignored. These contributors were not ignored out of simple ignorance; instead they were ignored to score cheap, political points. As far as the post-hurricane chaos in New Orleans is concerned, the most significant contributors were the result of mistakes many years in the making. Specifically, the floodwalls at the London Avenue and 17th Street canals were ineptly designed. The failure of just these two floodwalls – which were built many years before Katrina – caused much of the flooding in downtown New Orleans.[9]

Rather than recognizing this politically unpalatable fact, much of the national media, political agitators and numerous politicians blamed President George Bush for the flooding of New Orleans. The argument here is not that the federal response to Katrina was perfect or immune from criticism. Rather, the argument is that once much of New Orleans was under water, any government response to help the people trapped in the city was sure to be compromised. In general, this sort of sober analysis is anathema to career politicians anxious to score political points. It is even more out of style with the type of politicians willing to use an enormous tragedy for political theatre and grandstanding. As events around the Flint water crisis would show, Hillary Clinton would prove to be exactly the type of politician to twist some facts and ignore other facts to take advantage of a tragedy for political purposes.

**April 25, 2014** – Flint River water is now the source of water for Flint, Michigan
The Flint River had been used as Flint's water source in the 1960's when Flint was much larger. The return of the Flint River as a source of water required Flint to update and invest in its water treatment plant.

**July 2014** – Start of first 6-month monitoring period for lead
The difficulty in monitoring for lead in a municipal water system is lead is almost never found in the water leaving a municipal water treatment plant. Instead, when lead gets in drinking water it typically does so in the final distribution of water to a customer. Because of the tremendous variations that exist in the materials of construction used in pipes and fixtures in a city or town, the propensity of a water system to generate lead in drinking water varies tremendously as well. Not only does the likelihood vary tremendously from one city's water system to another's, the likelihood also varies from one house to another house in the same system. The testing protocol for the EPA's "lead and copper rule" reflects this variation and requires that water samples be taken from 100 "high risk" sites. High risk sites are those that use lead containing materials for pipes or other hardware. If lead concentrations in water are found above the action level, 15-parts per billion, (ppb), in more than 10% of the samples, then remedial actions are required.

For many years lead was widely used in water systems. Lead has many features that made it well suited for use in piping systems. Lead was soft and easily bent into shapes, and didn't corrode as easily as steel. Perhaps the best reflection of how widespread the use of lead was in drinking water systems is the Latin name for lead, *plumbum.* (Lead's symbol on the periodic table is Pb.) However, over time the concerns associated with lead's safety grew. As early as the 1920s there were articles and studies that showed the risks of using lead in water systems. However, it was not until 1986 and the passing of amendments to the Safe Water Drinking Act that lead could no longer be installed in water systems. (Long before then however, many water systems had already stopped using lead in drinking water systems.)

From a purely practical standpoint, the dominant influence that the water distribution network has on lead also means that high amounts of lead in a single home or even a small neighborhood don't necessarily indicate a problem for the entire water system. Because of the dominant influence that the water distribution network has on lead in drinking water, Peter Grevatt, the director of the EPA's Office of Groundwater and Drinking Water, stated that the lead and copper rule is "one of the most complicated rules we have on the books."[10] As it would apparently turn out, the sites selected as "high risk" sites in Flint may not have met the criteria for high risk sites. Consequently, the test results for lead may have provided artificially low lead readings and not reflected higher lead levels that could exist elsewhere in the system.

**Latter half of 2014 –** Numerous reports of discolored water throughout Flint

**August 2014** – Positive tests for fecal coliform in a half-mile square area in Flint

**September 2014** – Michigan Department of Environment Quality (MDEQ) issues violation
The MDEQ issues a violation to Flint for the presence of e coli bacteria in the water.

**December 2014** – MDEQ issues Flint a violation for TTHM
TTHM is an abbreviation for total trihalomethane.[11] TTHMs are a byproduct of treating water with chlorine and are considered carcinogenic. Because of the issues Flint had with fecal coliform and e coli, the Flint water plant likely increased the amount of chlorine being added to the water. While the "extra" chlorine would have helped suppress these bacteria related problems, the chlorine would also produce an increase in TTHM. The Federal limit on TTHM in drinking water is 80-ppb and the highest reading in Flint was 99-ppb.[12]

**January 2015** – Start of second 6-month monitoring period for lead

**January 2015 –** High TTHM levels reported to public (as required)

**February 2015** – High levels of lead reported in household of Lee Anne Walters
Lee Anne Walters and the lead levels seen in her household's drinking water would be at the center of the now emerging Flint water crisis.

