

# **SEPTIC SYSTEMS INQUIRY IN NEVADA COUNTY**

## **REASON FOR INVESTIGATION**

Over the past several years local newspaper articles have been written regarding sewage spills. The Grand Jury, in the course of investigating wastewater treatment, learned that 65% of the County was on septic systems. We thereupon initiated an investigation to examine both the County's actions and its future plans with respect to addressing the public health concerns associated with septic systems.

## **BACKGROUND**

On-site wastewater systems are defined as both an individual septic system for one connection such as a single-family residence and a community septic system that might serve multiple connections such as an apartment complex or an industrial park.

Nevada County Local Agency Formation Commission (LAFCO) commissioned a study called Final Municipal Service Review Report Nevada County Western Region Wastewater Service Agencies. This report, concluded in January of 2004, is a major source of information for the Grand Jury report.

## **METHOD OF INVESTIGATION**

The Grand Jury interviewed County wastewater operations management, reviewed documents prepared by consultants hired by LAFCO, and researched the topic of on-site systems in California through multiple sources.

## **FINDINGS**

1. The 1967 Porter-Cologne Act established the State Water Quality Resource Control Board (SWB) and California Regional Water Quality Control Boards as principal state agencies responsible for water quality control.
2. The Central Valley Regional Water Quality Control Board (CVB) has the authority to regulate any wastewater system within a jurisdiction that includes western Nevada County. While the Porter-Cologne Act requires that any person discharging or proposing to discharge waste, even individual septic systems for single-family residences, file a report with the regional offices, it has been CVB's practice since the early 1950s to

regulate/monitor only systems with more than 99 connections. Recently the CVB has decided to regulate some systems in Nevada County with fewer than 99 connections where the proposed system design did not appear to protect water quality and meet existing standards.

3. More stringent statewide requirements for the permitting/operation of on-site systems may be required as a result of Assembly Bill 885 (AB885), but no regulations or standards have been promulgated as of the date of this report.
4. Beyond the policies and requirements of the regional water quality control boards, there are currently no statewide requirements for minimum lot sizes, placement, or use of on-site wastewater systems. California does not have statewide laws for pre-sale inspections or for regular inspections of on-site systems after initial construction. Requirements addressing these issues are left to the discretion of individual county health departments.
5. Nevada County has established regulations for setbacks and replacement areas for on-site systems. Regardless of the zoning, all new parcels created in Nevada County that plan to use an on-site system must be large enough to accommodate the required system and an on-site system reserve/replacement area. The reserve area, required to be the same size as the primary septic system, is protected to the same extent as the primary septic system area.
6. The LAFCO report states ... “while on-site systems are often cited as a source of water quality degradation, there is little documentation to substantiate that claim. AB885 may require that the SWB adopt regulations for the permitting/operation of on-site systems.”
7. County tracking of septic tank problems and leakage is *only* complaint-driven. Complaints are received and filed according to parcel number in manila folders in a records storage room. Older parcel data is stored on microfiche. To obtain a consolidated report of septic tank complaints, one would have to go through the parcel folders and microfiche and extract the complaints one-by-one. Without consolidated reports, the County lacks reference points to determine if the number of complaints is growing (and at what rate), staying the same, or decreasing.
8. In response to a letter dated January 11, 2002 from the Alta Sierra Property Owners Association (ASPOA), the County Department of Transportation and Sanitation in September of 2002 conducted an investigation of sewage disposal in the Alta Sierra area. The study, based on a review of 309 randomly selected developed parcel files (with no on-site physical inspection), statistically estimated that over 40% of the septic tanks have not been pumped in the last 15 years compared to a recommended average pumping interval of 3-5 years. The study also concluded that no evaluation of ground water quality or health risks could be made as the study was done from historical data and lacked field-testing for bacteria.
9. A report prepared for the Nevada County 1992 General Plan update noted:

“Septic tank and leach field system problems have evolved in localized portions of western Nevada County for a variety of reasons including soil conditions, slope, small lot sizes and inadequate permit and construction practices ... (and) areas such as the Alta Sierra subdivision and La Barr Meadows have a history of failing leach fields.”

