

## **RRWPC**

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### **Russian River Watershed Protection Committee**

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Brenda Adelman: Chair

The Honorable Jared Huffman: Chair &  
Honorable Committee Members  
Assembly Committee on Water, Parks and Wildlife

Hearing on: UNTAPPED POTENTIAL:  
WATER REUSE FOR CALIFORNIA'S FUTURE WATER SUPPLY RELIABILITY

Tuesday, March 20, 2012

Dear Assemblyman Huffman and Committee Members:

#### **INTRODUCTION:**

On behalf of Russian River Watershed Protection Committee, thank you for the opportunity to express our concerns about recycled water in general and indirectly about the proposed legislation; AB 2398, introduced by Assembly Member Hueso. This letter comprises our written comments for the Hearing; we realize that spoken comments will need to be brief. Hopefully, you will also read these more extensive written comments. We understand that there will be a hearing on the revised legislation on April 10<sup>th</sup>. We request to receive the agenda and revised language when it is available. (Please email to [rrwpc@comcast.net](mailto:rrwpc@comcast.net))

Russian River Watershed Protection Committee (RRWPC) is a nonprofit public benefit organization incorporated in the State of California since 1980. Our active supporters number approximately 1000 property and business owners, recreationists, and other concerned citizens in the lower river area from Healdsburg to Jenner. We regularly send our supporters mailer updates every other month on local water and wastewater issues.

For several years, RRWPC has provided written and verbal comments to the State Water Resources Control Board (SWRCB) and the North Coast Regional Board (RB1) on the issue of "incidental" runoff of irrigated wastewater. We have enumerated our concerns at length regarding the State's Recycled Water Policy,

the State's General Landscape Permit, the Regional Board's MS4 Permit, and the Basin Plan Amendment for "Low Threat Discharges" as they have incorporated this issue. We have appeared before both boards and gave testimony on numerous occasions regarding our concerns. We have spoken with staff about this issue, which was termed 'controversial' by both boards, at numerous meetings.

We also have many followers who read water-related articles we contribute regularly to the Sonoma County Gazette, a popular monthly newspaper with 30,000 copies distributed monthly. We have written extensively on the issue of tertiary treated recycled water and incidental runoff and our concerns for water quality impacts on our rivers and streams. We will distribute the March, 2012, issue at the hearing since it contains an article by myself on the front page about Santa Rosa's wastewater irrigation. We are also well aware of the State's water supply limitations and on-going problems with assuring adequate delivery.

#### **RRWPC GENERAL CONCERNS REGARDING PROPOSED AB 2398:**

The Legislative Counsel's Digest states the legislation will allow for adoption of uniform water recycling criteria for both surface and ground water augmentation if the expert panel convened for this purpose finds that the criteria would adequately protect public health. Furthermore, the department is being called upon to investigate the feasibility of developing uniform water recycling criteria for direct potable reuse and requires assurances that the department (Health?) permit potable reuse projects using advanced treated "purified water". (We assume this refers to reverse osmosis operating in Southern California.) It is unclear whether the legislation assumes that water treated with reverse osmosis and tertiary treated water are equivalent if they are deemed "safe" by the Scientific Panel. There is considerable difference in the two treatments, and yet the language of this bill appears to use the two almost interchangeably.

If the Panel deems it safe for human health to discharge tertiary treated wastewater without regulatory oversight, as it appears they may do, then what happens to the Anti-Degradation Act, the Porter-Cologne Act, and the Clean Water Act, including TMDLs for 303(d) listed water bodies, NPDES Permits and other water quality concerns in the protection of the whole range of beneficial uses? Why does the proposed legislation just address human health impacts and not environmental, which are usually the most sensitive?

If wastewater is reclassified as not being a "waste", can this mean the use of special purple pipe will no longer be necessary and prevention of cross contamination between purple and water supply pipelines will no longer be a

concern? In our comments below, we indicate serious concerns by many scientists about the limitations of conventional risk assessment. We address this in more detail below.

### **Problems with Santa Rosa's new Pilot Recycled Water Project:**

RRWPC recently (Jan. 30, 2012) filed a complaint with the North Coast Board regarding multiple spills of irrigated wastewater in the City of Santa Rosa's pilot wastewater irrigation program. This occurred at a time when temperatures ran 32 to 40 degrees and little saturation of the ground occurred. It is unlikely that any evaporation occurred. It happened on City and other properties, including right across the street from the City Utility's office. The concerns expressed in that complaint are very similar to our concerns about this proposed legislation.

We photographed these runoff incidents on five different occasions over the course of a month (Dec. 16<sup>th</sup> to January 9<sup>th</sup>) when there had been no rain and submitted about 65 pictures showing ponded wastewater at a bus stop, bus stop benches and parked cars dripping with wastewater, and a significant amount of water running down the street and into the storm drains.

