

January 4, 2010

VIA CERTIFIED MAIL

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Canaveral Port Authority
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LT. GEN. ROBERT VAN ANTWERP

U.S. Army Corps of Engineers
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RE: The Canaveral Port Authority ASR well and possible violations to the SJRWMD Stormwater Permit, Glen Cheek Drive 24132 via the release of arsenic into waters of the U.S. FDEP Permit # 05-0200428-001:

Dear Sirs and Madam:

Save Our Aquifer is a community organization dedicated to preserving and improving the quality of the waters in the Floridan Aquifer and the Indian River Lagoon. We are writing to inform you of potentially serious consequences of an underground wastewater storage project currently in the testing phases at Port Canaveral under the auspices of the Canaveral Port Authority. Test injections have resulted in increases in arsenic levels that were two to seven times the Florida Department of Environmental Protection and U.S. Environmental Protection Agency's permitted levels for groundwater safety in the surficial aquifer and nearly twice the levels permitted in a surface water storage pond located at the Port.

The project in question is a facility proposed for the injection of roughly 150 million gallons of partially treated sewage annually into the surficial aquifer, as an "aquifer storage and recovery" (ASR) system. The project currently is in permitting review with the Florida Department of Environmental Protection and it is our understanding that the Port Authority intends to move forward with this project. This well is into the surficial aquifer system and is the shallowest test ASR system in the State of Florida (Tetra Tech 2008).

SOA obtained the reports as part of public records request. After careful review of the Canaveral Port Authority Aquifer Storage and Recovery Cycle Testing Report (July 2008), it appears ASR injection wells ASR PW4, ASR 1R and Monitoring Well MW-12 began the testing in February of 2008 with reported arsenic concentrations of 0 or undetected. Concentrations of arsenic increase through the first and second cycle of testing and by the third cycle concentrations of arsenic were generated in groundwater with certified lab results taken by the Port's engineering consultants, Tetra Tech, Inc. Results were well above 10µg/l - the FL DEP and US EPA's standard for groundwater safety. Field tests of the water conducted during the early testing phases showed numerous instances of arsenic levels of 30 to 70 µg/l (see pages 15-16 and 18-21 of the July 2008 test report that is attached to this letter). Even subsequent laboratory tests conducted to confirm the field tests yielded results that were two and three times the permitted levels.

As the data in the table below shows, arsenic levels in a nearby stormwater pond more than doubled during the recovery phase of the third cycle test. No subsequent data was reported to show the arsenic levels in the stormwater pond or in the ASR wells declined in any way. Based on the Port's illustration of the ASR "storage area," the plume of water with high concentrations of arsenic radiates northward toward the Port waters and southwards towards the stormwater pond where the arsenic levels spiked during the recovery phase of the tests. Figure 1 (page 6) in the attached report from Tetra Tech shows the exact locations of the various wells, relative to each other. Figure 3 (page 46) of the report is an aerial photo of the well location site and shows the close proximity of the two stormwater retention ponds and the various wells.

	ASR PW4	ASR 1R	MW 12	Stormwater Pond
June 10, 2008	7.0 µg/l	3.8µg/l	9.6µg/l	7.0-7.6µg/l
June 12, 2008	12µg/l	12µg/l	13µg/l	No Data
June 13, 2008	16µg/l	22µg/l	19µg/l	No Data
June 14, 2008	20µg/l	28µg/l	20µg/l	No Data
June 15, 2008	22µg/l	29µg/l	19µg/l	No Data
June 16, 2008	21µg/l	28µg/l	18µg/l	19µg/l

The plume was supposed to be contained in strata below the stormwater ponds but arsenic levels tested by the consultant on 5/27/08 and 6/10/08 recorded levels of 7.0µg/l and 7.6µg/l. These stormwater ponds were designed to capture ordinary stormwater runoff from parking lots and other impervious areas, not treat arsenic-laden waters. By 6/16/09, less than one week later, one stormwater pond was tested and had an arsenic level of 19µg/l which is almost twice as high as the 10µg/l standard. (page 42,. Canaveral Port Authority Aquifer Storage and Recovery Cycle Testing Report, July 2008 attached) The 10µg/l standard is considered to be high, and even waters that pass this standard have been associated with a risk of greater than 1 in 400 for bladder cancer or lung cancer according to the study " Arsenic in the Drinking Water: 2001 Update, National Academies' National Research Council." The committee found that men and women who daily consume water containing 3 parts per billion of arsenic have about a 1 in 1,000 increased risk of developing bladder or lung cancer during their lifetime. At 5 parts per billion, the risk is about 1.5 in 1,000; at 10 parts per billion, it is greater than 3 in 1,000; and at 20 parts per billion, it is close to 7 in 1,000.