10. Regular testing of wells can determine if groundwater is contaminated. The LAFCO report states...“all wells be tested regularly.” Anecdotal information indicates that generally 27% of wells tested show levels of coliform bacteria in excess of acceptable levels. While wastewater disposal may be the primary cause of high coliform levels, a causal relationship between failing septic systems and high coliform levels in wells has not been established. Coliform bacteria are ubiquitous in soil and are only “indicators” of potential water contamination.
11. The LAFCO report also states: “It may not be possible for all new development to connect to centralized, public wastewater systems; however, a series of larger sub-regional, centralized facilities may reach economies of scale not available with on-site systems. A method of evaluating the economic and environmental impacts of the various treatment options and providing direction to reduce the long-term reliance on on-site systems should be developed.”
12. The County is developing a new computer system called “Encompass.” Encompass is expected to provide consolidated reports for parcel data that is entered into the system. It is not clear, however, that older parcel data stored on microfiche will be included. Older septic systems might be expected to be more problematic than newer systems constructed using longer-lasting materials

## **CONCLUSIONS**

1. While the regulatory details of AB885 have not yet been promulgated, the County can proactively anticipate that those details will require a new level of protection of the public health in areas of high population density that are currently served by on-site systems. There is no need to wait for AB885 to react to what is already known.
2. There is a potential health risk associated with coliform bacteria that is currently unmeasured. In addition to the health problems associated with bacteria, there is also a long-term problem associated with on-site systems’ dispersal of common household wastes containing contaminants that wastewater treatment plants are required to remove.
3. Thus, failure-reports from Encompass might not include the past data for parcels having the highest septic tank failure rate. Measurement is absolutely indispensable for improving wastewater treatment efforts. Without measurement, there is no effective way to judge the County’s wastewater efforts.

## **RECOMMENDATIONS**

1. The Board of Supervisors should direct Sanitation and/or Environmental Health to commission a master plan to address on-site system testing and maintenance countywide and to educate the public about related health concerns.
2. The Board of Supervisors should make certain that any new computer systems have the data required to provide essential management reports related to on-site septic system complaints, failures, testing, and maintenance.
3. The Board of Supervisors should direct Environmental Health to assist ASPOA and similar communities to locate an affordable testing and pumping provider for residents' septic systems.
4. The Board of Supervisors should establish an ongoing periodic licensing and testing program for all wells within the County to determine if the groundwater is contaminated.

## **RESPONSES**

Nevada County Board of Supervisors – August 30, 2004

# COUNTY OF NEVADA

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Clerk of the Board

Telephone: (530) 265-1480  
Fax: (530) 265-1234  
Toll-Free Telephone: (888) 785-1480  
E-Mail: [bdofsupervisors@co.nevada.ca.us](mailto:bdofsupervisors@co.nevada.ca.us)  
Website:  
<http://boardclerk.co.nevada.ca.us>

August 11, 2004

The Honorable Judge Ersell Edwards  
Presiding Judge of the Nevada County Courts  
Nevada County Court House  
Nevada City CA 95959

**Subject: Board of Supervisors Responses to the 2003-2004 Nevada County Civil Grand Jury Report, dated June 1, 2004 regarding Septic Systems Inquiry in Nevada County**

Dear Judge Edwards:

The attached responses by the Board of Supervisors to the 2003-2004 Nevada County Civil Grand Jury Report, dated June 1, 2004, are submitted as required by California Penal Code §933.

These responses to the Grand Jury's Findings and Recommendations were approved by the Board of Supervisors at their regular meeting on August 10, 2004. Responses to Findings and Recommendations are based on either personal knowledge, examination of official County records, information received from the Department of Transportation and Sanitation, the County Executive Officer or the Board of Supervisors and County staff members.

The Board of Supervisors would like to thank the members of the 2003-2004 Grand Jury for their participation and effort in preparing their Reports, and their participation in the Grand Jury process.

