November 3, 2015

Commission for Environmental Cooperation, SEM Unit
393 St-Jacques Street West
Suite 200
Montreal (Quebec)
H2Y 1N9 Canada
Re: Municipal Wastewater Contaminates Aquifers
Via e-mail: SEM@cec.org [This letter and the enclosed submission contain links to external websites. If cited information within the SEM is no longer available on-line, please contact the submitter.]

One of the US EPA's *National Enforcement Initiatives* is directed at keeping wastewater and contaminated stormwater out of the nation's surface waters. To further this initiative, it takes enforcement action against municipalities with sewer systems which violate the Clean Water Act (CWA).

An alternative which many municipalities select to maintain or achieve compliance with the CWA involves constructing deep-rock tunnels. The tunnels are filled by injection wells which are used to emplace wastewater, often combined with stormwater, into the excavated tunnels. None of the injection wells have Underground Injection Control (UIC) permits which are required by the Safe Drinking Water Act (SDWA) and which ensure that public health and underground sources of drinking water are protected.

Since late 2000, an increasing number of attorneys, geologists, engineers, drinking water well owners, and citizens have become alarmed by the EPA's practice of misleading the public and the Courts when it fails to ensure compliance and enforcement of SDWA/UIC statutes and regulations. This frequently occurs when the EPA is represented by the US Department of Justice in legal proceedings. The EPA is achieving improved compliance with the CWA by knowingly and willfully allowing violations of the SDWA. Improving compliance with the CWA does not excuse non-compliance with the SDWA. EPA and various state rules and regulations under the SDWA prohibit the unpermitted underground injection of wastewater into the subsurface.

The enclosed Submission on Enforcement Matters is a much abbreviated summary of findings. It is intended as the first step toward developing a Factual Record which addresses the US EPA's failure to enforce SDWA/UIC statutes and regulations regarding the unpermitted underground injection of municipal wastewater into subsurface tunnels. Members of the public are entitled to assume that public officials will act in accordance with law**.** *See Buccaneer Point Estates, Inc. v. United States*, 729 F.2d 1297, 1299 (11th Cir. 1984). *Accord*, *Save Our Wetlands, Inc. v. United States Army Corps of Eng'rs*, 549 F.2d 1021, 1027-28 (5th Cir. 1977)).

Sincerely,

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Municipal Wastewater Contaminates Aquifers
Failure of the United States Environmental Protection Agency
To Enforce Statutes and Regulations for Underground Injection Control Permits
A Submission on Enforcement Matters to the Commission for Environmental Cooperation
Under the North American Agreement on Environmental Cooperation

This SEM contains links to the *Electronic Code of Federal Regulations* and other websites.

SECTION A - OVERVIEW

In 1974 Congress enacted the Safe Drinking Water Act (SDWA) of which Part C protects public health and underground sources of drinking water. Part C establishes the Underground Injection Control (UIC) program which prohibits "underground injection" unless authorized by rule or until a permit has been issued under the UIC program. *40 C.F.R. § 144.11*. In 1997, the United States Court of Appeals for the Eleventh Circuit affirmed Congress' intent that the subsurface emplacement of *all* fluids by well injection requires a permit. (Legal Envtl. Assistance Found., Inc. v. U.S. Envtl. Prot. Agency, 118 F.3d 1467, 1474 (11th Cir. 1997), (hereinafter "*LEAF*", *Courtesy Copy*). The UIC program also prohibits the movement of contaminants into underground sources of drinking water (USDW, aquifers with special characteristics, *40 C.F.R. § 144.3*) if the contaminants may cause a violation of any primary drinking water regulation or may otherwise adversely affect the health of persons. *40 C.F.R. § 144.12(a)*; *42 U.S.C. § 300h(d)(2)*.

Assertion: The EPA has established a nationwide and persistent pattern of failing to enforce Part C of the SDWA when it fails to require UIC permits for the *dropshafts*[A1] which local governments use to emplace municipal wastewater (mixtures of domestic sewage, industrial and commercial wastewaters, often combined with stormwater or snow melt) into subsurface tunnels. This frequently occurs when the EPA is represented by the US Department of Justice in legal proceedings. The failure endangers public health, USDWs, and nullifies the monitoring well requirements which provide the public and regulators with data to determine if USDWs are being contaminated (*40 C.F.R. § 144.54*). This *Submission on Enforcement Matters* (SEM) is intended as the first step toward developing of a Factual Record.

Precedent: Historically, the EPA had determined that hydraulic fracturing does not fall within the statutory or regulatory definition of "underground injection". In "*LEAF*", the Court of Appeals found that the EPA's interpretation of the SDWA was inconsistent with the language of the statute (*"LEAF", ¶1*[A2]). The Court held that the subsurface emplacement of *all* fluids by well injection requires a permit. Now, despite *"LEAF"*, the EPA has determined that the subsurface emplacement of wastewater through dropshafts into tunnels does not fall within the statutory or regulatory definition of "underground injection" and refuses to enforce the UIC permit requirements.

About Aquifers: According to the *EPA*[A3], "The most accessible fresh water is stored in shallow geological formations called aquifers and is the most vulnerable to contamination. These aquifers feed our lakes; provide recharge to 41 percent of our streams and rivers, particularly during dry periods; and serve as resources for 89 percent of public water systems in the United States."

SECTION B - LEGAL BASIS

SDWA: In 1974, concerned that drinking water across the country contained unsafe levels of a wide variety of contaminants, the United States Congress passed the Safe Drinking Water Act (SDWA). Part C of the SDWA establishes a regulatory program for the protection of *underground sources of drinking water* (USDW, aquifers with special characteristics). *See* *42 U.S.C. §§ 300h to 300h-8*. This program requires EPA to promulgate regulations that set forth minimum requirements for state underground injection control (UIC) programs. *§300h*. A state may submit to EPA a proposed UIC program that meets these minimum requirements, and receive EPA approval, in order to obtain primary regulatory and enforcement responsibility (primacy) for underground injection activities within that state. *§300h-1(b)*. If the EPA disapproves a State's program or determines that a State no longer meets the requirements of the SDWA, or if a State fails to submit an application, EPA is required to prescribe by rule a UIC program applicable to such State. *§300h-1(c)*. In 1997, the US Court of Appeals, Eleventh Circuit established:

To achieve the statutory purpose of "prevent[ing] underground injection which endangers drinking

water sources," 42 U.S.C. § 300h(b)(1), Congress chose the regulatory strategy of requiring that state programs approved under the UIC regulations "shall prohibit...*any* underground injection in such State which is not authorized by a permit issued by the State (except that the regulations may permit a State to authorize underground injection by rule)." § 300h(b)(1)(A). Thus, it is clear that Congress dictated that *all* underground injection be regulated under the UIC programs. (Emphasis added). An applicant may receive a permit to conduct underground injection activity if the applicant "satisf[ies] the State that the underground injection will not endanger drinking water sources." Id. § 300h(b)(1)(B). Whether a particular activity . . . must be regulated under the UIC programs therefore turns solely on whether such activity falls within the statutory definition of "underground injection." This statutory definition is as follows: "The term 'underground injection' means the subsurface emplacement of fluids by well injection. * * *" 42 U.S.C. § 300h(d)(1). [* * *.]

