

NEVADA CITY WASTEWATER TREATMENT INQUIRY

REASON FOR INVESTIGATION

The 2003 - 2004 Grand Jury investigated the status of wastewater treatment in unincorporated Nevada County. This year, the Grand Jury investigated the status of wastewater treatment in Nevada City. Since this entity is in the process of renewing its wastewater discharge permit, the Grand Jury examined the plans, projected costs, funding sources, and estimates of customer rate increases to meet its current wastewater discharge requirements.

BACKGROUND

The U.S. Environmental Protection Agency (EPA), State Water Quality Resource Control Board (SWB), and the Central Valley Regional Water Quality Resource Control Board (CVB) regulate wastewater treatment plants.

Treatment plants, regulated by multiple levels of governmental authority, operate within a complex regulatory framework that includes the following:

- EPA as regulator of the Clean Water Act, 33 USC 1311, and the Federal Water Pollution Control Act, 33 USC et seq.
- The SWB and the Porter-Cologne Water Quality Control Act, California Water Code Division 7, effective January 1, 2003, sometimes called the “California Toxics Rule” (CTR).
- The CVB affecting western Nevada County.

Environmental Protection Agency

The EPA’s mission is to protect human health and to safeguard the natural environment - air, water, and land - upon which life depends. The Clean Water Act (CWA) of 1972 and amended in 1987 is the primary Federal statute regulating the protection of the nation’s waters.

State Water Quality Resources Control Board

The California Water Code is the principal state regulation governing water quality protection and the use of water resources. This code established the SWB and the California Regional Water Quality Control Boards.

Regional Water Quality Control Boards

The mission of the nine Regional Water Quality Control Boards is to develop rules to enforce water quality and thereby protect the State's waters. The primary duty of the CVB Sacramento-San Joaquin Delta Basin (Region 5b) is to protect the quality of the waters within the central valley region including western Nevada County.

All wastewater treatment plants that discharge to surface waters are issued a National Pollutant Discharge Elimination System (NPDES) permit that sets specific discharge requirements to ensure protection of public health and water quality. These permits are renewed every five years by the California Regional Water Quality Control Boards. At each renewal, the permit renewal process may incorporate new treatment objectives and discharge regulations that might require upgrades or modifications to the treatment plants.

The Regional Water Quality Control Boards conduct a site survey at each wastewater treatment location and make a determination of the beneficial uses of the receiving waters, i.e., surface waters that receive the treated effluent. Beneficial uses include Municipal and Domestic water supplies, water contact and non-contact recreation, warm and cold freshwater habitats and wildlife habitat, ground water recharge, and agricultural supply. NPDES permit requirements are then tailored to preserve and maintain the beneficial uses of the applicable receiving water. Civil and criminal penalties are applicable to persons or agencies who violate orders set forth by the CVB.

NEVADA CITY

Nevada City has a population of approximately 3000. The Nevada City sewer trunk lines date back to 1895. The sewer, which serves 99% of the City, contained within approximately 2 square miles, has approximately 19 miles of sewer lines and 1600 sewer hook-ups. The City has invested \$1.3 million in its sewer system with \$600,000 additional projected over the next few years. Improvements have included installation of 120 leak-proof manhole covers.

Until the end of WWII, raw sewage was discharged into Deer Creek. The Nevada City Waste Water Treatment Plant (NCWWTP) was constructed in Deer Creek canyon in 1949. The plant was upgraded in 1984, 1993 and 1997. The capital investment is approximately \$6.0 million. The capacity of the Plant is 0.699 million gallons per day (mgd), average 0.460 mgd, average dry weather 0.410 mgd and peak flooding 1.200 mgd.

The treatment system includes grit removal, biological treatment in sequencing batch reactors, sand filtration, pH adjustment, and chlorination/dechlorination. Sludge is treated in an aerobic digester, dewatered by a belt filter press, and hauled to the Redwood landfill in Novato. Treated wastewater is discharged into Deer Creek, which ultimately flows to the lower reaches of Deer Creek and the Yuba River below Engelbright Dam.

METHOD OF INVESTIGATION

The Grand Jury interviewed the City Manager of Nevada City, the City Engineer, Assistant Chief Engineer and City wastewater operations staff, and members of the CVB. Grand Jury members visited the NCWWTP, reviewed documents prepared by the CVB and documents prepared by consultants and researched the topic of wastewater treatment in California through multiple sources.