**March 2015** – One of the coldest February's on-record for Michigan finally ends
According to climatologists at the University of Michigan, February 2015 was the third coldest February for Ann Arbor "on record." (Climate records only exist for the last 135 years, so the "record" is limited to the past 135-years).[13] Some idea of the record-setting cold can be gleaned by the fact that on February 20, 2015, the temperature in Flint dropped to -25°F.[14] After the crisis, a senior official in the MDEQ would contend that the very cold winter of 2014-2015 – which produced many water main breaks in Flint – was a "major cause" of the Flint water crisis.

**March 12, 2015** – Veolia issues report on Flint water quality, prompted by TTHM issue
Because of the TTHM violation, Flint hires one of the world's largest water treatment companies to review the operation of its water treatment plant. Among the recommendations in the report was to change the media used with the existing water filters to "granulated activated carbon," (GAC). GAC media can be as much as 50% more efficient at removing organic material from the water than the existing filter media. Because so much more organic material can be removed with the GAC media, significantly less chlorine has to be added as a disinfectant later. The reduction in chlorine addition will then produce lower TTHM levels in the water. The cost of this modification was estimated to be $1.5-million. The report also discusses the impact from "a tremendous number of water line breaks in the last two winters" on water quality, primarily as water quality relates to water discoloration.[15] The report does not discuss lead.[16]

**March – April 2015 -** Emergency Manager will not allow Flint to switch back to DWSD
Flint's city council votes 7-1 to "do all things necessary" to return to DWSD water. The concern the city council was addressing was largely related to the TTHM issue and the time it would take to implement the changes recommended by Veolia in their March 12 report. The resolution does not appear to have been prompted by a concern with lead in the water. Indeed, the sponsor of the resolution, Eric Mays, thought the switch would only last a few months, just long enough for the recommendations in the Veolia report to be implemented. However, the city's emergency manager, Jerry Ambrose, rejected the city council's decision stating,

> *"Flint water today is safe by all standards, and the city is working daily to improve its quality. Users also pay some of the highest rates in the state because of the decreased numbers of users and the age of the system. It is incomprehensible to me that members of the Flint City Council would want to spend more than $12 million a year to the system serving Southeast Michigan, even if Flint rate payers could afford it…If $12-million annually were available for discretionary use, it would be far better spent reducing rates paid by Flint customers and/or modernizing the system."*[17]

**July 2015** – GAC media installed in the water treatment plant filters, TTHM issue solved
With the granulated activated carbon filter media installed, the Flint water treatment plant filters are much more efficient at removing organic material from Flint River water. As a result, less chlorine has to be injected to disinfect the water and the production of disinfection byproducts like TTHM is greatly reduced.

**August 17, 2015** – In a letter, MDEQ requires Flint to "optimize corrosion control"
Because MDEQ's letter to Flint touches on so many of the issues associated with interpreting the "lead and copper rule," (LCR), as well as the complexities of administering the LCR in a large, municipal water system, a large portion of MDEQ's letter will be quoted here;

*"While the City's LCR compliance monitoring has continued to meet action level requirements,* the *LCR also requires all large systems (those serving over 50,000 people) to optimize corrosion control regardless of their 90th percentile lead concentration. One way to demonstrate fully optimized corrosion control treatment is through two consecutive six month rounds of LCR compliance monitoring in which the difference between the 90th percentile level and the highest source water lead concentration is less than the Practical Quantitative Level for lead (0.005-milligrams per liter).*[18] *Since the City did not meet these criteria in both the July-December 2014, and January-June 2015, sampling periods, the City must now recommend a treatment to fully optimize corrosion control treatment within six months in accordance with requirements under Act 399, Administrative Rule 604f (R325.10604f). This recommendation must be provided to our office as soon as possible, but no later than January 1, 2016.*

*However, given the past use of phosphate treatment by the Detroit Water and Sewerage Department (DWSD) to fully optimize corrosion control treatment when the City was a wholesale customer of DWSD, the ODWMA*[19] *recommends the City select this as its recommended treatment option, and begin implementation as soon as possible to address ongoing concerns by customers regarding lead levels within their premise plumbing systems."*[20]

As previously discussed, when lead enters a drinking water supply, it typically does so in the final distribution of water to an individual user or group of users – the "premise plumbing systems" described above. The mechanism is lead leaching out of the pipes and fixtures used to distribute the water to end users. According to The Phosphate Forum of the Americas, from the standpoint of lead and copper, the benefit of treating water with phosphates is as follows;

*"The leaching of lead into plumbing systems can be greatly reduced by introducing water-soluble orthophosphates into potable water systems. At low levels, the phosphates react with the lead and copper and hardness ions (calcium and magnesium) to form an insoluble coating on the internal surfaces of the distribution system. Once this coating is formed, observed lead and copper levels in the drinking water drop rapidly. This effect can be maintained by continued metering of phosphates into the system."*[21]

It is important to realize that at the time the letter was written, the state regulators apparently believed Flint was in compliance with the "action level requirements" of the lead and copper rule. These require the 90th percentile lead level to be less than 15-ppb. (The 90th percentile lead level is the lead level that 90% of the homes in an area will fall below.)