"LEAF", ¶23[B1] *See* 40 C.F.R. §§ 144.3, 145.2 (defining "underground injection" as "well injection" and "well injection" as "the subsurface emplacement of fluids through a well"). The subsurface emplacement of fluids includes temporary emplacement. *("LEAF", Footnote 10)*[B1] In addition, well injection must be regulated even if the primary use of the well is not the subsurface emplacement of fluids. ("LEAF", ¶24)[B1]. A "well" is "[a] bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system." 40 C.F.R. §§ 144.3, 145.2.

The minimum requirements for UIC programs are contained in 42 U.S.C. § 300h(b), 40 C.F.R. Part 144 *and* Part 145, Subpart B. Among these requirements, the EPA prohibits, and states must prohibit, any "underground injection" unless authorized by permit or rule under the UIC program. 40 C.F.R. §§ 144.11, 145.11(a)(5).

Implementation: The SDWA provides for the UIC regulatory program to be administered directly by the EPA (direct implementation, "DI") or by a state if the EPA approves its UIC program and it receives primacy at which time the EPA retains oversight and final enforcement authority. A state retains primacy until EPA determines that the state UIC program no longer meets the minimum requirements established under the SDWA in which case the EPA can rescind primacy. Whether by DI or primacy, underground injection is prohibited unless a permit has been issued under the UIC program. (40 C.F.R. § 144.11).

Compliance Responsibility: "Any person who performs or proposes an underground injection for which a permit is or will be required shall submit an application to the Director..." 40 C.F.R. §§ 144.31(c), 145.11(a) (10). "An applicant may receive a permit to conduct underground injection activity if the applicant 'satisf[ies] the State that the underground injection will not endanger drinking water sources'". ("LEAF", ¶23[B1], citing 42 U.S.C. § 300h(b)(1)(B)) *See* 40 C.F.R. §§ 144.12(a) ("The applicant for a permit shall have the burden of showing that the [injection activity will not be conducted] in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons.") and 145.11(a)(6) (making §144.12 applicable to state programs). "The statute's precautionary purpose is clear and the 'actual contamination of drinking water is not a prerequisite either for the establishment of regulations or permit requirements or for the enforcement thereof.'" Miami-Dade County v. United States Envtl. Protection Agency, 529 F.3d 1049, 1064 (11th Cir. 2008) (per curiam) (quoting H.R. Rep No. 93-1185, at 32 (1974), *reprinted in* 1974 U.S.C.C.A.N. 6454, 6484).

EPA Enforcement Responsibilities: The EPA is authorized to initiate enforcement action (notice of violation, administrative order, civil action, or criminal action) against any person violating a requirement of an EPA-approved state UIC program or an UIC program prescribed by EPA for a State. § 300h-2. In addition, EPA is authorized to withdraw approval of a State program when that program no longer complies with the requirements of 40 C.F.R. Part 145, and the State fails to take corrective action. § 300h-1(b)(3); 40 C.F.R. § 145.33. Such circumstances include when the State program fails to exercise control over activities required to be regulated under 40 C.F.R. Part 145, including failure to issue permits. 40 C.F.R. § 145.33.

Well Classifications: There are six classes of injection wells, five of which are used for highly specialized purposes. This SEM addresses only Class-V (pronounced "Class Five") injection wells (*40 C.F.R. § 144.80 (e)*). Some, not all, examples of Class-V wells are described in *40 C.F.R. §144.81*.

Exclusion of Authorization by "Rule": The Federal UIC program allows Class-V injection wells to be authorized by "rule", rather than by "application and permit", provided certain conditions are met. *40 C.F.R. § 144.24*. One of these conditions is that the operator must "submit inventory information in a timely manner," i.e., no later than one year after the date of approval or effective date of the UIC program for the State. *40 C.F.R. §§ 144.24(c)(3),144.26(d)*. Therefore, the operation of Class V wells by *owner/operators* who have not submitted timely inventory information is prohibited unless a permit has been obtained. For any DI state, the effective date varies by state and is included in *40 C.F.R. Part 147*. For primacy states, the date is established when their respective primacy programs becomes effective.

Monitoring Well Programs: UIC permits must be obtained before injection well construction begins. However contamination of an USDW cannot be detected until after a project becomes operational. Since the emplacement of wastewater occurs underground, any contamination of an USDW escapes public scrutiny. The data from monitoring reports are public records and the public is entitled to rely upon them in determining whether compliance with the SDWA is occurring. The mechanism for ensuring on-going protection is a monitoring-well program which must be specified in the UIC permit. *(40 C.F.R. § 144.54)*

Permit Process: The process of applying for and obtaining an UIC permit creates the mechanism of enforceable accountability whereby owners/operators, *not the public*, have the burden of demonstrating that their underground injection activity does not threaten public health by endangering USDWs (*40 C.F.R. § 144.12(a)*), (*40 C.F.R. § 144.82(a)*), 42 U.S.C. *§ 300h(b)(1)*. Once issued, a permittee is required to record and report monitoring results upon which the public and regulators rely to determine if USDWs are being contaminated. (*40 C.F.R. § 144.54*). The EPA's failure to require UIC permits eliminates numerous *other protections*[B2] that owner/operators must ensure and also deprives the public of its opportunity to review a draft-permit and submit comments prior to the issuance of a final permit.

Contaminants: The SDWA authorizes the EPA to establish *National Primary Drinking Water Regulations* (NPDWRs) which are codified as permissible maximum contaminant levels *(MCLs)* [B3]. The EPA's failure to enforce UIC permit requirements allows fluids which exceed MCLs to be injected into USDWs thereby endangering the USDWs without any means for the public to determine if contamination is occurring. In this SEM, fluids which comply with NPDWRs are referred to as "drinkable".

Dropshaft-wells: Without first applying for and obtaining UIC permits, local governments construct dropshafts (intakes, inlets, influent/effluent structures, portals, drop structures, etc.) to emplace wastewater into subsurface excavated tunnels. Then it is both stored and conveyed for eventual surface treatment or conveyed to a surface discharge point. The dropshafts are bored, drilled or driven shafts and each shaft is deeper than its widest surface dimension. Accordingly, the dropshafts are “wells" (*40 C.F.R. § 144.3*) and the dropshaft-wells emplace wastewater into the subsurface, either temporarily or permanently, by "well injection" (*40 C.F.R. § 144.3*).

Determinations: Citizens have informed the EPA about unpermitted injection activity, but it has neither undertaken enforcement action against the violators nor has it withdrawn approval of State UIC Primacy programs. Instead, the EPA has implemented an arbitrary policy of authorizing unpermitted injection activity by persistently issuing determinations (interpretations of law) which are inconsistent with the SDWA. The determinations are then used to mislead the public and the Courts.