There is no indication that the consultants or Port officials notified St. Johns River Water Management District (which is the permitting agency for the Port's stormwater system) that they had contaminated their stormwater ponds with arsenic levels almost twice the safe arsenic levels. There also is no indication that the Port or the Consultants did anything to mitigate for this contamination. It is reasonable to assume

that during subsequent rainfall events, this high arsenic water was discharged without permit into Waters of the United States via the overflow mechanisms of the pond into the Port itself. No monitoring of the plume in Port waters or the spread of this high arsenic water in surface groundwaters appears to have been done. The Port waters are not only directly connected to the ocean and its fisheries; they are also connected to the Banana River via its lock system. The Banana River is part of the Indian River Lagoon, an Estuary of National Significance, and has extensive aquatic preserves that are critical habitat for our Nation's Fishery according to US Fish and Wildlife determinations. The bioaccumulation of arsenic in fish could greatly magnify the concentration of arsenic, potentially resulting in lethal conditions for consumers of fish in this area. No health warning has been given for lack of notification of state, federal or local agencies of the detection of the pollution plume by the consultant, Tetra Tech, Inc.

If this plume has already reached the stormwater pond and has been discharged to US waters without permit, it is safe to conclude that there is no vertical containment of the plume and that larger scale pumping of sewage-based waters would also contaminate stormwater systems and surface waters. The plume, as indicated in the report, has a north/south trend. It is reasonable to assume that pumping much larger volumes of sewage-based waters would so greatly enlarge the plume's size that it might directly discharge into Waters of the United States located 800 feet to the north of the center of the pumping site. In addition, the sewage-based waters are known to contain significant concentrations of nutrients, as well as unknown concentrations of endocrine disruptors, household chemicals, pharmaceuticals and viruses associated with human waste products, Hydromantics Ltd., (2005), Applied and Environmental Biology (2005).

SOA requests an immediate investigation into:

- why this pollution discharge was not reported to the appropriate agencies,
- why it has not been mitigated for,
- the extent and ultimate fate of the arsenic plume that was generated by the ASR testing.

SOA requests an immediate suspension of future ASR activities pending a satisfactory resolution of the issues raised.

Respectfully,



Earl H. Jacobs IV, President
Save Our Aquifer, Inc.

Attachment:

(Tetra Tech 2008) Canaveral Port Authority Aquifer Storage and Recovery Cycle Testing

References:

Arsenic in the Drinking Water 2001 Update, National Research Council

(Meckes, Mark C. 1982) Effect of UV Light Disinfection on Antibiotic-Resistant Coliforms in Wastewater Effluents, Applied and Environmental Microbiology, page. 371-377, Vol. 42, No. 2

(US GAO 2004) Antibiotic Resistance, Federal Agencies Need to Better Focus Efforts to Address Risk to Humans from Antibiotic Use in Animals

(Yates, M. V.) Pathogens in Reclaimed Water, University of California Riverside

Validity of the Indicator Organism Paradigm for Pathogen Reduction in Reclaimed Water and Public Health Protection (Applied and Environmental Microbiology, 2005, p. 3163-3170, Vol. 71, No. 6)

(Kinney, Chad A. 2007) Presence and Distribution of Wastewater-Derived Pharmaceuticals in Soil Irrigated with Reclaimed Water, National Water Quality Laboratory, U.S. Geological Survey, Denver Department of Chemistry and Biochemistry

Validity of the Indicator Organism Paradigm for Pathogen Reduction in Reclaimed Water and Public Health Protection. Applied and Environmental Microbiology, 2005 p. 3163-3170, Vol. 71, No. 6

Review of the State of Knowledge of Municipal Effluent Science and Research, Review of Effluent Substances, Hydromantics, Ltd. 2005

Pharmaceuticals, Personal Care Products, and Endocrine Disruptors in Water: Implications for the Water Industry, Shane A. Snyder, Paul Westerhoff, Yeomin Yoon, David L. Sedlak, Environmental Engineering Science. September 2003, Vol. 20, No. 5: 449-469

CC: Governor Charlie Crist

Linda Young, Director of the Clean Water Network of Florida

Diana Sawaya-Crane, Deputy Director of Cabinet Affairs for Governor Charlie Crist

Katie Tripp, Ph.D, Director of Science and Conservation, Save the Manatee Club

Marine Resources Council, Melbourne, Florida

Frank Jackalone, Senior Field Organizing Manager/ FL & PR Sierra Club