**September 2015** – Study group cautions against drinking water in Flint because of lead
After analyzing 252 water sample kits submitted by Flint residents, a team from Virginia Tech concludes that Flint, Michigan "has a very serious lead in water problem." Approximately 40%

of the "first draw" samples[22] contain more than 5-ppb lead and the 90th percentile lead level is 25-ppb. The 90th percentile lead level that requires action from authorities is 15-ppb.[23] In contrast, the sampling conducted by the local authorities indicates a 90th percentile lead level of 11-ppb, high - but within limits.[24]

The source of the discrepancy between the results of the study group and the local authorities is most likely the result of sampling in different locations. Monitoring water quality in a large municipal system like Flint's, does not simply require monitoring water quality at the water treatment plant. Instead, the quality of the water delivered to the customer is also determined by how the water is distributed to an individual home or business. This is particularly true with lead. When lead is found in drinking water, the origin of the lead is rarely in the raw water or the water that leaves the treatment plant. Testing for lead in a municipal water system requires sampling at "high risk" sites for lead. The theory of course, that if lead levels are acceptable at these high risk sites, then lead levels should be acceptable elsewhere in the system as well.

In their report on water quality for the 2015 calendar year, the City of Flint seemed to recognize potential problems with previously reported results for lead. The city admitted that previous testing for lead may not have been accurate because high risk sites were not sampled as they should have been.

> *"We also wish to openly acknowledge that other water quality data collected during 2015 and included in this annual report may not have accurately measured the condition of Flint's drinking water at the time. Recent events have shown that not all sampling sites used by the City of Flint – Water Treatment Plant for compliance with the lead and copper rule qualified as high risk sites defined in the regulation. Therefore, the compliance results reported by the City likely did not accurately represent the water quality this monitoring is intended to reveal by targeting high risk sites."*[25]

**October 8, 2015** – Michigan Gov. Rick Snyder calls for Flint to go back to DWSD

**October 16, 2015** – Flint switches back to DWSD water

**January 2016** - Great Lakes Water Authority (GLWA) takes control of what used to be DWSD
As part of Detroit's bankruptcy proceedings, Detroit as well as Oakland and Wayne counties agreed to turn over the water department to a new organization, the GLWA. The GLWA will lease the water system from Detroit and operate it. The lease payment for 2016 is $50-million per year plus tens of millions of dollars in pension payments. DWSD will now essentially be a customer of GLWA, and serve as the retail conduit for customers in Detroit and elsewhere to receive water and sewerage services. The executive director of DWSD is now Gary Brown, one of the two police officers wrongly fired by Kwame Kilpatrick.

**February 01, 2016** – "Most qualified presidential candidate ever" ekes out win over socialist
In the closest race in caucus history, Hillary Clinton wins in Iowa by the razor-thin margin of 0.2%. She defeats a septuagenarian socialist, Bernie Sanders, who - up until a few months ago - was hardly known outside of his home state of Vermont.

**February 07, 2016** – Clinton gives speech at Flint church, politicizes crisis for personal gain[26]
Almost four months after Flint returned to DWSD water, Hillary Clinton gives a speech at the House of Prayer Missionary Baptist Church. In her speech, Clinton says of the Flint water crisis – which has already been largely addressed by returning to DWSD water;

> *"This is not merely unacceptable or wrong, though it is both. What happened in Flint is immoral. The children in Flint are just as precious as the children in any other part of America…If what had been happening in Flint happened in Grosse Pointe or Bloomfield Hills,* (two wealthy Detroit suburbs), *I think we all know that we would have had a solution yesterday."*[27]

Comment: Hillary Clinton reads the political tea leaves and apparently decides playing the race card from the bottom of the deck is her best move. After a completely underwhelming pyrrhic victory in Iowa and faced with a crushing defeat in two days in New Hampshire, Hillary Clinton clearly sets her sights on the South Carolina primary on February 27. As Politico noted in its article covering Clinton's speech in Flint, referenced above, it was no coincidence that Clinton spoke to an overwhelmingly African-American congregation. Clinton was clearly looking toward the South Carolina primary where African-Americans would play a large role in determining a winner. Clinton needed a dominant win in South Carolina to get her campaign back on track, and infused racial animus into the Flint water crisis to do so.

In her speech, Clinton seems to indicate that the only reason the crisis occurred is so many of Flint's residents are members of minority groups. She completely ignores the impact of the widespread corruption in Detroit – a city, like most large cities, dominated by Democrats - and the long suspected corruption in Wayne County, another Democrat stronghold. Politically sponsored corruption and incompetence originating in Detroit had played a huge role in the skyrocketing cost of DWSD water for decades. The Kilpatrick scandal was simply Detroit's largest and latest. It was the skyrocketing price of DWSD water – and the fact that it had been skyrocketing for decades - that eventually forced Flint to look for alternate sources of water.