A series of letters originating in Georgia resulted in three *determinations*[B4] from the EPA which culminated with one from June 17, 2010 being of national significance. The EPA determined, generally, that "*tunnels...do not need permits*" and that "*EPA could exercise its emergency enforcement authority under Part D, Section 1431 of the SDWA*" if certain conditions exist. Contrary to the EPA's determinations, it is the *shafts* (dropshaft-wells) which require UIC permits, not the tunnels that are filled by them. And when referring to the emergency enforcement authority, the determinations fail to acknowledge that the emergency enforcement authority is supplemental to the permit program and not to be relied on in lieu of the permit program (Statute: *§300i(a)*; *Case Law*: “Yet, the EPA's emergency power

is not without limitation...", W.R. Grace & Co. v. United States Envtl. Prot. Agency, 261 F.3d 330, 339 (3rd Cir. 2001) (quoting H.R. Rep. No. 93-1185 (1974), *reprinted in* 1974 U.S.C.C.A.N. 6454, 6487-88); *EPA Guidance: page 4 and footnote #3*[B5]). The graphic "*Dropshaft-Wells Require UIC Permits*"[B6] is provided to emphasize the distinction between dropshafts that require UIC permits and the tunnels for which no UIC permit is required.

The EPA's erroneous interpretations (1) defy Congress' intent to protect public health and USDWs; (2) deprive regulators and the public of the data which are required to demonstrate the occurrence of contamination in an USDW until after the contamination has occurred; and (3) conflict with the plain language of the SDWA. "No deference is due to agency interpretations at odds with the plain language of the statute itself. Even contemporaneous and longstanding agency interpretations must fall to the extent they conflict with statutory language." (*"LEAF", ¶33*)[B1]

DOJ and Courts: The policy of the U.S. Department of Justice (DOJ) is to receive public comments on proposed judicial consent decrees (CDs) involving environmental litigation and submit them to the Court (*28 C.F.R. § 50.7(b)*). Contributing to the EPA's enforcement failures is the DOJ when it represents the EPA in judicial proceedings. For example, citizens submitted a comment in response to a Federal Register notice for the St. Louis, Missouri CD which requires the use of dropshafts to fill subsurface storage tunnel projects. The comment included the chronology of the EPA's erroneous determinations and specifically identified an inadequacy of the CD by unequivocally focusing on the "shafts" that fill the subsurface projects (*excerpt, page 2, Inadequacy of the Decree*[B7]):

> Once entered, the Court defers to EPA's primary enforcement responsibility and interpretations of SDWA/UIC regulations: (1) regarding projects which are dependent upon underground injection that would be used in the course of achieving compliance with the Decree and (2) for determining if the *shafts* that fill wastewater storage projects need SDWA/UIC permits. This deference is neither fair nor in the public interest.

In its Final Motion to the Court, the DOJ, representing the EPA, misrepresented the comment as being about both *tunnels* and [*drop*]*shafts* and then provided this *obfuscating response*[B8]:

> A permit under the SDWA/UIC regulations is not required for [the St. Louis] tunnels and the shafts leading to them. The SDWA/UIC program regulates the subsurface placement of fluids by well injection in order to prevent underground injection from endangering underground sources of drinking water. Tunnels and their dropshafts that store and convey sewage to a wastewater treatment plant for treatment do not fall within the scope of the definitions set forth in the SDWA/UIC program. Therefore, no permit is needed.

SECTION C - ALLEGATIONS OF HARM

Applying for and obtaining an UIC permit creates the mechanism of enforceable accountability whereby owners/operators must demonstrate that their underground injection activity will not endanger USDWs (*40 C.F.R. § 144.12(a)*) (*40 C.F.R. § 144.82(a)*), *42 USC 300 h(b)(1)*. The EPA's failure to require UIC permits nullifies the monitoring well requirements which provide the public and regulators with data to determine if USDWs are being contaminated *(40 C.F.R. § 144.54)*.

Harm: Municipal wastewater contains pathogenic viruses and bacteria from excreta; chemicals from household, commercial, and industrial sites; along with pharmaceuticals; personal care products; and by-products from the resulting mixture. These are often combined with contaminants from stormwater runoff such as petroleum-based products and snow melting compounds. Supplemental to the requirements in any generic UIC permit application, public scrutiny of wastewater injection should also focus on:

- *Geochemical reactions*[C1] within an USDW which are caused by the wastewater
- Various wastewater contaminants which are mixed and form new contaminants
- Various chemicals and the bacterial generation of sulfuric acid which *corrodes concrete*[C2]
- Structural failure due to hydrostatic pressure fluctuations created by fill-and-empty operational cycles
- Seismic conditions which can rupture the integrity of structural systems

Contamination: On November 8, 2006, the EPA promulgated a final National Primary Drinking Water Regulation, known as the *Ground Water Rule*[C3a], for increased protection against viral and bacterial pathogens in groundwater. A concise description of the EPA's concerns is provided in the Summary of the new rule in which the EPA describes *fecal ground water contamination*[C3b]:

> Ground water is fecally contaminated when fecal indicators (e.g., E. coli, enterococci, or coliphage) are present. While fecal indicators typically are not harmful when ingested, their presence demonstrates that there is a pathway for pathogenic viruses and bacteria to enter ground water sources [GWSs]. Another key objective of the rule is to protect public health by requiring these higher risk GWSs to monitor and, when necessary, take corrective action.

The GWR was *Peer Reviewed*[C3c] in consultation with the Science Advisory Board, the National Drinking Water Advisory Council, and the Secretary of Health and Human Services.

(A) Contamination Pathways: Contamination of an USDW occurs, most simply, when wastewater is injected directly into it as identified in "The Five Pathways of Contamination" from the EPA's publication "Protecting Drinking Water Through Underground Injection Control" (*See p.12, #4*[C4]). In 2002, Atlanta satisfied citizen-concerns about protection of drinking water wells when it indicated that it would install monitoring wells and full lining for the proposed *Nancy Creek Tunnel*[C5]. However, as built, concrete lining was only installed in "*select locations*[C6]" and there is no monitoring well program, enforceable or otherwise. A similar strategy was used in Milwaukee (see "F-Wisconsin", page 10) and the strategy is likely in use for tunnels being constructed in Indianapolis but the outcome will not be known until after the tunnels becomes operational. (See "G-Indiana", page 12).

Reports that describe tunnels as being completely lined do not necessarily mean that all components, i.e., dropshaft-wells, vent shafts, maintenance shafts, construction shafts, adits, etc., are fully lined. Even if fully lined, UIC permits are still required because untreated wastewater will be emplaced *in the subsurface*[C7] (legal opinion at "*E-Georgia*[E16]", page 8). Unless constructed below the lowermost USDW, the operating protocol for wastewater tunnels can force contaminants into an USDW (exfiltration). Confounding arguments about exfiltration are made to the public by regulators, consultants, and owner/operators when they explain:

- tunnels are *designed* to not leak;
- tunnels are *constructed* to not leak;
- whatever leaks out will leak back in; and
- wastewater cannot leak out because the surrounding groundwater will keep the wastewater in

These explanations presume that the elevation of wastewater in the tunnel will a) always be lower than the elevation of any surrounding groundwater thereby preventing contamination by the exfiltration of wastewater into USDWs; b) that the tunnels are impermeable; and c) that wastewater which enters an USDW will not be carried away from the source of exfiltration by subsurface flowage (hydrology).