The following three paragraphs are a direct quote from the complaint. (We hope these issues would be addressed in the revised proposed legislation.)

*Wastewater and potable water look and smell exactly alike. There are no alarm bells to tell people where that water has been. While only tertiary treated wastewater would be used, nevertheless treatment processes are sometimes imperfect and unreliable. Furthermore, there are many unregulated toxins such as endocrine disruptors including pesticides and herbicides, organic chemicals, heavy metals, nutrients, and much more. These have been demonstrated in numerous studies to have significant health and other impacts on humans and wildlife. We have special concern for children who may play on lawns irrigated with wastewater.*

*In addition to these unidentified constituents in the wastewater, the irrigation runoff can carry toxic chemicals and soil amendments into the drainage system from treated landscapes. Most of this occurs in the summer time, when creek flows are low, recreational use is high, and toxins bio-concentrate. This is not even to mention how these chemicals interact with one another and bio-magnify their effects. (Irrigation applications are supposed to be applied only in amounts that can be utilized by the plants so as to avoid runoff. Therefore cold weather applications should not be allowed.)*

*In Santa Rosa's case, runoff can get into the storm drain system and exacerbate existing nutrient problems in the Laguna, which is currently listed as impaired for nitrogen, phosphorus, dissolved oxygen, temperature, sediments, and mercury.*

**It is important to note that these spills occurred in spite of the fact that Santa Rosa staff took great care to educate those responsible for operating the irrigation systems.** We in no way want to imply that Santa Rosa staff have been irresponsible. That is the big problem: even very responsible people can be dealing with those who won't cooperate and don't follow the rules.

The implication of this proposed legislation appears to be based on the assumption that tertiary treated wastewater is safe to contact and that human health will be fully protected. We doubt that the general public would feel comfortable with such an assessment.

It is ironic that on the same day we learned about AB 2398 and about this hearing, I also received a notice about a very recent report on the impact of low doses of endocrine disrupting chemicals (often found in water and wastewater).

The effects of exposure to even low doses from as many as 870 chemicals (not to mention their synergistic effects) is documented at The Endocrine Disruption Exchange (TEDX) (<http://www.endocrinedisruption.com/home.php>) Furthermore, RRWPC's website contains an article in the most recent Sonoma County Gazette on Santa Rosa's pilot irrigation project on Stony Point Rd. The article provides other references to scientific evidence of possible extreme (multi generational) deleterious impacts by these chemicals on humans and wildlife. (We plan to distribute copies of the Gazette at the Hearing.)

### **New Report on Endocrine Disruption:**

The following study was released on March 14, 2012. It is entitled: **Hormones and Endocrine-Disrupting Chemicals: Low-Dose Effects and Nonmonotonic Dose Responses.** It was developed and written by Laura N. Vandenberg, Theo Colborn, Tyrone B. Hayes, Jerrold J. Heindel, David R. Jacobs, Jr., Duk-Hee Lee, Toshi Shioda, Ana M. Soto, Frederick S. von Saal, Wade V. Welshones, R. Thomas Zoeller, and John Peterson Myers.

Many of these people have been important names in the field for over 20 years now. Theo Colborn is seen by many as the Rachel Carson of our day and was responsible for organizing the first Wing Spread Conference in 1990 that brought wildlife and human scientists together for the first time to study the wildlife reproductive anomalies being noted world wide. In the view of many, they have set the gold standard for evolving the field of endocrine disruption in the environment. We strongly urge you to confer with these scientists about the exceedingly impactful legislation you are now considering. We also request that

they be called upon to review any conclusions of the Scientific Panel.

The study's abstract includes the following:

*For decades, studies of endocrine-disrupting chemicals (EDCs) have challenged traditional concepts in toxicology, in particular the dogma of “the dose makes the poison,” because EDCs can have effects at low doses that are not predicted by effects at higher doses. Here, we review two major concepts in EDC studies: low dose and nonmono- tonicity. Low-dose effects were defined by the National Toxicology Program as those that occur in the range of human exposures or effects observed at doses below those used for traditional toxicological studies. We review the mechanistic data for low-dose effects and use a weight-of-evidence approach to analyze five examples from the EDC literature. Additionally, we explore nonmonotonic dose-response curves, defined as a nonlinear relationship between dose and effect where the slope of the curve changes sign somewhere within the range of doses examined. We provide a detailed discussion of the mechanisms responsible for generating these phenomena, plus hundreds of examples from the cell culture, animal, and epidemiology literature. We illustrate that nonmonotonic responses and low-dose effects are remarkably common in studies of natural hormones and EDCs. Whether low doses of EDCs influence certain human disorders is no longer conjecture, because epidemiological studies show that environmental exposures to EDCs are associated with human diseases and disabilities. We conclude that when nonmonotonic dose-response curves occur, the effects of low doses cannot be predicted by the effects observed at high doses. Thus, fundamental changes in chemical testing and safety determination are needed to protect human health. (Endocrine Reviews 33: 0000–0000, 2012)*