The Flint crisis was, of course, also greatly influenced by the collapse of the auto industry. Membership in the United Auto Workers (UAW) union peaked at around 1.4-million in the early 1970s. Today UAW membership is about 400,000 and includes casino workers. If Flint was still home to tens of thousands of highly paid auto workers, then Flint would have been easily able to afford Detroit water. A significant factor in the collapse of the American auto industry – as well as many of the other heavy, capital-intensive industries the US used to dominate the

world in – were the self-defeating, productivity-sapping "shop rules" and employment policies pursued by a *former* core Democratic constituency, industrial labor unions.[28]

None of this is to say that all government officials performed their duties flawlessly or there were not enormous problems with the transition to the Flint River; there obviously were. (Indeed, several officials from the Michigan DEQ are facing criminal prosecution.)[29] However, it is Hillary Clinton's "selective outrage" that is a problem. For her to claim the Flint water crisis originated in the racial make-up of Flint residents and racial animus, and then to advance this argument for transparently obvious political gain is beyond the pale. As outrageous as her race-baiting strategy was, it was also what many people have come to expect from her. Indeed, the tens of millions of people who didn't vote for "the most qualified candidate ever" because she was a transparently power mad career politician were clearly on to something.

**February 09, 2016** – Hillary Clinton shellacked in the New Hampshire primary
Hillary Clinton loses the NH primary by 22% to Bernie Sanders. No spin can deny the obvious – the results are a disaster. The Clinton campaign is forced to draw a line in the sand through the state of South Carolina. A disappointing performance there could doom her campaign.

**February 27, 2016** – Hillary Clinton salvages her campaign with huge win in South Carolina
Perhaps not surprisingly, an unkempt, red-faced, screaming politician from Vermont didn't translate well to the Deep South. Clinton wallops Sanders 73% - 26%, and the South Carolina primary sets the template for how Hillary Clinton will win the Democratic nomination for president. Sanders never connects with African –American voters and this dooms his campaign.

**April 28, 2017** – DEQ official discusses a "major cause" of the Flint Water Crisis - weather
Bruce Feighner, the director of Michigan's Department of Environmental Quality, Drinking Water and Municipal Assistance Division, cites the very cold winters of 2014 and 2015 as a "major cause" of the crisis; "You can have the most perfect, non-corrosive water in the world – however you choose to define that – and if you have water main breaks, extreme velocities, changes in flow directions; it's going to strip every coating you've created off those pipes over the last several decades. This was a major cause of the event." [30]

Comment: A review of temperature data for Flint in January-February 2015 shows that the city was gripped by record-setting cold. Not only was the weather cold in an absolute sense – the average temperature in February was 12°F colder than normal – the weather remained below freezing for long periods of time. In the data below for Bishop Airport in Flint, there were only a few times in February where the temperature crept above freezing; these temperatures are highlighted in yellow.[31] January also had long stretches of unusually cold weather.

| Bishop Airport - Flint, Michigan | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| January 2015 Temperatures | | | | | February 2015 Temperatures | | | |
| Date | High | Ave | Low | | Date | High | Ave | Low |
| 1 | 31 | 26 | 21 | | 1 | 29 | 23 | 17 |
| 2 | 36 | 30 | 23 | | 2 | 18 | 11 | 3 |
| 3 | 35 | 30 | 24 | | 3 | 25 | 16 | 7 |
| 4 | 34 | 26 | 17 | | 4 | 28 | 19 | 10 |
| 5 | 17 | 11 | 4 | | 5 | 17 | 3 | -12 |
| 6 | 19 | 12 | 5 | | 6 | 29 | 21 | 12 |
| 7 | 14 | 9 | 3 | | 7 | 39 | 32 | 24 |
| 8 | 15 | 9 | 3 | | 8 | 39 | 31 | 23 |
| 9 | 16 | 10 | 3 | | 9 | 23 | 17 | 10 |
| 10 | 17 | 10 | 2 | | 10 | 30 | 17 | 4 |
| 11 | 33 | 25 | 17 | | 11 | 34 | 27 | 20 |
| 12 | 29 | 19 | 8 | | 12 | 26 | 13 | 0 |
| 13 | 18 | 5 | -9 | | 13 | 21 | 7 | -8 |
| 14 | 20 | 1 | -19 | | 14 | 22 | 10 | -2 |
| 15 | 33 | 23 | 13 | | 15 | 2 | -7 | -17 |
| 16 | 33 | 25 | 17 | | 16 | 12 | -4 | -21 |
| 17 | 44 | 30 | 16 | | 17 | 22 | 12 | 2 |
| 18 | 42 | 38 | 34 | | 18 | 16 | 9 | 1 |
| 19 | 35 | 32 | 28 | | 19 | 5 | -3 | -12 |
| 20 | 21 | 29 | 26 | | 20 | 14 | -5 | -25 |
| 21 | 28 | 25 | 22 | | 21 | 29 | 22 | 14 |
| 22 | 31 | 25 | 19 | | 22 | 24 | 13 | 2 |
| 23 | 34 | 25 | 16 | | 23 | 11 | -3 | -17 |
| 24 | 39 | 32 | 24 | | 24 | 24 | 14 | 4 |
| 25 | 36 | 27 | 17 | | 25 | 23 | 12 | 1 |
| 26 | 27 | 19 | 10 | | 26 | 15 | 5 | -6 |
| 27 | 27 | 17 | 7 | | 27 | 19 | 1 | -17 |
| 28 | 32 | 19 | 5 | | 28 | 26 | 11 | -4 |
| 29 | 34 | 30 | 25 | | | | | |
| 30 | 25 | 16 | 7 | | | | | |
| 31 | 33 | 22 | 1 | | | | | |
| Ave: | 28.6 | 21.2 | 12.5 | | Ave: | 22.2 | 11.6 | 0.5 |