(B) Exfiltration: None of the confounding arguments address seasonal groundwater level fluctuations or scenarios when exfiltration occurs because (a) the wastewater is above an USDW and there is no surrounding groundwater and (b) the tunnel, itself, is surcharged (overfilled) so that wastewater levels in the connecting shafts are raised above any surrounding groundwater levels thereby forcing wastewater to exfiltrate through pathways which customarily allow groundwater infiltration. Surcharging maximizes the use of the available storage volume; minimizes the potential and frequency of CWA permit violations which occur when wastewater is released to surface waters or land surfaces; and reduces the amount of electricity which is required to empty the tunnel. These conditions are portrayed in the graphic "*Aquifer Contamination from Exfiltration*[C8]" which describes one of Atlanta's tunnel projects as an example. The Cleveland consent decree[C9] requires that tunnel projects achieve specific "effective storage volumes" and authorizes the surcharged volume which is available in dropshafts.

In response to citizen-concerns in Atlanta, Dr. Solomon Pollard, Senior Toxicologist, EPA Region-4, prepared a comprehensive Memorandum. An excerpt from the *memo*[C10] draws a comparison to shallow sewer pipe networks and speaks to the likelihood of exfiltration:

> Based on conversations with Robert K. Bastian and James F. Wheeler, Office of Water, Washington, D.C. as well as numerous EPA personnel and independent contractors, it is concluded that all pipes (and tunnels) have the potential to leak." He continues, "It is concluded that releases from the storage tunnel cannot be quantified but are highly likely. Potential contamination of the water table should be considered such that a system of monitoring wells should be placed immediately down gradient of the tunnel and sampled (full scan) a minimum of twice per year (during the first year of operation).

Pathways for groundwater *infiltration* can become pathways for wastewater *exfiltration*. A tunnel project, which in the design-stage is to be fully lined, can be presented to a *reviewing regulatory agency*[C11] in an esoteric engineering document and potential contamination is accepted. The following *excerpt from the minutes*[C12] of a meeting about Atlanta's consent decrees with representatives from the EPA, the Georgia Environmental Protection Division, the citizen-plaintiff, and the City of Atlanta is easily comprehensible. The topic is Atlanta's West Area Storage Tunnel which has two segments (runs):

> Sally Bethea [Upper Chattahoochee RiverKeeper, citizen plaintiff] inquired about the extent of tunnel lining that would be installed. George [Barnes, P.E., Atlanta] responded that in the case of the Clear Creek tunnel run approximately 50 percent would be lined while less than 45 percent of the North Ave. tunnel run would be lined. Sally added that there was continued interest in full lining of the tunnels from the public, and decisions of anything less would be scrutinized. The City stated it was never its intent to fully line the CSO tunnels, *and reminded all that it is impractical to expect a sewer system to be 100 percent tight from infiltration and exfiltration*.

(Emphasis added). As built, each tunnel run is partially lined. In addition, a professional paper, presented to the Society for Mining, Metallurgy, and Exploration in 2013, emphasizes, "*TUNNELS LEAK*[C13]".

(C) Monitoring Wells: The EPA's erroneous determinations do not "magically prevent" the movement of contaminants into USDWs. Without an UIC permit, injection into a subsurface tunnel and the elevation of any surrounding ground water is never responsibly demonstrated before construction of a dropshaft-well begins. And after a dropshaft-well becomes operational, monitoring wells are needed to measure any aquifer contamination. The EPA's failure to enforce UIC permitting requirements removes the regulatory condition that all UIC permits must have enforceable monitoring well programs *(40 C.F.R. §144.54*) which provide data for public scrutiny.

SECTION D - FAILURES to ENFORCE

Nationwide, the number of local governments which likely rely on unpermitted UIC dropshaft-wells for the emplacement of municipal wastewater into subsurface tunnels are too numerous to identify, research, and thoroughly analyze for this SEM. However Washington, D.C., Cleveland, St. Louis, and Kansas City are candidates and are conveniently mentioned in one *newspaper article*[D1].

In King County, Washington (metro Seattle), the Brightwater tunnel has been excluded from the detailed analyses which follow. Although it relies on both *influent*[D2] and *effluent*[D3] "structures" (dropshaft-wells), the project is otherwise too technologically complex. King County's Final Environmental Impact Statement (FEIS) identifies an USDW that is used by the Lake Forest Park Water District to provide drinking water to 850 connections from several production wells, four of which are "deep wells" (*FEIS*[D4a]). And the *Seattle Times*[D5] reports that " The county's tunneling for piping connected to the Brightwater sewage plant...will run over the water district's aquifer, which provides water clean enough not to need chlorinated treatment before being sent to the district's 860 residential customers."

The *FEIS*[D4b] also states that the Brightwater project: impacts at least one *sole source aquifer*; uses drop structures; would be "designed to eliminate exfiltration"...so that "there would be essentially no leakage"; will be "designed to *limit exfiltration*"; and that monitoring of groundwater levels and quality could be developed "as an extension of the construction monitoring program". No documents have been found which show that either the Washington State Department of Ecology or the EPA ever considered requiring UIC permits for any of the influent/effluent structures (dropshaft-wells) that were to be used. Following King County's lead, Seattle solicited comments for its own sewer tunnel EIS without disclosing that dropshafts are *UIC wells*[D6]. In 2016, the project will enter the *design stage*[D7].

The EPA's failure to enforce UIC requirements for the permitting of dropshafts which are used to emplace municipal wastewater into subsurface tunnels in Georgia, Wisconsin, and Indiana follow.

SECTION E - **GEORGIA**: Georgia has primacy for both the SDWA/UIC and the CWA.

Georgia's UIC Program: The EPA approved Georgia's program for UIC primacy on May 21, 1984 and it is implemented by the Environmental Protection Division (EPD). (*40 C.F.R. Part 147, Subpart L*)[E1] The program prohibits the construction and operation of Class-V injection wells without a permit (391-3-6-.13(11)(a))[E2] and it includes this Prohibition of Movement of Fluid into USDWs (*391-3-6-.13(5)(a)*).[E2]:

> No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under Georgia's Rules for Safe Drinking Water, Chapter 391-3-5-.1B, or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.

Metro-Atlanta USDWs: Georgia's State Geologist indicates that the fractured rock *Piedmont Aquifer*[E3] of metro-Atlanta is an USDW in all respects except that not all portions may yield sufficient quantities of groundwater. The *EPA has determined*[E4] that, "any aquifer yielding more than 1 gallon per minute...falls under the definition of a USDW" and, "all aquifers contain sufficient quantity of groundwater to supply a public water system, unless proven otherwise through empirical data." *According to the USGS*[E5]:

> "Fractured rock aquifers are widely distributed near land surface and are highly susceptible to contamination from human activities. * * * At many contaminated sites across the Nation, remedial action is delayed or stymied by the complexity of contaminated fractured rock aquifers".

The high variability of hydraulic pressure in the individual fractures of fractured rock USDWs requires a monitoring program of no less than closely paired monitoring wells (up-gradient and down-gradient) to detect contamination resulting from exfiltration at each of the various fractures.

