

Status Report – Program for Inspection of Onsite Water Supply & Sewage Disposal at the Time of Property Transfer

Submitted by

Washtenaw County Environmental Health Division/DEIS

Background:

On June 9, 1999, the Washtenaw County Board of Commissioners enacted the Regulation for Inspection of Onsite Water Supply and Sewage Disposal at the Time of Property Transfer, for a January 2000 program implementation. This report summarizes the six (6) month preparation for implementation activities; the first year implementation results; the program expenditures and revenues; and the acquired concerns and complaints, including how those were addressed. Future reports may provide recommendations for Onsite Water Supply and Sewage Disposal System (OWSDS) regulation and program changes.

Steps toward Implementation:

The program success is due, in part, to the cooperative work accomplished by an Advisory Committee with members from various stakeholder groups affected by the Regulation and from the Environmental Health Division of the Washtenaw County Department of Environment & Infrastructure Services. The Committee was formed soon after the Regulation was adopted. The following lists the Committee members and the stakeholder groups represented:

Banking – Steve Stasson, Great Lakes Bank
Board of Appeals – J.D. Lindeberg, Washtenaw County Public Health
Advisory/Health Code Board of Appeals
Engineering – Barry Johnson, Wayne County Rouge Program Office (RPO)
Home Inspectors – Pat Lyons, Lyons Home Inspection
Homeowners – Regina Carrier, Salem Township Resident
Private Septic Inspectors – Mike Morehouse, HTA Consulting
Realty – Mike Rohde, Ann Arbor Board of Realtors
Septic Installers – Jim Kovalak, Kovalak Excavating
Well Drillers – John Schmitt, Michigan Well Drillers Association

The Advisory Committee reviewed the Regulation and provided recommended procedures for program implementation. The most critical were standards that addressed “substantial conformance”. In the Regulation, the term defined, as “substantial conformance” shall mean there is a minimal likelihood of degradation of groundwater and surface water, or risk to public health caused by improper construction or location of an Onsite Water Supply or Sewage Disposal System (OWSDS), or malfunctioning OWSDS. As part of its work, the Committee delineated substandard construction features and operational conditions. Using the definition per the Regulation, they categorized items as “A”: substantial conformance, or “B”: substantial non-conformance. It was agreed that only deficiencies that exhibited substantial non-conformance would require correction, prior to EH approval given for the property transaction to proceed. In any case where it was not clear that an item was an “A” or “B”, it was recommended that the immediacy of the public health risk be used to make the final determination. The Advisory Committee completed the “A-B Rating Sheet” which was then submitted to the

Washtenaw County Public Health Advisory/Health Code Board of Appeals for review and approval.

The Advisory Committee also provided recommendations regarding the appropriate qualifications for inspector certification and the critical components of an inspection. It was concluded that inspectors, who would be third party (private) contractors hired by the homeowners, must demonstrate basic technical knowledge of wells and septic systems. After successfully completing a training program, applicants proficient in the fundamentals would be certified. All applicants would be required to attend training on inspection techniques, learn how to complete the appropriate forms and what constitutes the regulatory issues. Applications and inspection forms that would be used in the program were reviewed and approved by the Committee. Finally, a Code of Ethics was developed that the inspectors would be expected to follow. Upon completion of its assigned tasks for program implementation, the Advisory Committee was disbanded.

After receiving the materials prepared by Advisory Committee, EH developed screening and training for inspectors, publicized the new Regulation, and implemented the inspection and review process. Letters were sent to contractors who might have interest in certification. Five training modules were developed for design and function aspects, inspection criteria, and regulatory content. Experts Dr. Ted Loudon and Patricia Miller, from Michigan State University's Onsite Sewage Training Center, presented the first training module on technical aspects of septic systems. Proficiency tests were used for the screening process and for each training module.

A quality control program to assure consistency and accuracy was also developed. Reports are submitted to the division on a standardized form. All inspection reports are reviewed by the Division to determine whether the system(s) are in substantial conformance per the OWSDS Inspection Rating System. Inspectors are contacted for clarification if reports are incomplete or if the results appear contradictory to existing departmental records. A representative number of inspection results are also field verified by the Program Coordinator to assure the certified inspectors are performing in accordance with the program standards.

Third Party Inspector Certification

Of the initial forty-four (44) applicants for inspector, forty-one (41) were certified. A potential inspector, who did not pass the training, filed a complaint alleging that the certification process was illegal with the Michigan Attorney General's Office. After reviewing the Regulation and the certification process, the Attorney General's Office determined that the process was appropriate and the complaint invalid. A second round of training produced nine more certified inspectors. One inspector facing de-certification chose to discontinue his business and relocate out of the county. Another inspector was

placed on probation and has, subsequently, improved the quality of his work. Several inspectors chose not to continue, so the approved list stands at thirty-seven (37) in 2001.