The Michigan DEQ has been widely faulted for failings that are believed to have led to the Flint water crisis, especially as the crisis regards lead. Specifically, it has been argued that a corrosion control system was required when the city switched to the Flint River, and the corrosion control system was not installed. Because it wasn't installed, lead leached out of lead plumbing fixtures wherever they existed in the city. Feighner argues that because the very cold winters led to a large number of water main breaks, water was constantly being re-routed in the water system. As larger volumes of water were sent through portions of the system that may have received much less flow previously, corrosion products in the piping may have been shaken loose and protective films on the pipe washed away. Problems such as these would be particularly acute in a system like Flint's that was designed around a much larger population; Flint's population is about one-half of its 1960 level.

From the standpoint of freeze protection and burst water mains, the duration of cold weather is just as important as the absolute low temperature achieved during a cold snap. Recall also that the March 2015 report from Veolia cited the large number of water main breaks as an issue impacting Flint water quality. (There the concern seemed to be around harness and water discoloration, not lead.) Whether the very large number of water main breaks could produce an increase in lead levels in some Flint neighborhoods is doubted by many experts. What does appear valid is that the very cold winter of 2015 exacerbated and complicated water treatment and distribution issues in Flint. Any effort being applied to address the large number of water main breaks, would be that much less effort that could be applied to other problems.

**June 2017** – DWSD's Gary Brown admits to enormous price increases in the past
"Our primary objective coming into DWSD after the bifurcation with the GLWA was to reduce the burden on our customers who have seen the water and sewer rates increase more than 400% in twenty years. That level of increase is unacceptable."[32]

Comment: Using some algebra and logarithms the annual rate of increase for a 400% increase in 20-years can be determined. $A_0$ is the original cost of DWSD water, and $A_{20}$ is the cost of DWSD water after twenty years of DWSD mismanagement and (Democratic) corruption.

$\frac{A_{20}-A_0}{A_0} = 400\% = 4$ (Given)

$A_{20} = 5A_0 \ (Eq.1)$

$A_{20} = A_0(1+r)^t$ (Annual cost increase, t is in years)

$\frac{A_{20}}{A_0} = 5 = (1+r)^t \ (from\ Eq.1)$

$log_{10}(5) = (t)log_{10}(1+r)$

$\frac{1}{t}log_{10}(5) = log_{10}(1+r) \ (t = 20\ years)$

$0.0349 = log_{10}(1+r)$

$10^{0.0349} = (1+r)$

$\boldsymbol{r = 0.084}$ (Annual price increase for DWSD water is 8.4%)

A 400% rate increase over twenty years works out to an 8.4% increase every year for twenty years. The sheer volume of DWSD political corruption and the manifestation of this corruption in high water prices for Flint can be clearly seen in this simple calculation. DWSD mismanagement and (Democratic) corruption can also be seen by observing how much faster the price of DWSD water increased than the price of oil. According to data from the St. Louis Fed, from June 1997 to June 2017, the price of oil increased from $21.15 to $46.10 per barrel, an annual increase of just under 4% - less than half as fast as DWSD water![33]

It is even more illuminating to compare how comparably easy it is for Detroit to access fresh water with how difficult it is for the largest US city, New York City, to access fresh water. Like Detroit, New York City is surrounded by water. Unfortunately for people living in upstate New

York, very little of the water that surrounds New York City is used to provide fresh water to the city. Instead of drawing water from the Hudson River and treating it, New York City exercised its political muscle to draw water from crystal clear mountain streams in upstate New York.[34] Three aqueducts are largely responsible for delivering water to the various reservoirs which then supply water to New York. The aqueducts and the year they were completed are the New Croton (1890), Catskill (1915) and Delaware (1944). Not surprisingly, the newest of these aqueducts, the Delaware, is the largest. According to New York City's Department of Environmental Protection, the Delaware Aqueduct is the world's "longest continuous tunnel." It is 85-miles long, crosses deep underneath the Hudson River and is approximately 13.5-ft in diameter. It provides nearly half of New York City's fresh water supply – 500-million gallons per day.