Metro-Atlanta Groundwater Quantities: In the City of Atlanta, groundwater quantity is described in a *Geotechnical Baseline Report*[E6] for a segment of its West Area Storage Tunnel:

> Yields from water wells in the Atlanta area range from around 500 gpm to less than 1 gpm. [Citations omitted.] Some historical wells in the vicinity of the tunnel alignment produced over 250 gpm. Many historical wells produced in the range of 50 to 100 gpm. These wells all produced from fractured bedrock at depths approximately the same as the tunnel (about 100 feet above to 200 feet below).

In Cobb County, abundant groundwater had to be addressed during construction of both the *Chattahoochee*[E7] and *South Cobb*[E8] tunnels. In Gwinnett County (No Business Creek Tunnel) a *USGS study finds*[E9] that several wells are capable of sustaining large groundwater withdrawals for extended periods of time. And the Little Mountain Water Association's community well serving 33 households (Rockdale County), "...*is within 3,000 feet*[E10]" of DeKalb County's proposed tunnel which will, "be bored into rock formations which are at an elevation near the mid-height" of their well.

In view of the above groundwater information and in the absence of empirical data to the contrary, the metro-Atlanta portions of the Piedmont Aquifer are USDWs and as such, the owners/operators of dropshaft-wells are required to apply for and obtain an UIC permit; demonstrate that their underground injection activity does not endanger USDWs; and, once a permit is issued, record and report the required monitoring data.

Consent Decrees: Due to violations of the CWA (and for other reasons) the City of Atlanta and DeKalb County, as Defendants, entered into separate Consent Decrees (CDs) with the EPD, and the EPA. The CDs did not *require* the construction of dropshaft-wells to satisfy the requirements of the CDs but instead left it to the Defendants to decide how to achieve compliance with the CWA and the CDs.

The EPA's failure to enforce UIC permitting regulations removes opportunities for public comments during the UIC permitting process; removes the requirements for constructing monitoring wells; and

eliminates the gathering of data which can be used by the public and regulators to determine if contamination is occurring. In regard to CDs, the public is left with only two alternatives: a) identify the EPA's failure to enforce UIC permitting requirements in public comments about the draft CDs or b) after a Court enters a CD, establish legal standing and accept a severe financial burden by litigating for injunctive relief prior to the construction of any eventual dropshaft-well. A CD or its amendments which authorize unlawful activity should not be deemed fair, reasonable, or lawful. (See *Stovall v. City of Cocoa, Fla.*, 117 F.3d 1238, 1244 (11th Cir. 1997)) (*Conclusion*: In deciding whether to approve a consent decree, the district court must evaluate whether the decree is fair, reasonable, and lawful).

City of Atlanta, Gwinnett County, Cobb County: These three local governments operate a total of eight distinct wastewater tunnels; each tunnel relies on dropshaft-wells to emplace wastewater into the subsurface; and each tunnel is located in an USDW (*see SEM Table-1, A, B, C*)[E11]. No applications for UIC permits have been made for these dropshaft-wells; the EPD has determined that UIC permits are not needed; and the EPA has neither rescinded Georgia's primacy authority nor enforced the UIC regulations itself. Each local government has received Georgia-funded loans and federal grants for unpermitted UIC projects which violate state and federal regulations (*see SEM Table-2*)[E12].

Between 2000 and 2012, several individuals and/or groups notified the EPD, the EPA Region-4 (EPA-R4), the US DOJ, and a U.S. District Court Judge that failures to enforce SDWA/UIC requirements were occurring. The citizens received responses which were inconsistent with (a) SDWA Part C, (b) UIC regulations, and (c) "*LEAF*", or d) received no responses at all. The DOJ receives and considers public comments on proposed CDs involving environmental litigation and submits them to the Court *(28 CFR §50.7(a-c)*). Frequently, the DOJ's responses misrepresented the comments to the Court and reiterated the erroneous interpretations of law previously offered by the EPA or never presented the comment to the Court. On several occasions, the District Court judge presiding over two Atlanta CDs offered to receive and review supplemental information from citizens. In response to that information the US DOJ submitted erroneous determinations from the EPA. On each occasion, the judge remained silent.

Determination with National Significance: On March 4, 2010, *NOCRAP* (Newly Organized Citizens Requesting Aquifer Protection) sent a *letter*[E13] and a list of *exhibits with excerpts*[E14] to two Assistant Administrators at EPA Headquarters (EPA-HQ) regarding the EPA-R4's failures to enforce SDWA/UIC requirements in Georgia (NOCRAP learned later that dropshafts do not fill the project in Columbus, Georgia). The letter provided historical background, summarized events between 2000 and 2009; included excerpts from supporting exhibits, in particular, Dr. Solomon Pollard's EPA-R4 *memorandum*[E15] which validated citizen-concerns about groundwater contamination. Included also was a legal opinion prepared by Georgia Attorney *Hal Wright*[E16], specifically addressing one of Atlanta's unpermitted UIC tunnel projects, which also pertains to any tunnel project in Georgia. NOCRAP's letter concluded with a request that EPA-HQ either:

> A - issue a determination that the SDWA/UIC rules and regulations apply to the *shafts* that emplace wastewater/sewage into subsurface tunnels which would supplant [*two earlier determinations*[E17a]] and enforce the new determination; or
>
> B - provide a legal opinion which responds to Mr. Hal Wright's opinion.

The response from EPA-HQ was a determination with national significance. It failed to address Mr. Wright's legal opinion and merely parroted the erroneous determinations that had been the subject of NOCRAP's letter. *EPA-HQ determined*[E17b], "...tunnels conveying sewage to publicly owned treatment works for treatment do not require a permit under the UIC program."

City of Atlanta: On July 6, 2012, Mr. Wright submitted *comments*[E18] to the DOJ in response to a public notice soliciting comments on a proposed amendment to one of the CDs between the City of Atlanta, the Georgia EPD, and the EPA concerning CWA violations by Atlanta. U.S. District Judge Thomas W. Thrash retains jurisdiction over this CD. The comment was submitted on behalf of NOCRAP, the LMWA, and the South River Watershed Alliance. The proposed amended CD relies on Atlanta achieving compliance by using dropshaft-wells to emplace municipal wastewater into subsurface tunnels for storage and conveyance to wastewater treatment plants. Mr. Wright wrote that the subsurface emplacement of

wastewater, whether intended to be permanent or temporary, is, according to *LEAF*, "underground injection" requiring a permit under the SDWA. Mr. Wright further argued that that the proposed amended consent decree should not be entered by the Court because it would authorize a violation of the SDWA, i.e., underground injection without a permit.

In addition to misrepresenting the comment as being submitted by a citizen, the DOJ (representing EPA) did not respond directly to the issues raised in Mr. Wright's comments. Instead, the *DOJ wrote* [E19] that "The Plaintiffs have already responded in detail to all of those arguments and have not changed their position that the commenters are wrong." In so doing, the DOJ reiterated the EPA-HQ's *erroneous opinion*[17b], "...tunnels conveying sewage to publicly owned treatment works for treatment do not require a permit under the UIC program".

After reviewing the DOJ's response, Mr. Wright submitted a *Memorandum to the Court*[E20] which requested that the Court declare that the rules and regulations implementing Georgia's UIC program are applicable to Atlanta's activities of emplacing wastewater through a dropshaft-well into subsurface excavated tunnels. On behalf of the EPA and the EPD, the *DOJ responded*[E21] to the Court saying, "It is our view that there is nothing in the Memorandum that has not already been addressed by the Governments". As occurred previously with two similar submittals and contrary to Stovall v. City of Cocoa, Fla., the Court refused to address the issue.

