

To: Mr. Jeffrey Rosenthal
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Subject: UWNYS Scoping; Hudson Water Desalination Proposal:

- 1) TOXIC HAZARDS
- 2) MAJOR RATEPAYER COST INCREASES
- 3) UNWISE ROCKLAND COUNTY GROWTH

Dear Mr. Rosenthal:

As you know, the United Water Company (Suez) plans* to clean up Hudson river water and pipe it into our Rockland County homes. Their proposed process requires complicated steps including reverse osmosis, using very large and environmentally questionable amounts of expensive electrical power. On top of this, the proposed system could endanger the public health. Not surprisingly, many concerned citizens are carefully examining the United Water plans.

- 1) TOXIC HAZARDS

As a medicinal research chemist I'd like to focus first on toxic contaminants that might arrive in our water. The water purification plant is planned to be (10-10, 8-4)* on the western end of the old, now closed Haverstraw dump and landfill. On a separate, more southerly piece of old landfill there were eighteen homes built as the infamous Warren Court subdivision. After several years these homes became so unlivable that all of them were torn down in 1996 by order of the NY State Dept. of Environmental Conservation (DEC). This was because the landfill included large amounts of scrap gypsum wallboard from the nearby U.S. Gypsum plant. Bacteria in the ground were converting the gypsum to hydrogen sulfide, i.e. rotten egg gas.(1,2) In addition to the stench, the toxicity of this gas is similar to that of hydrogen cyanide.(3)

In 2007 a \$2,443,500 grant to the Village of Haverstraw from the DEC enabled removal of at least most of the Warren Court gypsum and remediation of the site.(2) There is more landfill gypsum in the vicinity of the proposed water purification site (8-4) and at the U.S. Gypsum property just to the north.(10-5) Hydrogen sulfide must still be sometimes present in the moving groundwater of the landfill.(10-9, 15-25) The odor of hydrogen sulfide in air is bad at one part per million. In water at this low level it gives a "swampy" taste and odor.(4)

Groundwater from U.S. Gypsum, the landfill and "Kay Fries" moves more or less toward the proposed site or to the pipe bringing river water to the purification plant.(5)(see map after 10-2) That pipe is to go through the Joint Regional Sewage Treatment Plant property. Just north of the proposed site is the badly contaminated, federal Superfund location of the former Kay

Fries Chemical Co. It and the landfill contain a variety of toxic chemicals including known carcinogens: benzene, benzopyrene and "chlorinated hydrocarbons" (chloroform, carbon tetrachloride and chlorinated ethylenes?) -Also "volatile organic compounds."(10-3,4,5) The poorly remediated, poorly documented "Kay Fries" Superfund site probably still contains lead, mercury, cyanide and the carcinogens arsenic, beryllium, cadmium, chromium and nickel.(5,6)

The Hudson river contains highly variable amounts of PCBs, polyaromatics, chloroform, benzene, toluene, and other volatile organic compounds(10-4) including dimethyl mercury,(7) a neurotoxin especially toxic to children and fetuses.

Some infrequent river events with possibly devastating effects could require a complete shutdown of the purification plant until the river purges itself and the plant is cleaned. Several substantial fuel spills have occurred from tankers, from a tank at the Haverstraw Marina and from the docking area of the Panco fuel oil company, just 1500 feet upriver from the proposed river intake site.(10-6)

The worst event could be an accident or terrorist attack at the Indian Point nuclear power plant, where there may be a greater burden of radionuclides in the spent fuel storage pools than in the reactors. So even if the reactors are retired the hazards remain, including increases in the ongoing leakages and passage of ground water into the Hudson. In addition to radioactive strontium, cesium and iodine isotopes there is the radioactivity of tritiated water, H₃OH. Tritiated water acts like ordinary water, HOH. It would travel into our homes unremoved by either the activated carbon beds or the reverse osmosis membranes of the purification plant.(8)

Gasses and volatile liquids are removed poorly or not at all by reverse osmosis, i.e. hydrogen sulfide, dimethyl mercury, chloroform, carbon tetrachloride, benzene, toluene, gasoline, etc.(8) However, these chemicals plus bacteria and viruses can be removed by activated carbon, along with benzopyrene, PCBs, etc. So if the water purification plant is working well, Indian Point is secure and there are no other big, abnormal events, then an osmosis-based water supply could be safe.

-But if the outflow water is not treated with the precisely necessary amount of lime (10-11) the higher acidity of osmosis water can eat holes in our metal pipes.(8)

There is an earthquake fault line near the plant site.(8-6)

Several troubling questions remain unanswered. Are there essential trace minerals in our present, more natural water supply that would be removed by reverse osmosis? Would the water taste as bland and flat as distilled water?

-And how about power blackouts, generator and equipment failures, tears in the osmosis membranes, supply problems, labor unrest and strikes, semicompetent workers or unseen pipe cracks in polluted ground?

-And totally unforeseen developments?