FINDINGS

1. On November 29, 2000, the City applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the City's domestic Waste Water Treatment Plant.
2. The current Nevada City wastewater discharge requirements are contained in CVB Order No. R5-2002-0050 dated April 26, 2002. Effluent compliance limitations are contained in Cease and Desist Order No. R5-2002-0051 dated April 26, 2002. Full compliance with the provisions of this order must be certified by April 15, 2007.
3. The Board Order contains effluent compliance limitations for ammonia, nitrite, and nitrate plus nitrite. During low temperature conditions, the current plant design and operation can result in incomplete nitrification and/or denitrification of wastewater resulting in increased concentrations of ammonia, nitrate, and nitrite. A modified pH adjustment system may be necessary to consistently comply with pH effluent limitations. Dates for achieving compliance limitations are:

<u>Task</u>	<u>Compliance Date</u>
Progress Reports	30 April and 31 October of each year
Achieve Full Compliance	15 April 2007

4. The planned upgrade of the NCWWTP will convert sequencing batch reactors to a continuous flow selector activated sludge system. The upgrade is designed to produce substantial improvements in year-round nitrification-denitrification and average effluent turbidity. Clarifiers, automated fine screening, washing and compaction and a new disk filter are designed to increase clarification efficiency. The chlorination/dechlorination system will be renovated. The final pH correction will use medium-dilution liquid sodium hydroxide if necessary.
5. The engineering design plans for the upgraded and expanded facilities, including enlarging the office and laboratory building, have been reviewed and approved by an independent engineering contractor.
6. Key internal milestones for the plant upgrade project are design and approval in March 2005, award of construction contract in June 2005, construction from July 2005 to October 2006 and completion of plant start-up and training in April 2007.
7. Financing of the project will be through a grant and loan from U. S. Department of Agriculture. Total cost is projected at \$3.723 million, of which \$1 million is a grant and

\$2.723 million is a loan.

8. The City Council is investigating the feasibility of contracting for operations and maintenance personnel for the NCWWTP. The City currently has three full time wastewater operator positions and two part time positions. However, industry demands and salaries for certified operators with highly specialized skills have increased significantly. This has triggered the City's interest in contracting for fully qualified certified personnel.
9. The Nevada City sewer rate is currently \$33.50 per month for a single-family dwelling. On July 1, 2005, the rate will be increased to \$35.25 per month. The base rate can be adjusted to cover increased operations and maintenance expenses, upgrades and debt service costs.
10. The NCWWTP upgrade project does not require increasing the licensed design capacity of the current plant. Local Agency Formation Commission (LAFCo) population model projections, based on the general plan, indicate a population increase of only 152 in 2007 and 1,083 in 2012. Nevada City has determined the increased sewage flows attributable to this population growth are well within the licensed design capacity of the current NCWWTP.
11. Nevada City was recently served with Notice of Violation from the CVB pertaining to the practice of performing non-certified in-house analyses of ammonia and coliform. This violates Board Order requirements that the monitoring and reporting program for these elements be performed by certified laboratory analyses procedures. Previously the City had been performing the analyses using certified personnel, but the City laboratory was not certified. The City has now contracted for certified laboratory analysis services and plans for certification of the laboratory in the plant upgrade.

CONCLUSIONS

1. The Nevada City Waste Water Treatment Plant (NCWWTP) project for new construction and modifications appears to address the waste discharge requirements and compliance limitations set by the CVB.
2. NCWWTP project plans now call for contract award in June 2005 and start of construction in July 2005. These dates appear to be approximately two months behind the original internal planning schedule. No change is anticipated in attaining full Board compliance by April 15, 2007.
3. Rates to customers for wastewater services are expected to continue to increase over time. The City's wastewater plant and operations are financially managed as an enterprise fund such that rates are adjusted to cover costs. These costs include construction, operations and maintenance and debt service. Plant upgrades and labor expenses to meet increasingly higher wastewater treatment standards, as imposed by the CVB, are expected to continue.

4. The increasing need for specialized skills may be more efficiently provided through contracting the required personnel services, especially for a small City work force.

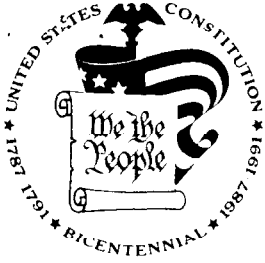
RECOMMENDATIONS

1. The City Council of Nevada City should exercise best business practices and due diligence in the conduct and coordination of the construction of the upgraded NCWWTP with the on-going operations of the facility. An on-site construction inspector with wastewater experience could help to ensure efficient operations and maintenance of the plant concurrent with the construction activities associated with the new facilities at the same location.
2. The City Council of Nevada City should determine the relative merits of hiring qualified certified wastewater operators and maintenance personnel as city employees vis-à-vis contracting for these services.
3. The City Council of Nevada City should investigate the technical and operational feasibility of consolidating selected operations and maintenance services with neighboring wastewater plants including those of the City of Grass Valley and the several Waste Water Special Districts in Nevada County.
4. The City Council of Nevada City should investigate sharing of certified facilities and personnel with neighboring wastewater plants for required testing and analyses of wastewater and effluents elements as a cost saving measure.