Sincerely,

**Robin Sutherland**  
Chair of the Board

Attachment

cc: DOTS  
CDA  
Foreman, Grand Jury  
Rick Haffey, County Executive Officer

*REV'D  
8-16-04  
EE*

**NEVADA COUNTY BOARD OF SUPERVISORS RESPONSES TO  
2003/2004 CIVIL GRAND JURY REPORT  
DATED JUNE 1, 2004**

**RE: SEPTIC SYSTEMS INQUIRY IN NEVADA COUNTY**

*Responses to findings and recommendations are based on either personal knowledge, examination of official county records, review of the responses by the Community Development Agency, the County Executive Officer, or testimony from the Board Chair and county staff members.*

**I. GRAND JURY INVESTIGATION:**

**Septic Systems Inquiry in Nevada County.**

**A. RESPONSE TO FINDINGS & RECOMMENDATIONS:**

**Findings:**

1. **The 1967 Porter-Cologne Act established the State Water Quality Resource Control Board (SWB) and California Regional Water Quality Control Boards as principal state agencies responsible for water quality control.**

Agree

2. **The Central Valley Regional Water Quality Control Board (CVB) has the authority to regulate any wastewater system within a jurisdiction that includes western Nevada County. While the Porter-Cologne Act requires that any person discharging or proposing to discharge waste, even individual septic systems for single-family residences, file a report with the regional offices, it has been CVB's practice since the early 1950s to regulate/monitor only systems with more than 99 connections. Recently the CVB has decided to regulate some systems in Nevada County with fewer than 99 connections where the proposed system design did not appear to protect water quality and meet existing standards.**

Agree

3. **More stringent statewide requirements for the permitting/operation of on-site systems may be required as a result of Assembly Bill 885 (AB885), but no regulations or standards have been promulgated as of the date of this report.**

Agree

AB885 addresses the operation of new systems and the failure of existing systems.

4. **Beyond the policies and requirements of the regional water quality control boards, there are currently no statewide requirements for minimum lot sizes, placement, or use of on-site**

wastewater systems. California does not have statewide laws for pre-sale inspections or for regular inspections of on-site systems after initial construction. Requirements addressing these issues are left to the discretion of individual county health departments.

Agree

5. Nevada County has established regulations for setbacks and replacement areas for on-site systems. Regardless of the zoning, all new parcels created in Nevada County that plan to use an on-site system must be large enough to accommodate the required system and an on-site system reserve/replacement area. The reserve area, required to be the same size as the primary septic system, is protected to the same extent as the primary septic system area.

Agree

6. The LAFCo report states, ... "while on-site systems are often cited as a source of water quality degradation, there is little documentation to substantiate that claim. AB885 may require that the SWB adopt regulations for the permitting/operation of on-site systems."

Agree that the LAFCo report referenced by the Grand Jury, the *Final Municipal Service Review Report (MSRR) of Nevada County Western Region Wastewater Service Agencies*, dated January 2004, states there is little documentation to substantiate the claim that on-site sewage disposal systems are a source of water quality degradation and that AB 885 may require the SWB to adopt regulations for the permitting/operation of septic systems.

The Board of Supervisors however, does not agree or disagree with the overall determinations and conclusions reached in this report. The report was prepared for LAFCo by an outside consultant and does not necessarily reflect the factual determinations, views and recommendations of the Nevada County Sanitation District No. 1 (Board of Supervisors), and the Nevada County Department of Transportation and Sanitation (DOTS), and the Nevada County Environmental Health Department.

7. County tracking of septic tank problems and leakage is *only* complaint-driven. Complaints are received and filed according to parcel number in manila folders in a records storage room. Older parcel data is stored on microfiche. To obtain a consolidated report of septic tank complaints, one would have to go through parcel folders and microfiche and extract the complaints one-by-one. Without consolidated reports, the County lacks reference points to determine if the number of complaints is growing (and at what rate), staying the same, or decreasing.

Partially agree

The tracking of septic system failures and surfacing sewage is complaint driven and an electronic database does not presently exist for tracking all previous and current wastewater system complaints.

When septic system complaints are received, they are investigated and documented as either justified or unjustified; those that are justified and result in a repair permit are entered into the EH construction permit database. The Department of Environmental Health has maintained this system since 1991 and any failed sewage disposal system for which a repair permit was obtained is recorded in this database. These data can be extracted in a report if needed. Tracking the number of unsubstantiated complaints is not relevant, however the number of repair permits issued indicates the number of septic system failures *of which the County is made aware*.