DeKalb County: The design for DeKalb County's proposed Interplant Storage and Conveyance System (DeKalb Tunnel) was completed in the Fall of 2008 and construction-start had been scheduled for September, 2009. *As designed*[E22], there will only be one dropshaft-well; there will be a concrete liner which serves to "minimize...wastewater seepage...from the tunnel" and the project will be constructed in the USDW which provides drinking water to the wells of numerous members of NOCRAP in Rockdale County and to the LMWA's community well which provides "drinkable" water to 33 households.

The LMWA well is *within 3,000 feet*[E22] of the proposed tunnel. Connectivity of the fractures in the USDW near the LMWA well was *identified by the USGS*[E23] when it found that, "Drawdown in excess of 30 ft. was observed at distances as much as 6,200 ft. away from pumped well during the 72-hour aquifer test".

In December 2010, EPA/EPD and DeKalb County lodged a CD in a U.S. District Court. A notice soliciting public comments which were to be sent to the DOJ was published in the Federal Register. In this same time period, the DeKalb Tunnel construction start-date was extended until 2016 or later.

On January 5, 2011, the LMWA submitted a comment to the DOJ. After identifying the EPA's and EPD's failure to enforce UIC regulations in Georgia in accordance with "*LEAF*", *LMWA wrote*[E24]:

> The sewer tunnel which DeKalb County has been planning and designing since 2008 was the topic of presentations at no less than four public meetings. * * * We request, after the Court takes under consideration the DeKalb Opinion from Mr. Hal F. Wright and any opinion which the Court may order from EPA, that it then issues a ruling which resolves the conflicting interpretations of SDWA/UIC rules and regulations and their applicability to permit requirements for injection wells (dug holes) that are used to emplace wastewater into the subsurface, such as into a tunnel system, before the Court enters a final judgment for the Decree.

On January 18, 2011, NOCRAP, Mr. Richard Oden, Chairman & CEO of the Rockdale County Board of Commissioners, the LMWA, numerous private water well owners, and other citizens submitted a *Comment*[E25], a list of exhibits and excerpts, and Mr. Hal F. Wright's *DeKalb Legal Opinion*[E26] to the DOJ. The comment explained that the CD is inadequate and cannot be relied upon; stated that it is likely that the EPA will fail to enforce UIC regulations; cited the March 4, 2010 letter from NOCRAP to EPA-HQ requesting a new determination; and the EPA-HQ's erroneous response. The commenters concluded:

> Before the Court enters a final judgment for the Decree, we request that it takes under consideration Mr. Wright's DeKalb Opinion (Exhibit L-1) and any opinion which the Court may have received or may order from EPA based on LEAF-I, and then issues a ruling which resolves the

conflicting interpretations of SDWA/UIC rules and regulations and their applicability to permit requirements for injection wells that are used to emplace wastewater into the subsurface.

On January 19, 2010, GreenLaw, a Georgia-based non-profit law firm serving environmental and community organizations, also submitted a comment to the DOJ about the DeKalb CD. Among the concerns of several organizations it included those of *NOCRAP*[E27]. GreenLaw wrote:

> In light of the likelihood that the County will renew plans for a tunnel as a result of the Decree's mandates, EPA should submit a legal opinion regarding their erroneous determination [that] the SDWA regulations do not apply to the shafts used to fill tunnel systems" and then requested that the United States withdraw or withhold its consent until such time as the Decree is modified to correct this [and other] errors.

On May 11, 2011, the DOJ filed a *Memorandum*[E28] in support of the Motion to Enter the CD which included a collective response to the public comments about the EPA's "failure to enforce" and its applicability to DeKalb's CD. The DOJ, representing its client, the EPA, and the State of Georgia, wrote:

> If DeKalb County does propose in the future to build a tunnel in order to achieve compliance with the proposed Consent Decree, it bears the primary responsibility to comply with all laws, including the SDWA and the UIC rules and regulations, in implementing such work, and EPA/EPD will consider all the facts and circumstances that surround any such proposal at that time and make it decisions accordingly.

No applications for UIC permits have been made or required for the existing projects described above; there is no reason to believe that UIC permits will be required for future projects; the EPD has determined that UIC permits are not needed for the projects; the EPA has not rescinded Georgia's primacy authority and it has not enforced the UIC regulations itself. The EPA is failing to require UIC permits for the dropshafts which are used to emplace municipal wastewater into subsurface tunnels.

SECTION F - WISCONSIN: Wisconsin has Primacy for the SDWA/UIC and the CWA.

Wisconsin's UIC Program - Since November 30, 1983, the State of Wisconsin has had an EPA-approved UIC program which is administered by the Wisconsin Department of Natural Resources (WDNR). 40 C.F.R. Part 147, *Subpart YY*[F1]. Generally, the program prohibits the construction and use of Class I, II, III, and IV injection wells and 12 months after the effective date, underground injection without a permit is prohibited. Wis. Admin. *Code §§ NR 812.05*, *815.06*, *815.07*. The construction and use of Class V wells is prohibited unless specifically “approved”. Finally, Wis. Admin. *Code § NR 815.07(4)* provides:

> A regulatory agency may not approve the construction or use of any injection well that would violate the provisions of ch. 160, Stats., result in the endangerment of an underground source of drinking water or otherwise fail to comply with the other applicable requirements of this chapter.
>
> "Endangerment” means the movement of a fluid containing any substance into an underground source of drinking water, if the presence of the substance may cause a violation of a primary drinking water maximum contaminant level established in 40 CFR part 142 or otherwise adversely affect the health of persons.” Id. at *§ NR 815.03(16)*.

Milwaukee: The Milwaukee Metropolitan Sewerage District (MMSD) is a regional government agency that provides water reclamation and flood management services to 28 communities in Greater Milwaukee. It operates both separated and combined wastewater systems. (*Service Area Map*)

On July 30, 2002, Wisconsin's Joint Legislative Audit Committee released "AN EVALUATION, Milwaukee Metropolitan Sewerage District" (hereinafter "*Audit*[F2a]") which contains an extensive history of MMSD parts of which are excerpted, below. The document is more than 90 pages long and contains a response to the Audit from Mr. Kevin L. Shafer, P.E., Executive Director, MMSD. Mr. Shafer's response did not address the groundwater contamination findings that were presented in the Audit possibly due to concurrent pending litigation in the Lesaffre [Red Star] Yeast case which is described below.

In 1977, WDNR and MMSD "...agreed to a court order that required the District to prevent overflows from sanitary sewers and to greatly reduce overflows from combined sewers". (*Audit*[F2b]) To meet these objectives, the MMSD created its Water Pollution Abatement Program. And to achieve an alternative to discharging sewage overflows into Milwaukee-area waterways, the MMSD, "considered two approaches. One called for creating separate storm sewers and sanitary sewers [in the combined area], and treating the two waste systems separately. The other called for preserving the combined sewers and treating both sanitary sewage and stormwater [together]. With the approval of DNR and the EPA, the District eventually chose the second approach, which officials at that time estimated would cost approximately $469.0 million less than sewer separation" (*Audit*[F2c]) and, as-built, relies on the unpermitted underground injection of wastewater into subsurface tunnels through dropshaft-wells. (*See SEM Table 1, D-MMSD*[F3].)