Outreach and Communication to the Public

Environmental Health used a number of avenues to inform the public and placed particular emphasis on communicating with those who would be most affected by the Regulation and program. Multiple press releases were sent out and EH staff participated in several radio interviews. Well-attended presentations were made at the Ann Arbor Area Board of Realtors Annual Trade Show, at a meeting of an association of real estate lawyers and title companies, and at the Saline Area Realtors and Lenders group meeting. EH held a “kick-off” breakfast, inviting real estate agents from all Washtenaw communities to attend. Information is now readily available via the DEIS home page (web site), and brochures describing the program have been sent to area communities so residents can have access to that information.

Results – Program Implementation

Per the new Regulation, residential water supplies (wells) and sewage disposal systems (septic fields) must be inspected prior to property sale. The requirement was in place January 1, 2000. In that first year, 975 residential sites were inspected.

Third party inspectors performed inspections within a time frame that was acceptable to the industry. The County processed all reports within the five (5) day period specified by the Regulation. EH staff recognized that timely processing of corrective actions was equally important. Hence, even when a corrective action appeared necessary, each plan was reviewed and responded to within five days (5) of receipt, although the Regulation does not specify EH’s response time for a corrective action request.

The Regulation allows undersized sewage systems to remain as long as they are functioning. However in the first year, eighteen percent (18%) of the systems inspected were in such poor condition that upgrades were required. Nearly one-half of those had sewage surfacing on the ground, draining into surface water or flooding the system, showing that those were clearly not functioning. By the end of the first year, corrections were completed or underway for 95 sewage systems as a direct result of the program. The total number of corrections exceeded 1999 by 113%. Without the new Regulation and program, those failures could still be in place, polluting surface and ground water and potentially compromising the public health of Washtenaw County residents. Similar results were achieved for residential wells. Of the 923 water supplies were inspected, fifteen percent (15%) were found to be unsatisfactory. Buried wellheads and unprotected suction lines, which present a high risk for water supply contamination, were identified in one-third of unsatisfactory wells. Twelve percent (12%) yielded unsafe water samples. A high incidence of improperly abandoned wells, which can lead to groundwater contamination, was also noted. The number of water supply improvements

made to residential water supplies more than doubled (136%) in 2000 versus the prior year of 1999. The increase was directly attributable to the inspection program.

Benefits of the program are magnified when comparing the results to 1988 data. The number of unsatisfactory sewage systems increased from 12 % to 18 %. This increase is due partly to the increased age of the average system. Approximately one-half of the onsite sewage systems in the County have reached the limit of the 20-year designed life expectancy. A greater increase in the failure rate was not observed simply because many systems are not used to their full design capacity.

Surprisingly, the number of unsatisfactory water supplies (wells) that were found doubled. This is due to increased frequency of inspections and to the recognition of problems associated with improperly abandoned wells. However, the incidence of nitrate contamination, which can cause brain damage and death among infants, has increased from 2.5% of the wells sampled in 1988, to 6% in the current data. Nitrates are not naturally occurring in regional groundwater supplies and indicate contamination from surface sources. The increase in nitrates is cause for concern and illustrates the need for continued monitoring. Although we have initiated nitrate sampling of new wells, the time of sale inspections provide only our routine sampling for nitrates in existing wells.

Complaints, Concerns and Resolutions:

The Department has received only two complaints that the regulation is not being properly implemented. These complaints were from two residents of the Pleasant Lake area. In both situations, the inspector reported the drainfield was located less than fifty (50) feet from the lake. The properties were denied authorization for sale in accordance with the "A/B Rating Sheet". In both cases, the site was such that moving the septic system would have been difficult. Consequently, EH staff recommended installing pretreatment systems to lower the risk of polluting the lake. Neither property owner was satisfied with that recommendation. The homeowners were made aware that there was an appeal process and requested an administrative review with the Director of Environmental Health. Site visits to both homes were made, one by the Director and the other by a staff sanitarian. The EH Director concluded that one system was not likely to pollute the lake. The drainfield was 37 feet away and soil conditions appeared adequate to treat the effluent. However, the drainfield on the other site is only seventeen (17) feet from the lake, and EH believes that pollution of the lake is likely and therefore the system must be upgraded. This is in keeping with the provision of the regulation that requires systems to be in **substantial conformance**, which as defined means there is a minimal likelihood of degradation of groundwater and **surface water**, or risk to public health caused by improper construction or **location of an OWSDS**, or malfunctioning OWSDS

Those regulated by this new program can appeal EH staff decisions to the Washtenaw County Public Health Advisory/Health Code Board of Appeals. In the cases discussed above the homeowners chose not to. It was anticipated that the number of appeal requests would greatly increase above those heard in previous years. That did not happen. Only two appeals were heard in the first year. One was granted with modifications. The other, supported by the EH Division, was granted by the Appeals Board. Additionally, one new well was approved though it was sited in a manner contrary to standard construction practices under state and local regulations. However, the well was developed to tap the best available water supply; those water samples were within safe limits; and it qualified for a regulatory deviation.