The Code Compliance Division of the Planning Department is responsible for the oversight of the abatement of failed septic systems and surfacing sewage violations. This process is complaint driven in the same manner as other County code violation complaints. As they are Health & Safety issues, Code Compliance will respond to the complaint within 48-hours.

The Community Development Agency (CDA) is presently implementing a new computer system (Encompass) for processing, tracking and reporting building, environmental health and land use permit activity. Code violations related to these issues are also tracked through this system. The Code Compliance Division classifies current septic system and surfacing sewage complaints as they are entered into the system and is presently working on updating the system to reflect known past system failures. Full implementation of the Encompass system is expected within the next 12 months.

Information regarding failed septic systems and surfacing sewage violations can also be provided in a report and could potentially be mapped into the County Geographic Information System (GIS) library. The Department of Environmental Health is presently discussing this idea with the Information Systems Department and is in the process of determining what would be needed to develop such a GIS data layer. The Environmental Health Department will implement a process to do this if it is found to be feasible and cost effective.

8. **In response to a letter dated January 11, 2002 from the Alta Sierra Property Owners Association (ASPOA), the County Department of Transportation and Sanitation in September of 2002 conducted an investigation of sewage disposal in the Alta Sierra area. The study, based on a review of 309 randomly selected developed parcel files (with no on-site physical inspection), statistically estimated that over 40% of the septic tanks have not been pumped in the last 15 years compared to a recommended average pumping interval of 3-5 years. The study also concluded that no evaluation of ground water quality or health risks could be made as the study was done from historical data and lacked field-testing for bacteria.**

Agree

The Department of Transportation and Sanitation study indicated that approximately 2% of the systems investigated had failed but all have since been repaired and/or replaced.

9. **A report prepared for the Nevada County 1992 General Plan update noted:**

**“Septic tank and leach field system problems have evolved in localized portions of western Nevada County for a variety of reasons including soil conditions, slope, small lot sizes and inadequate permit and construction practices ... (and) areas such as the Alta Sierra subdivisions and La Barr Meadows have a history of failing leach fields.”**

Agree

10. **Regular testing of wells can determine if groundwater is contaminated. The LAFCo report states ... “all wells be tested regularly.” Anecdotal information indicates that generally 27% of wells tested show levels of coliform bacteria in excess of acceptable levels. While wastewater disposal may be the primary cause of high coliform levels, a causal relationship between failing septic systems and high coliform levels in wells has not been established. Coliform bacteria are ubiquitous in soil and are only “indicators” of potential water contamination.**

Agree that the LAFCo report referenced by the Grand Jury, the *Final Municipal Service Review Report (MSRR) of Nevada County Western Region Wastewater Service Agencies*, dated January 2004, states that all wells should be tested regularly.

Also see the disclaimer in the Board response to Finding No. 6 regarding conclusions and determinations in the LAFCo report.

Partially agree that while wastewater disposal may be the primary cause of high Coliform levels, a causal relationship between failing septic systems and high coliform levels in wells has not been established. The County does not have the data to determine that ... “wastewater disposal may be the primary cause of high coliform levels.” Proving a causal relationship would require a carefully designed and executed (and expensive) study.

The Board of Supervisors is unaware of the source or accuracy of the “anecdotal information” referenced in this finding. However, it is the Environmental Health Department’s experience that the vast majority of wells that do show Coliform contamination have been inadvertently contaminated at the wellhead. (See response to Recommendation No. 4).

The Board agrees that Coliform bacteria are ubiquitous in soil and are only “indicators” of potential water contamination.

11. **The LAFCo report also states: “It may not be possible for all new development to connect to centralized, public wastewater systems; however, a series of larger sub-regional, centralized facilities may reach economies of scale not available with on-site systems. A method of evaluating the economic and environmental impacts of the various treatment options and providing direction to reduce the long-term reliance on on-site systems should be developed.”**

Agree that the LAFCo report referenced by the Grand Jury, the *Final Municipal Service Review Report (MSRR) of Nevada County Western Region Wastewater Service Agencies*, dated January 2004, states that "It may not be possible for all new development to connect to centralized, public wastewater systems; however, a series of larger sub-regional, centralized facilities may reach economies of scale not available with on-site systems." And that... "A method of evaluating the economic and environmental impacts of the various treatment options and providing direction to reduce the long-term reliance on on-site systems should be developed."