The MMSD, "...began in 1986 to construct 19.4 miles of tunnels, at depths of up to 325 feet, for the temporary storage of stormwater and sanitary sewage. Construction of these tunnels, which are commonly referred to as the Deep Tunnel, was completed in 1993 at a cost of $716.0 million". (*Audit*[F2d]) "Although the Deep Tunnel and related projects were designed to virtually eliminate sanitary sewer overflows and all but an average of 1.4 combined sewer overflows each year, both types of overflows have occurred [as of 2002] in each year since the Deep Tunnel became operational." (*Audit*[F2e])

The original plans for the Deep Tunnel included a full concrete liner, but after the MMSD officials decided to line only 45 percent as a cost-saving measure, the presence of abundant groundwater became immediately apparent (*Sinking City*[F4]). The partial-lining decision means that dropshaft-wells emplace wastewater into the Deep Tunnel by direct injection. (*Pathways, p.12, #4*[F5])

The MMSD was never required to obtain an UIC permit under the UIC program ((*40 C.F.R. § 144.11*)) nor was WDNR required to comply with Wisconsin's SDWA/UIC program which prohibits injection that may endanger an USDW **(***NR 815.07(4)*). Although a groundwater monitoring program, based on samples from 32 monitoring wells, was implemented, MMSD's modified surface-water pollution permit neither prohibited exfiltration nor did it prevent contamination of the USDW. According to the Audit:

> Between 1995 and 2001, the District reported that 17.2 percent of the groundwater samples taken at the wells exceeded the groundwater standard for total coliform bacteria, which includes both fecal coliform and other species of coliform bacteria.

(*Audit*[F2f] *and Table 29*). The MMSD hired an outside consultant to evaluate the potential long-term effects of the Deep Tunnel on groundwater. "The consultant estimated that the maximum distance of travel for wastewater escaping from the Deep Tunnel is between 150 and 400 feet, *assuming that the Deep Tunnel is not filled above the maximum operating level established in the permit*." [emphasis added, also see *Aquifer Contamination from Exfiltration*[F6]]..."Overall, the District and its consultant believe that the majority of pollutants [i.e., *not all* pollutants] are flushed back into the Deep Tunnel within days after the Deep Tunnel has been pumped out to a treatment plant and normal inward groundwater flow is reestablished."(*Audit*[F2g]).

The assumption that Milwaukee's USDW is protected from long-term contamination is contradicted by a chronology of allegations which are excerpted from Wisconsin Appellate Court records in Lesaffre [Red Star] Yeast v. MMSD Appeal No. 02-1685, Wisconsin, March 4, 2003. Red Star's water well is in excess of 600 feet from the Deep Tunnel. The chronology begins in 1948 (*Red Star litigation, ¶2 through ¶5*[F7]) and concludes with this excerpt from ¶5:

> In spring 1999, samples from the Red Star well consistently tested positive for total coliform bacteria, fecal coliform, and E. coli. Red Star immediately discontinued use of the well and increased its use of city water. Red Star's attempts to chlorinate the well to kill the bacteria were unsuccessful and the well could not be used again.

Red Star's loss of potable groundwater contributed to its decision to leave Milwaukee. By 2004, Lesaffre, "...paid [potable water] charges to the district of $1.37 million - second only to Miller Brewing Co.'s charges..." and by September 2005 intentions to close the plant were announced. (*Red Star departure*[F8]).

The total cost of the Water Pollution Abatement Program was $2.3B. (*Audit*[F2h]) The program was funded, in part, with state grants, federal grants, and loans from Wisconsin's Clean Water Fund Program (*Audit*[F2i], *Table 1*) which itself is funded from state and federal sources. Of the $2.3B, $716M was spent on the partially-lined Deep Tunnel. Supplemental reports indicate that additions were made to the Deep Tunnel in 2005 and 2010 cost $161M and $98M, respectively. (*Milwaukee Journal-Sentinel*[F9])

As recently as 2013, the MMSD's modified CWA permit only "minimizes exfiltration"(*WPDES*[F10]) which is contrary to the SDWA's *prohibition of endangering USDWs.* WDNR allows direct injection of wastewater combined with stormwater or snowmelt into MMSD's Deep Tunnel without requiring a SDWA/UIC permit; the EPA has not rescinded Wisconsin's primacy authority and it has not enforced the UIC regulations itself. The EPA is failing to require UIC permits for the dropshafts which are used to emplace municipal wastewater into a subsurface tunnel.

SECTION G - INDIANA: Indiana is a Direct Implementation (DI) state for the Class-V UIC Program and has Delegated Authority (primacy) for the CWA.

Indiana's UIC Program: As a DI state for Class-V UIC permitting injection without an UIC permit is prohibited. The EPA has prescribed by rule a UIC program for the State of Indiana. *40 C.F.R. § 147.751*.This program now prohibits any underground injection, except into wells which are authorized by rule or permit. *40 C.F.R. § 144.11*. After obtaining an UIC permit, construction is permissible. Id. In addition, *40 C.F.R. § 144.12(a)* provides:

> No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.

Indianapolis: Indianapolis operates a combined sewer system which collects domestic, commercial, and industrial wastewater along with storm water and snowmelt. The combined flow is conveyed in a single pipe system to a treatment facility after which the treated flow is discharged to a surface water body. Violations of the CWA and NPDES permits led to a *consent decree* (CD, courtesy copy, 5.88 Mb) with the city, the EPA, and the Indiana Department of Environmental Management (IDEM) which was entered by US District Judge David F. Hamilton on December 19, 2006. Preliminary details of the CD's *requirement* for deep storage tunnels for the city to achieve compliance with state and federal CWA regulations is provided in *CD, Table 7-5*[G1] (Control Measures 8, 15, and 20). The projects rely on dropshaft-wells for the emplacement of municipal wastewater into subsurface tunnels. The Deep Rock Tunnel Connector (DRTC) is already being constructed and it is in an USDW (*See SEM Table1, E*[G2]).

Paragraphs C-M of the CD[G3] provide an abbreviated history of events that led up to the CD. Part of that history includes a period beginning in July and August of 2000 during which Indianapolis hosted public education and input meetings and formed several advisory committees as a means of obtaining public participation in the development of several plans and programs for managing its sewer system. One of the plans was the Long Term Control Plan (LTCP) which is required by the EPA as a principal document for implementing its national CWA Combined Sewer Overflow (CSO) Policy (*Excerpt from ¶J*[G3]):

> Throughout the development of the LTCP, Indianapolis solicited and received input from the EPA and the IDEM when planning the various public outreach programs and activities; it invited the EPA and the IDEM representatives to attend public meetings; and it reported to the EPA and the IDEM after each public outreach program occurred. The City's public outreach efforts satisfied the requirement for public participation set forth in the EPA's CSO Policy.