Building the Delaware Aqueduct was a massive undertaking and maintaining it remains so. The aqueduct has been leaking approximately 35-million gallons of water per day for many years. A large repair project will bypass water around the leaking portions of the aqueduct, which, as luck would have it, are under the Hudson River. This project is currently budgeted to cost $1.5-billion and take around seven years to complete.[35] Of course, the costs associated with building the aqueduct were enormous. In spite of these enormous costs and the great lengths New York went to get water from upstate and the ease with which Detroit is able to tap into the Great Lakes – *one of the largest sources of fresh water in the world* – in 2015, the average cost of water for a household in New York, $153, was within 10% of the price for water in Detroit, $139.[36]

Perhaps an even better indication of what a poor job DWSD did of providing water at a reasonable cost is obtained by comparing Detroit with two other large cities that sit on the Great Lakes - Milwaukee and Chicago. In these cities, the average cost of water per household in 2015 was $73 and $91 respectively.[37] (I don't vouch for the absolute accuracy of these figures. However, because the figures are produced by the same source, they do have considerable value in determining the *relative* cost of water in the cities being discussed.)

Finally, as far as the Flint water crisis is concerned, the cost of water in Detroit was considerably less than the price paid by Flint residents for water. Indeed, it was the belief that users *outside* of Detroit were paying much higher prices than Detroit for water, and essentially subsidizing the cost of water in Detroit that prompted the KWA to be formed in the first place.

List of Abbreviations

CWA — Clean Water Act, a federal regulation that governs the discharge of water from all types of facilities, including municipal water treatment plants. In 1977 – and after repeated violations of the CWA - local control over DWSD was removed by a federal judge. The mayor of Detroit was then placed in charge of DWSD as its "special administrator."

DBP — disinfection by product; the name given to any of a wide array of compounds formed after organic material in water is treated with chlorine or other disinfectants. Among the most important 'disinfection byproducts' is TTHM

DWSD — Detroit Water and Sewerage Department; provided water to Detroit, Flint and most of southeastern Michigan

GAC — granulated activated carbon, a type of filter media. The Flint water treatment plant retrofitted its filters with GAC media to address an issue with TTHM.

KWA — Karegnondi Water Authority; the KWA was comprised of towns and counties near Detroit that received their water from DWSD. After decades of high prices, the KWA was formed to build a pipeline from Lake Huron as an alternative to DWSD.

MDEQ — Michigan Department of Environmental Quality

ODWMA — Office of Drinking Water and Municipal Assistance (part of MDEQ)

NPDES — National Pollution Discharge Elimination System; as part of the CWA, a "point source" that discharges pollutants into a "water of the United States" requires a NPDES permit to do so. The permit will proscribe the limits on the pollutants that can be discharged.

ppb — parts per billion; a measurement of concentration of one substance in another. An example will show just how low a concentration of one part per billion is. The standard eye drop is approximately 0.05-milliliters (ml) in volume. What volume of water corresponds to one ppb with a single eye drop's volume of contamination?

$$0.05 - ml * \frac{cm^3}{ml} * \left(\frac{in}{2.54 - cm}\right)^3 * \frac{1 - gal}{231 - in^3} * 1E09 = 13{,}200 - gallons$$

A concentration of 1-ppb is roughly the same as one eye drop of liquid in 850-kegs of beer (13,200-gallons). Of course this is a very low concentration, and concentrations this low are often seen around anything related to human health.

TTHM — total trihalomethane; There are four primary TTHMs at issue with drinking water, trichloromethane (chloroform), dibromochloromethane, bromochloromethane and tribromomethane. These materials are formed when chlorine reacts with any number of organic materials that could be in the raw water being fed to a water treatment plant.