This study is extremely important because conventional risk assessment supports the theory that the dose makes the poison. It appears that based on this premise, the State's Blue Ribbon Panel on their Recycled Water Policy justified their support for the lack of necessity for monitoring CEC's (Contaminants of Emerging Concern) in irrigation waters applied to landscapes.

We strongly believe that this should not be allowed to happen. There are currently more than 80,000 chemicals approved for use in the United States. Every day about 42 billion pounds of chemicals are produced or imported for commercial and industrial use and about 1000 new chemicals are introduced each year. There needs to be robust and reproducible analytical methods to measure CECs in recycled water.

Linda S. Birnbaum, Director of NIEHS and NTP reviewed this study and said the following online March 14, 2012. She states, “What is concerning is the increasing number of epidemiological studies showing associations between the concentration of these chemicals in the general population and adverse health end points.” And further, “Thus, human exposures to thousands of environmental chemicals fall in the range of nonnegligible doses that are thought to be safe from a risk assessment perspective. Yet the ever-increasing data from human biomonitoring and epidemiological studies suggest otherwise: Low internal doses of endocrine disruptors found in typical human populations have been linked to obesity (Carwile and Michels 2011), infertility (Meeker and Stapleton 2010), neurobehavioral disorders (Swan et. al. 2010, and immune dysfunction (Miyashita et al. 2011), among others.”

Finally, she says, *“Vandenburg et al. selected several examples of controversial low-dose test cases and applied an analytical weight-of-evidence approach to determine whether there was sufficient evidence to conclude that particular environmental chemicals had effects on specific biological end points.....Their study provides important insight into the effects of environmental chemicals on health-related end points and addresses the mechanistic question of how chemicals with hormonal activity can have effects at external doses that are often considered safe by the regulatory community.”*

### **Dr. Dave Smith Interview:**

In early February, 2012, Dr. Dave Smith of WaterReuse California, and scheduled speaker at today's hearing, was interviewed by Cindy Paulson, senior vice president at Brown and Caldwell, to talk about his organization about where its headed and the challenges it faces. For the last 26 years, Dr. Smith has been a consultant on wastewater issues for the City of Santa Rosa and we have had many contacts with him over the years on wastewater issues.

Dr. Smith made several statements in the interview about which we are concerned and which are directly related to this proposed legislation. In answer to the question: *“What are your top priorities for the year?”*, he responded in part, *“We also want to push forward on the feasibility of direct potable reuse.”* And then, *“....redefine recycled water as a resource rather than a waste.”* He also asserts that recycled water is safe.... Dr Smith adds, in response to the questions of endocrine disruptors, *“....recycled wastewater is not the primary source of this class of contaminants. Treatment technologies are effective in removing endocrine disruptors. Human exposures due to other pathways, like food and inhalation, are orders of magnitude higher than water.”*

We have numerous concerns about this minimization of endocrine disrupting problems in wastewater. In no way has it ever been demonstrated that the tertiary process adequately and regularly removes the constituents of concern. Santa Rosa's last discharge permit was over 100 pages long, and contained numerous requirements for dealing with the many toxic substances remaining in the wastewater. Their wastewater is NOT a benign substance that protects all beneficial uses. Santa Rosa City representatives, including Dr. Smith, have been a strong presence in the making of this legislation. We request that expert opinions also be sought from other outside scientists, such as those conducting the extensive research on endocrine disruption that we already mentioned.

### **Conclusion:**

We will go into more detail on these issues for the next hearing, when the revised

Assembly Bill language is available.

Sincerely,

A handwritten signature in black ink that reads "Brenda Adelman". The signature is written in a cursive, flowing style.

Brenda Adelman

Attachments:

**Hormones and Endocrine-Disrupting Chemicals: Low-Dose Effects and Nonmonotonic Dose Responses.** It was developed and written by Laura N. Vandenberg, Theo Colborn, Tyrone B. Hayes, Jerrold J. Heindel, David R. Jacobs, Jr., Duk-Hee Lee, Toshi Shioda, Ana M. Soto, Frederick S. von Saal, Wade V. Welshones, R. Thomas Zoeller, and John Peterson Myers.

March, 2012, Sonoma County Gazette (handed out at Hearing)