Conclusion:

Agencies in Michigan and around the United States have contacted EH regarding this program. The U.S. Environmental Protection Agency (EPA) lists the program, as a model, on its website. Currently, the Regulation and program are being proposed in Shiawassee and Macomb Counties. The Wayne County Health Department began a similar program soon after Washtenaw County did and uses inspectors certified by Washtenaw County EH. Wayne County staff members have attended and continue to recommend to others, the training offered through the Washtenaw County program. Washtenaw County EH employees have been invited to make presentations at national meetings, including those of The American Society of Agricultural Engineers and The National Association of Wastewater Transporters. Presentations have also been given at the summer conference of the Michigan Association for Local Public Health and at the Michigan Onsite Wastewater Conference.

A new program often calls for adjustments, as does a new regulation. This has been true for the Pollution Prevention Regulation and other County health regulations. Review of the Regulation and resultant program continue and future amendments may be recommended after the second quarter of this year (2001).

The Regulation with the resultant program has been very successful. It has led to the identification and correction of conditions that, if left unabated, would continue to contaminate ground and surface waters, and could lead to deleterious health affects. The program has been widely recognized as a means to address failing septic systems and unsafe water supplies.

Attachments:

- Time Of Sale Budget: Fiscal Year 2000
- RESIDENTIAL OWSDS Inspection Program Fee Schedule (2001)
- Graphical depiction of Year 2000 septic and well inspections
- OWSDS Inspection Rating System
- Form: REPORT OF RESIDENTIAL ONSITE WATER SUPPLY AND SEWAGE DISPOSAL INSPECTION

Time Of Sale Budget
Fiscal Year 2000

Expenditures (partial listing)

Staff:

1 Coordinator, full time

1 Sanitarian, ½ time

1 CSR, ½ time

Total combined salaries & benefits: \$124,201

Revenues from fees:

New program:

Report filing	\$38,880
Inspector applications	2,000
Inspector training	4,050
Plan review	4,160
Misc. site visits	420
	<hr/>
	\$49,510

Subsequent permit activities:

Additional well replacements:	\$12,810
Additional septic replacements:	21,465
<u>Estimated soil evaluations:</u>	<u>7,000</u>
Total	\$41,275

Total revenues: \$90,785

WASHTENAW COUNTY ENVIRONMENTAL HEALTH

**RESIDENTIAL OWSDS Inspection Program
Fee Schedule**

Effective February 5, 2001

Inspection Report Filing **\$ 41**

Funds provide for documentation, file reviews, and database operation.

Non-Compliance Plan Filing **\$124**

Funds provide for remediation plan review and site visits.

Annual Inspector Certification Application **\$104**

Funds provide for applicant screening, examinations, documentation, database operations, confirmation inspections, complaint resolution, and decertification Processes.

Inspector Technical Training

Residential Well System Training **\$156**

On-site Sewage Disposal System Training **\$156**

Both **\$259**

Funds provide for design of training program on system technology, training Sessions, and examination scoring.

Environmental Health Core Training

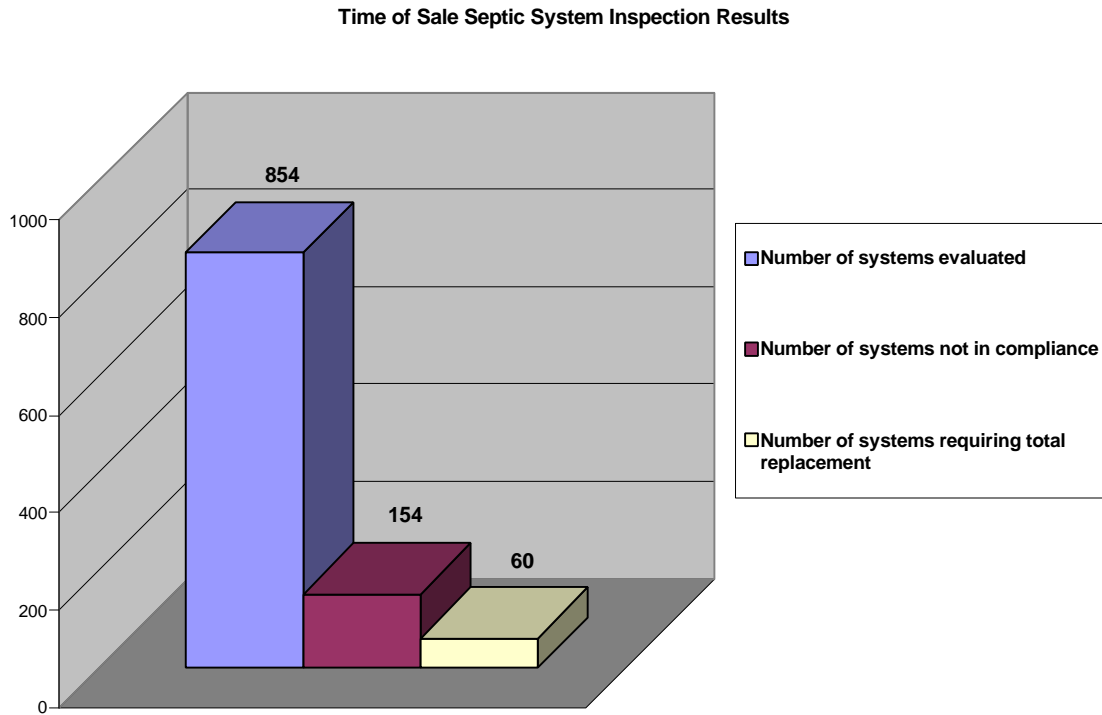
Residential Well System Training **\$156**