Endnotes:

[1] Jack Lessenberry, "The nightmare scenario," Detroit Metro Times, December 04, 2002 https://www.metrotimes.com/detroit/the-nightmare-scenario/Content?oid=2175048

[2] Jonathan Oosting, "'You'd better get my loot:' Remembering Monica Conyers as she awaits sentencing," March 10, 2010 http://www.mlive.com/news/detroit/index.ssf/2010/03/youd_better_get_my_loot_rememb.html

[3] https://www.youtube.com/watch?v=_50kd2xocnk

[4] United States District Court, Eastern District of Michigan - Southern Division, Criminal No. CR-10-20403-NGE, http://media.mlive.com/news/detroit_impact/other/kipatrick_indictment.pdf

[5] Nancy Keefer, "Was severance payment a bribe? FBI's investigation of Turkia Mullin could hinge on answer." Crain's Detroit Business, October 20, 2011 http://www.crainsdetroit.com/article/20111020/BLOG097/111029992/was-severance-payment-a-bribe-fbis-investigation-of-ficanos-payment

[6] "The Flint Water Crisis, DWSD and GLWA – Monopoly, Price Gouging, Corruption and the Poisoning of a City," Jeff Wright, Genesee County Drain Commissioner, November 22, 2016, pp. 11-12

[7] Jennifer Granholm was Wayne County corporation counsel from 1994-1998. Bernard Kilpatrick was Wayne County executive Ed McNamara's chief of staff during this time. Granholm's working relationship with Bernard Kilpatrick is not being emphasized because it is contended that she was in on the Kilpatrick's many schemes. Instead, Granholm's relation to Bernard Kilpatrick is being emphasized because of Granholm's prominent role in Hillary Clinton's presidential campaign, and Clinton's subsequent politicization of the Flint water crisis. The frauds perpetuated by Bernard Kilpatrick and his son, Kwame, played an enormous role in the Flint water crisis. In spite of Granholm's presence in the campaign and her first-hand experience with the Kilpatrick's, Clinton never discussed the role local, exclusively Democratic, corruption played in the Flint water crisis.

[8] Jim Lynch, "Late bid failed to avert Flint-Detroit water deal," Detroit News, February 02, 2016, http://www.detroitnews.com/story/news/michigan/flint-water-crisis/2016/02/02/late-bid-failed-avert-flint-detroit-water-deal/79735848/

[9] Another major contributor to the flooding of New Orleans – especially the lower 9th Ward, New Orleans East and suburban St. Bernard parish – was also the result of government fumbling from the distant past. Here, the government fumbling was the creation of an enormous white elephant – the Mississippi River Gulf Outlet. The "Mr. Go" as it was known locally, was a shortcut for barge traffic. Its construction began in the 1950's, but it was never widely used in any of the intervening decades. More importantly, as far as Hurricane Katrina was concerned, Mr. Go allowed huge volumes of salt water into the wetlands that helped buffer New Orleans from storm surge. As the salinity of the water in these wetlands increased, the cypress trees, which formed a natural barrier against storm surge, died. When Katrina hit, some experts argued that Mr. Go then acted as a "hurricane super highway." It provided a conduit to allow storm surge to pour into the heart of New Orleans through the now denuded and defenseless area. Since the storm, Mr. Go has been closed. Also, a $1.1-billion storm surge barrier has been constructed adjacent to now closed Mr. Go to help protect the New Orleans area from storm surge in the future.

[10] Brady Dennis, "The EPA's lead-in-water rule has been faulted for decades. Will Flint hasten a change?" Washington Post, May 5, 2016 https://www.washingtonpost.com/national/health-science/epas-lead-in-water-rule-has-been-faulted-for-decades-will-flint-hasten-a-change/2016/05/04/8d25bb12-0de9-11e6-bfa1-4efa856caf2a_story.html?utm_term=.beea6f8f417c

[11] TTHMs include trichloromethane (chloroform), dibromochloromethane, bromochloromethane and tribromomethane. These materials are formed when chlorine reacts with any number of organic materials that might be in the raw water fed to a water treatment plant. More generally, TTHMs are classified as a "disinfection byproduct," DBP, and have become an increasingly large concern in water systems throughout the country.

[12] Joan B. Rose, PhD, "TTHM in Drinking Water: The Flint Michigan Story, a Lesson for us All." Water Quality and Health Council, March 13, 2015, http://waterandhealth.org/safe-drinking-water/drinking-water/tthm-drinking-water-flint-michigan-story-lesson/

[13] Darcie Moran, "February 2015 one of the coldest, snowiest months on record in Ann Arbor," March 01, 2015 http://www.mlive.com/news/ann-arbor/index.ssf/2015/03/february_2015_ranks_3rd_coldes.html

[14] Mark Torregrossa, "At 39-below, Michigan almost as cold as the North Pole," February 20, 2015 http://www.mlive.com/weather/index.ssf/2015/02/-39_this_morning_in_one_michig.html

[15] When water mains break, water has to be rerouted in the system. When water flows through the new paths, it may shake loose debris that had collected in these flow paths. Problems such as this would be especially acute in a city like Flint where the water system was built around a much larger population.