Marion County has a Wellhead Protection Program for its large sand and gravel aquifers that are valuable *drinking water sources*[G4]. However there have been *no records found*[G5] which indicate that the City or the regulatory agencies, especially the EPA as the DI authority, reached out to the public with any information a) about UIC permit requirements (*40 C.F.R. § 144.11*); b) about pathways of contamination

(*See #4, page 12; (c)*[G6]) about UIC permit requirements for dropshaft-wells which would emplace wastewater into the subsurface; d) that underground injection activity shall not endanger USDWs; or e) about the requirement for recording and reporting of monitoring results. And this omission seems to have occurred since the beginning of the LTCP process in 2000.

The final part of the LTCP process involved conducting a Public Hearing during which the city solicited oral and/or written public comments about the proposed plan before submitting it to the IDEM and the EPA. On August 3, 2006 the Indianapolis Department of Public Works held the "Raw Sewage Overflow Long Term Control Plan Public Hearing". A certified transcript documented the city's LTCP presentation; its invitation for questions; and a solicitation of oral comments (Hrng, *courtesy copy, 4.54Mb*).

Generally, through the LTCP Public Hearing process, the city promoted projects for achieving CWA compliance which rely on unpermitted underground injection of wastewater into subsurface tunnels. And it dismissed "Green" projects (a range of soil-water-plant systems that intercept stormwater/snow melt before it enters a shallow sewer pipe network, or releases portions slowly into a sewer system), for which EPA now selectively *requires UIC permits*[G7] (see page 5, J, K, L).

During the LTCP presentation, a PowerPoint slide showed attendees that the, "Tunnel will be designed and built with groundwater protection methods that prevent contamination" (*Hrng., Pg. 30*[G8a]). Afterwards, the Hearing Officer went on to describe some of the previously submitted comments which included the questions, “How will the tunnel work?” and “Won’t it contaminate groundwater?” (*Hrng., Pg. 77*[G8b]) The Officer explained, "The tunnel is going to be designed and built so that ground water protection methods are going to prevent any contamination..." . . . "and prevent the tunnel from leaking out." The explanation continues with information during planning through the operation of the tunnel, "...we're always monitoring the [existing] wells in that area and making sure that everything is fine." (*Hrng. Pg. 81*[G8c]). Throughout the presentation, there was a complete omission about the UIC program, UIC permit requirements for dropshaft-wells and monitoring wells, and the prohibition of USDW contamination

During the oral comment period, an attendee stated, generally, that a greater emphasis should be placed on Green projects and that, although the LTCP had dismissed "...leaching basins..." because of potential groundwater contamination, she continued, "...but I've seen several EPA publications that say these leaching basins are very effective...". (*Hrng. Pg. 111*[G8d]). The Officer responded, generally, "Again, those are kind of just tweaking the technical aspects of the plan." (*Hrng. Pg. 112*[G8e]).

On September 6, 2006, Indianapolis produced the document "Comments Received on Indianapolis Long-Term Control Plan and City Responses". (Comments, *courtesy copy, 0.3Mb*) A commenter wrote: "What is the written technical rationale for how the tunnels, related piping and other structures will not significantly harm ground water supply of City of Indianapolis?" (*See Pg. 10*[G9]) to which the city responded, "The following paragraph has been added to Section 7.3.2 [of the LTCP] to describe the Groundwater Management Plan" (GMP). (*See Pg. 12*[G9]). Once again, there was a complete omission about the UIC program; permit requirements for dropshaft-wells and monitoring wells; the regulatory prohibition of USDW contamination; or an enforceable monitoring program subject to public review. The city submitted its LTCP to the IDEM and the EPA on September 11, 2006 (*See ¶"M"*[G3]).

An amendment to the CD added a *new tunnel*[G10]; a second amendment *extended another tunnel*[G11]; by January 27, 2011, the number of *dropshaft-wells increased*[G12]; and the geographic area impacted by unpermitted wastewater injection *expanded*[G13a]. And by February 12, 2015, yet another tunnel was *announced*[13b].

The GMP which states, "...the city will take all necessary steps to prevent groundwater contamination" was modified sometime later. Then on May 26, 2011, the city held the "Business Opportunity Fair for the Deep Rock Tunnel Connector" (DRTC). Mr. John Morgan, Assistant Administrator/Tunnel Program Manager of the Indianapolis Department of Public Works provided details of the DRTC and associated projects. Mr. Morgan's PowerPoint presentation, in part, described the city's intent to *partially line the DRTC*[G14]. His narration describing the city's intent can be viewed in a *video excerpt*[G15] (MP4, 10.2Mb, ≈4 min.) from the Business Fair DRTC meeting. And the amount of tunnel lining was modified, yet again. On June 18, 2014, acknowledging that tunnel construction had begun, *Mr. Morgan wrote*[G16], "Our plan is to

line the entire [DRTC] tunnel. Rock 'fallout' is very difficult to predict. It is much more cost effective to line the tunnel prior to putting it into service" without addressing concern for groundwater protection. As happened in Atlanta and Milwaukee, the amount of lining in the Indianapolis tunnels will not be known until after all of them become operational.

Dropshaft-wells are used to emplace untreated municipal wastewater combined with stormwater or snow melt into the DRTC which is the first of a network of tunnels. The tunnels are being constructed in an *USDW*[G4] which contains quantities of groundwater that are "adequate for domestic, industrial and *municipal production wells*"[G17a]. Rather than *preventing* groundwater contamination, Indianapolis and its consultants now acknowledge that there is the potential for groundwater infiltration and sewage exfiltration during *tunnel operation*[G17b]. There are no UIC permits for the dropshaft-wells; there is no enforceable monitoring program subject to public scrutiny; and endangerment of public health and an USDW is occurring. The LTCP was *approved by the IDEM*[G18] and the EPA imposed no requirement to apply for and obtain UIC permits for the dropshafts. The EPA requires UIC permits for some types of stormwater/snowmelt projets but it refuses and fails to require UIC permits for the dropshafts which are used to emplace municipal wastewater into subsurface tunnels.

SECTION H - REQUEST FOR FACTUAL RECORD

Since late 2000, an increasing number of attorneys, geologists, engineers, drinking water well owners, and citizens have become alarmed by the EPA's practice of misleading the public and the Courts when it fails to ensure compliance and enforcement of SDWA/UIC statutes and regulations which protect public health and the environment. This frequently occurs when the EPA is represented by the US Department of Justice in legal proceedings. The EPA is achieving improved compliance with the CWA by knowingly and willfully allowing violations of the SDWA. Improving compliance with the CWA does not excuse non-compliance with the SDWA. EPA and various state rules and regulations under the SDWA prohibit the unpermitted underground injection of wastewater into the subsurface.

This SEM is a much abbreviated summary of findings. It is intended as the first step toward developing a Factual Record which addresses the US EPA's failure to enforce SDWA/UIC statutes and regulations regarding the unpermitted underground injection of municipal wastewater into subsurface tunnels. Members of the public are entitled to assume that public officials will act in accordance with law**.** *See Buccaneer Point Estates, Inc. v. United States*, 729 F.2d 1297, 1299 (11th Cir. 1984). *Accord*, *Save Our Wetlands, Inc. v. United States Army Corps of Eng'rs*, 549 F.2d 1021, 1027-28 (5th Cir. 1977)).