RESPONSES REQUIRED

Nevada City City Council: September 19, 2005

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8/31/05



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*Received by
7/10/05*

August 8, 2005

Honorable Ersel L. Edwards
Presiding Judge of the Civil Grand Jury
201 Church Street
Nevada City, CA 95959

RE: City Council Response to Grand Jury Report – 2003/2004

Honorable Judge Edwards:

The City Council reviewed the recent release of the 2003-2004 Grand Jury Report concerning the Nevada City Wastewater Treatment Plant along with a staff report from our Administrative Office. Nevada City has long been concerned with providing the citizens of Nevada City with a method for disposing of sewage in an affordable, environmentally sensitive manner. To that end we have, through the years, continued to upgrade our Wastewater Treatment Plant in order to maintain a "state-of-the-art" facility that meets and/or exceeds State standards.

We appreciate the hard work and attention to details that the Grand Jury demonstrated in their report. Our response to their findings is as follows:

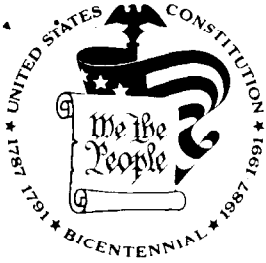
FINDINGS:

Findings 1 –6

The City Council agrees with the findings.

Finding 7

The City Council wishes to point out, for the record, that this finding was correct at the time but that the total projected cost of the project has increased to \$5,460,000 of which \$1,602,000 is in a combination (\$1,000,000 and \$602,000) of two grants and \$4,518,000 is in a combination (\$2,188,000 and \$2,330,000) of two loans.



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Finding 8

The City Council agrees with the finding.

Finding 9

The City Council agrees. The rate has been increased to \$35.25 per month for a single-family dwelling in compliance with the requirements for the grants/loans. The rate became effective July 1, 2005. Additional rate increases will be implemented on January 1, 2006, July 1, 2006 and July 1, 2007 as required by the conditions of the loans.

Finding 10

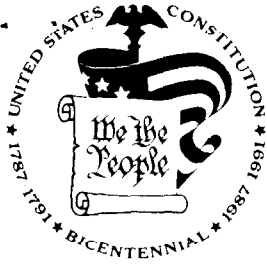
We agree with this finding.

Finding 11

We agree with this finding. Fully certified laboratories are currently performing the lab analysis.

RESPONSE TO RECOMMENDATIONS:

Recommendation 1: The City Council of Nevada City should exercise best business practices and due diligence in the conduct and coordination of the construction of the upgraded NCWWTP with the on-going operations of the facility. An on-site construction inspector with wastewater experience could help to ensure efficient operations and maintenance of the plant concurrent with the construction activities associated with the new facilities at the same location.



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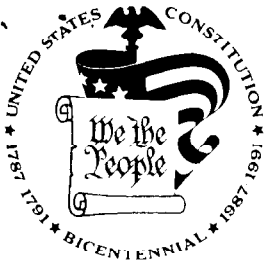
The City of Nevada City strives to exercise best business practices in all matters pertaining to the Wastewater Treatment Plant and throughout the entire upgrade process and will continue to do so. The City is currently interviewing firms to conduct the on-site construction inspection. All firms being interviewed have many years of experience in wastewater treatment plants.

Recommendation 2: The City Council of Nevada City should determine the relative merits of hiring qualified certified wastewater operators and maintenance personnel as city employees vis-à-vis contracting for these services.

The City of Nevada City is doing a combination of the above recommendation. We have recently entered into a contract with Eco-Logic to provide a Grade V Operator/Supervisor for the plant while maintaining our qualified certified wastewater operators. Additional certified operators are available as needed. Also Eco-Logic is providing maintenance personnel, trained in Wastewater Plant maintenance, on an as-needed basis. Additionally, they are providing loss control programs specifically designed for Wastewater Treatment Plant operations, as well as access to certified laboratory personnel and bulk chemical and operational supplies purchasing.

Recommendation 3: The City Council of Nevada City should investigate the technical and operational feasibility of consolidating selected operations and maintenance services with neighboring wastewater plants including those of the City of Grass Valley and the several Wastewater Special Districts in Nevada County.

The City Council has reviewed this option in the past and has unanimously decided that it is in the best interest of the citizens of Nevada City to maintain full autonomy from other agencies in the operation of the wastewater treatment plant. The City feels that by contracting with Eco-Logic to provide some services there is no benefit to consolidating selected operations and services with Grass Valley or the County of Nevada.



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Recommendation 4. The City Council of Nevada City should investigate sharing of certified facilities and personnel with neighboring wastewater plants for required testing and analyses of wastewater and effluents elements as a cost saving measure.

The City Council has reviewed this option and feels that by contracting with Eco-Logic they have accomplished the cost saving measures suggested.

Protection of the environment, increasing discharge requirements and demands for better service are just three of the challenges facing communities throughout California. Nevada City is working hard to find solutions just as other communities are doing. We feel we have adopted an approach that will help us to obtain this goal while retaining the quality of life we value. Again, we would like to thank you for your concern for Nevada City, the comprehensive review and the valuable suggestions. If you have any questions, please don't hesitate to contact us.

Sincerely,

Conley S. Weaver
Mayor