Also see the disclaimer in the Board response to Finding No. 6 regarding conclusions and determinations in the LAFCo report.

The Board of Supervisors, the Department of Transportation & Sanitation (DOTS) and the Department of Environmental Health (EH) agree with this conclusion.

The Nevada County Department of Transportation and Sanitation (DOTS) and Department of Environmental Health (EH) jointly presented a preliminary work plan for the development of a Western Nevada County Wastewater Infrastructure Plan to the Board of Supervisors on June 1, 2004. The Board approved the concept to develop a plan and gave direction to DOTS and EH to proceed. The departments were also directed to contact Grass Valley and Nevada City regarding their participation in the development and funding of the plan. The estimated cost of the plan is \$200,000 - \$300,000. This estimate will be refined as Phase I of the project proceeds. This Phase will include requesting proposals from consultants to develop the plan, preparing a work plan, and obtaining public comment about the issues and concerns that should be addressed. (See Response to Recommendation No.1).

12. **The County is developing a new computer system called "Encompass." Encompass is expected to provide consolidated reports for parcel data that is entered into the system. It is not clear, however, that older parcel data stored on microfiche will be included. Older septic systems might be expected to be more problematic than newer systems constructed using longer-lasting materials.**

Agree

There are several reasons why older septic system parcel data can be useful if it is available. Examples of septic problems that often involve more than system failure include:

1. Potential impacts of older systems on adjoining parcels (such as location related to setbacks, roads, and buildings), however, this level of detail is rarely if ever present in the microfiched files.
2. Evaluating system capabilities when rebuilding systems, remodeling, etc., again, older system files rarely include this level of detail.
3. Providing historical system data for property owners and prospective buyers. This is generally the most useful information gleaned from these old files.

While older septic systems are more prone to failure for a number of reasons, the older parcel data is generally not of great value in tracking or interpreting reasons for system failure.

A final decision regarding the complete entry of historical data into Encompass has not yet been made. However, any historical Environmental Health data would come from the existing EH database, which only dates back to mid-1991. There is no current plan to enter data prior to that date.

Code compliance staff is also currently working on updating EH records between November 2003 and May 2004. (See response to Finding No. 7).

## **Recommendations:**

- 1. The Board of Supervisors should direct the Sanitation and/or Environmental Health to commission a master plan to address on-site system testing and maintenance countywide and to educate the public about related health concerns.**

This recommendation, as described, will not be fully implemented at the present time.

The Board of Supervisors and the Environmental Health Department do not believe it is presently necessary and cost effective to develop and implement a master plan for testing and maintenance of water wells and on-site sewage disposal systems. The Board and EH believe that information provided to builders at the time of the initial permit for wells and on-site sewage disposal systems as well as required inspections during the construction phase ensure proper system construction and provide adequate protections for public health and safety. Some system maintenance information is also provided at the time of the initial construction permit for the on-site system. It is additionally unclear what the Grand Jury report means by "on-site system testing". For more advanced wastewater treatment systems, the design consultant is required to provide the client with an operation and maintenance manual.

The Board does support a public information program to educate the public about the critical need to properly maintain water well and on-site sewage disposal systems, recognize problems, and take immediate action to correct them. Public education efforts currently underway include the periodic posting of informative articles regarding on-site wastewater systems in the Community Development Agency (CDA) newsletter and on the CDA website, and public forums. The Environmental Health Department has not currently documented any areas of high septic system failure rates. Penn Valley and North San Juan previously experienced area septic problems but moratoriums were imposed and new sewage treatment facilities were subsequently developed.

The Department of Environmental Health will continue to review existing public education programs and develop new ideas to educate the public on potential public health and safety problems caused by failing septic systems and contaminated wells. The Department will also explore ways to provide expanded outreach and educational materials to the public consistent with the need to do so and in consideration of staffing and resource limitations.