[16] "Flint Michigan Water Quality Report," Veolia, March 12, 2015. Page 2 references the "focus" of Veolia's review as "solving the TTHM problem." Page 5 describes the benefits of the GAC media in the water treatment plant's filters. Page 5 also discusses the impact of the large number of water main breaks on water quality.

[17] Ron Fonger, "Emergency manager calls City Council's Flint River vote 'incomprehensible,'" March 24, 2015, http://www.mlive.com/news/flint/index.ssf/2015/03/flint_emergency_manager_calls.html

[18] 0.005-milligrams per liter is a concentration equal to 5-parts per billion (ppb)

[19] ODWMA - Office of Drinking Water and Municipal Assistance

[20] The link below contains a portion of the MDEQ's letter to Flint dated August 17, 2015. https://www.michigan.gov/documents/flintwater/Plan_for_Optimization_of_Corrosion_Control_514633_7.pdf

[21] The Phosphate Forum of the Americas, "The Use of Phosphates in Water Treatment," http://phosphatesfacts.org/wp-content/uploads/2015/09/The-Use-of-Phosphates-For-Potable-Water-Treatment.pdf

[22] A "first draw" sample is the sample that comes out of the faucet as soon as the faucet is turned on. Considerably different – and better – results can be obtained by allowing the water to briefly run through the faucet before taking a sample. Sampling protocols for water quality will typically require "first draw" samples to be taken.

[23] "Lead test results for water sample by residents," Flintwaterstudy.org, http://flintwaterstudy.org/information-for-flint-residents/results-for-citizen-testing-for-lead-300-kits/

[24] Annual Water Quality Reports for the 2015 Calendar Year, City of Flint

[25] Annual Water Quality Reports for the 2015 Calendar Year, City of Flint

[26] The entire speech can be viewed here, https://www.youtube.com/watch?v=PbNQkhiiqGY

[27] Anthony Restuccia, "Hillary Clinton: 'What happened in Flint is immoral,'" Politico, February 07, 2016 https://www.politico.com/story/2016/02/hillary-clinton-flint-water-218894

[28] This is not an indictment of trade unionism! Germany has an extremely powerful trade union, IG Metall, and is home to many internationally successful companies. A primary reason the German auto workers didn't suffer from the enormous layoffs of their American counterparts is IG Metall didn't have the same adversarial relationship with Audi, BMW, Mercedes and VW that the UAW had with Chrysler, Ford and GM. IG Metall understood its members could never receive high wages from companies that are wallowing in insolvency. The UAW never understood this relationship until it was far too late.

[29] Such a standard doesn't exist for all government officials. If it did, then Hillary Clinton would certainly be taken to task for voting for the second Gulf War and spearheading the intervention in Libya's civil war. Either one of these blunders dwarfs the mistakes made in managing the transition to the Flint River.

[30] Garret Ellison, "Treating river water would not have prevented Flint crisis, DEQ official says," April 28, 2017 http://www.mlive.com/news/index.ssf/2017/04/bryce_feighner_mdeq_flint_wate.html

[31] Weather history for KFNT, February 2015 https://www.wunderground.com/history/airport/KFNT/2015/2/1/MonthlyHistory.html?req_city=&req_state=&req_statename=&reqdb.zip=&reqdb.magic=&reqdb.wmo=

[32] Roz Edward, "Detroit Water Commission approves lowest rate increase in 20-years," Michigan Chronicle online, https://michronicleonline.com/2017/06/21/detroit-board-of-water-commissioners-approves-lowest-combined-water-and-sewer-rate-increase-in-more-than-20-years-at-1-7-percent/

[33] Crude Oil Prices: West Texas Intermediate (WTI) – Cushing, Oklahoma, https://fred.stlouisfed.org/series/DCOILWTICO

[34] The Hudson River adjacent to New York City is part of an estuary and a combination of fresh water and the salt water from New York Harbor. Indeed, when the tide is rising, a portion of the Hudson River will flow backwards. (The native Iroquois called the Hudson, "the river that flows two ways.") For New York City to draw fresh water from the Hudson, water would have to be withdrawn from the river considerably upriver from New York.

[35] Karen Frillman, "Call the Mega-Plumbers" The World's Longest Pipe Needs Fixing," June 16, 2015, WNYC. (Recall that when Flint switched to granulated activated carbon (GAC) media, the cost was $1.5-*million,* 0.1% of the Delaware Aqueduct repair!) https://www.wnyc.org/story/call-mega-plumbers-fixing-longest-pipe-world-/

[36] Bret Walton, "Price of Water 2015: Up 6% in 30 Major U.S. Cities," Circle of Blue, April 22, 2015 http://www.circleofblue.org/2015/world/price-of-water-2015-up-6-percent-in-30-major-u-s-cities-41-percent-rise-since-2010/

[37] Bret Walton, "Price of Water 2015: Up 6% in 30 Major U.S. Cities," Circle of Blue