A broad-based study by Food and Water Watch found that desalination has led to "An Ocean of Problems." (9)

Moreover, a detailed investigation of Suez by Public Citizen showed a world-wide history of greed, disappointing performance and bullying legal threats, plus many severances from Suez by city and national governments.(10)

Remembering all the shut-downs at the Indian Point nuclear plant do we want to become

dependent on a highly complicated system operating in an especially pollution-prone environment?

An alternative and probably better plan already exists. The previously approved(11) Ambrey Pond source for added water begins to look more attractive as a "greener" and less complicated and problematic alternative. Financially, the construction cost evens out with the reverse osmosis option if United Water is blocked from gaining an estimated 20 million dollars(11) from selling the Ambrey Pond properties to developers (if any big developers are still sticking out their necks during the present severe economic downturn). In any event this future water source should certainly be saved and protected, considering all the downside possibilities with the reverse osmosis proposal.

- 2) MAJOR RATEPAYER COST INCREASES

For water customers the Ambrey Pond option offers a huge advantage in estimated United Water operating costs: \$0.70 per thousand gallons vs. \$1.79 with reverse osmosis.(11) This difference is in accord with the huge electricity requirements for reverse osmosis, which seems more suited for areas without other practical options. For a Rockland family of four using the daily average of 106 gallons of water per person the yearly cost difference with osmosis would be an extra \$168 (12), going higher as energy costs go up. There would of course be substantial surcharges to pay for construction of either the desalination system or a new reservoir.

- 3) UNWISE ROCKLAND COUNTY GROWTH

A detailed historical analysis of water availabilities in Rockland County by scientists at Lamont-Columbia University found that our several "drought emergencies" all correlated more closely with population growth than with rainfall deficits (13). If it is thought that we can have an unlimited water supply will we forfeit the most effective curb against pressures for unwise amounts of growth?

If
Rockland becomes mostly roofs and blacktop how are we to safely recharge and protect the bounteous underground aquifers which now supply (13) an average 78% of our generally excellent water?

Decision makers worldwide are fast realizing that we have entered a new era of concern about global warming, limited resources and ballooning populations. Non-stop growth of anything is in the past(14) and the projections for Rockland County and its water requirements may need to be reexamined. Also, as global climate change proceeds we seem to get more rain, with no drought emergency since 2002.(1-9) The present choices may be pivotal for Rockland County. The best choices may be water conservation and perhaps some new wells. Now is our time to plan and act with a truly responsible, long-range view for a sustainable quality of life for all of us here, for those to follow and for our planet.

Your important work is much appreciated.

Respectfully submitted,
K.C.(Chad) Murdock

REFERENCES:

*Hyphenated citations such as (8-4) refer to the chapter and page of a Draft Environmental Impact Statement (DEIS) by the United Water Co. (Suez), 9/26/08, www.hudsondesal.com.

- (1) L.Gruson, The New York Times, 5/13/93. Suburban Homes: A Dream Undermined; via Google: hydrogen sulfide Haverstraw NY.
- (2) NY State DEC Press Release, 4/12/07, via Google as in (1).
- (3) S. Mandavia, eMedicine Specialties, 2/13/07, www.emedicine.com/EMERG/topic258.htm
- (4) B. Oram, Wilkes University, Wilkes- Barre, PA, via Google: water research rotten egg odor
- (5) Letter report to NYS DEC and the Haverstraw Town Board from the engineering firm Holzmacher, McClendan and Murrel, P.C. (H2M), 3/1/93.
- (6) National Inst. of Environmental Medicine and Health (NIOSH) Carcinogen List, www.cdc.gov/niosh/topics/cancer/.
- (7) Dimethyl mercury was found in the Hudson at Piermont, NY, reported on public radio WNYC, 7/25/08. It is formed from the inorganic mercury compounds present in old dumps, some Hudson sediments, marshy areas and presumably the Kay Fries site; cf. N. Beckvar, et al., Contaminants in Aquatic Habitats at Hazardous Waste Sites: Mercury, National Oceanic and Atmospheric Administration (NOAA), 1996, via Google: NOAA mercury hazardous wastes
- (8) A. Fisher, et al., Univ. of Nevada, via Google html: reverse osmosis hydrogen sulfide; K. Williamson, Univ. of Alberta, 9/1/02, via Google: reverse osmosis rural development .
- 9) Food And Water Watch, "Desalination: An Ocean of Problems", 13pp., 2008, via Google
- (10) Public Citizen, "Suez; A Corporate Profile", 23 pp., 2005, via Google HTML
- (11) Long Term Water Supply Project, Brochure, United Water New York, January 2007.
- (12) $31,400,000 \text{ gallons a day} / 296,483 \text{ people} = 106 \text{ gal. per person per day}$. $\$1.79 - \$0.70 = \$1.09$. $\$1.09 \times 106 / 1000 \times 4 \times 365 = \168 .
- (13) Bradfield Lyon, Nicholas Christie-Blick, and Yekaterina Gluzberg, Journal of the American Water Resources Association, Vol. 41, 1457-1469 (2005). eMail copy requests: blyon@iri.columbia.edu