The Nevada County Department of Transportation and Sanitation (DOTS) and Department of Environmental Health (EH) also jointly presented a preliminary work plan for the development of a Western Nevada County Wastewater Infrastructure Plan to the Board of Supervisors on June 1, 2004. The Board approved the concept to develop a plan and gave direction to DOTS and EH to proceed. The departments were also directed to work with Grass Valley and Nevada City regarding their participation in the development and funding of the plan. This plan will primarily focus on wastewater treatment facility needs but will also address issues related to clean water requirements as they relate to water wells and on-site sewage disposal systems. (See Response to Finding No. 11)

- 2. The Board of Supervisors should make certain that any new computer systems have the data required to provide essential management reports related to on-site septic system complaints, failures, testing, and maintenance.**

This recommendation is currently being implemented through the development of the Community Development Agency's Encompass software system.

The software manufacturer is currently developing a work plan for full Environmental Health integration into the Encompass system. The Environmental Health Department anticipates it will take up to 12 months to complete the project.

The Code Compliance Division presently tracks sewage complaints in Encompass both by complaints received and whether or not they are valid. These data can presently be retrieved in a report. Failed systems that are brought to the attention of the County require a repair permit. These permits are now entered into the EH construction permit database.

Maintenance reporting is only required on specific types of on-site wastewater systems, and the maintenance-tracking program is currently being developed. Although specific data have not yet been identified, the program will at least track if and when a system maintenance report has been submitted at the required frequency. The County has no authority to require people to submit septic tank pumping reports, so there will be no data collection or tracking of this information.

The Environmental Health Department does not track any "testing" information other than information needed to obtain required septic system permits, water sampling data from small community water systems, and a fraction of private wells at the time of a real estate transaction, at the request and expense of the property owner. (See response to recommendation No. 4).

- 3. The Board of Supervisors should direct Environmental Health to assist ASPOA and similar communities to locate an affordable testing and pumping provider for residents' septic systems.**

This recommendation will not be implemented as described.

The County cannot recommend specific vendors for water testing or septic tank pumping. There are currently several permitted, private septic tank pumping companies conducting business in Nevada County that serve the Alta Sierra area in addition to the entire county. The Board understands the Alta Sierra Property Owners Association (ASPOA) also maintains a referral list of water system testing and septic tank pumping companies and makes this information available to their members if requested.

The Community Development Agency is additionally in the process of developing a consolidated list of private contractors who provide this service. Currently, public inquiries are directed to the yellow pages of the telephone directory.

- 4. The Board of Supervisors should establish an ongoing periodic licensing and testing program for all wells within the County to determine if the groundwater is contaminated.**

This recommendation will not be implemented at this time.

The significant cost of licensing and inspecting thousands of water wells in Nevada County after they are installed would not provide a cost effective or meaningful solution to reducing the potential for ground water contamination. The Board of Supervisors and the Environmental Health Department believe public education and swift action by property owners to correct individual problems as they are suspected and identified are effective ways to prevent ground water contamination from water wells and on-site sewage disposal systems and protect public health and safety. (See response to Finding No. 10).

The Department of Environmental Health currently samples a fraction of private wells at the time of a real estate transaction, at the request and expense of the property owner. It is the experience of the Department that the vast majority of wells that do show Coliform contamination have been inadvertently contaminated at the wellhead. After any needed repairs to the wells are made and the wells are properly disinfected, the bacterial problem is eliminated. It is very rare that a contaminated well cannot be repaired and disinfected, and must be destroyed. However, making a determination that the source of the well contamination is from a leach field is very difficult to do.

The Department of Environmental Health also collects water sample data from approximately 85 small community water system wells throughout the county. These water systems are required to periodically submit bacterial analyses (typically monthly or quarterly) along with data from various other analyses that would suggest contamination of the well by wastewater. There are no recent or current indications of wastewater contamination of any of these small community water system wells. It should be noted that most of these small water systems serve parcels developed with on-site wastewater systems, and often the density is considerably higher than typical rural development served by individual wells and on-site wastewater systems.

Septic testing and pumping information obtained, as part of private property transfers may also be useful in tracking groundwater contamination data. The Department of Environmental Health will discuss this issue with the Board of Realtors to see if this information can be easily provided. If so, the department will include it in the County database and access it as needed to track groundwater contamination and septic failure issues.

## **REQUIRED RESPONSES**

Board of Supervisors – by August 30, 2004

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