On-site Sewage Disposal System Training **\$156**

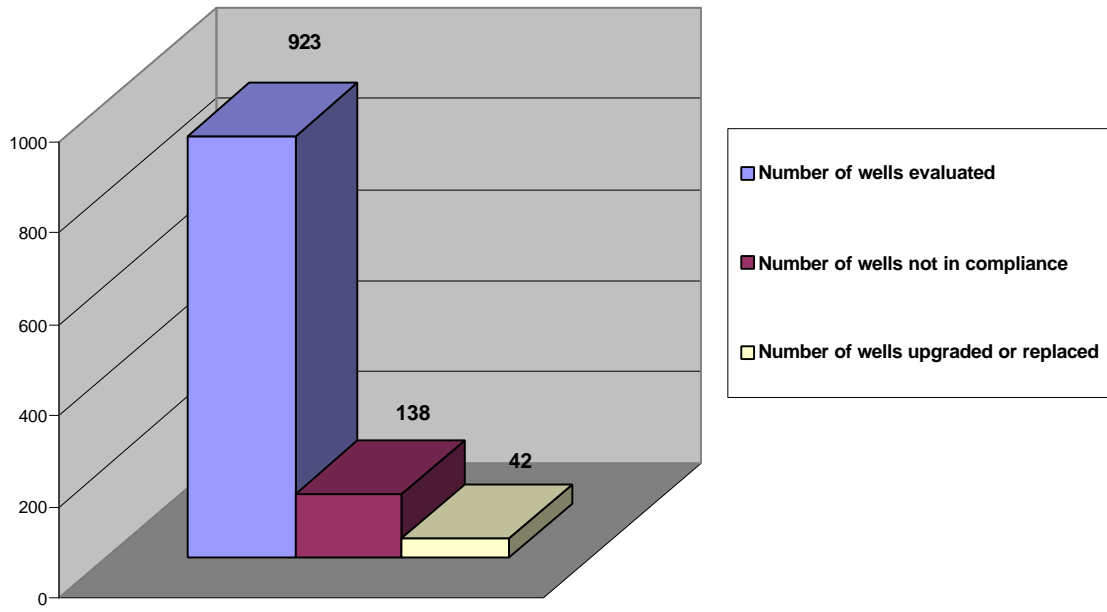
Both **\$259**

Funds provide for design of training program on regulatory issues and Inspection protocol, training sessions, and examination scoring.

Graphical depiction of Year 2000 septic and well inspections (respectively), showing totals for all systems evaluated; those not in compliance; and for those that required replacement.



Time of Sale Well Inspection Results





Department of Environment and Infrastructure Services
ENVIRONMENTAL HEALTH DIVISION

OWSDS Inspection Rating System

WATER SUPPLY:

A = SYSTEM IS IN SUBSTANTIAL CONFORMANCE

APPROVAL GRANTED FOR PROPERTY TRANSFER

The system may have one or more construction or operational deviations, however the well will be considered to be in substantial conformance. Examples of allowable deviations include:

Not properly vented	Evidence of insect infestation
Loose fitting well cap	Well 50-100' away from drainfield
Improper pump cycling	well in drained well pit
Not accessible for maintenance	Nitrate level from 1-9.9 ppm
Arsenic level from 0-49 ppb	well terminates less than 12 inches above grade
Unapproved yard hydrants	

B = SYSTEM NOT IN SUBSTANTIAL CONFORMANCE AND MUST BE UPGRADED TO ELIMINATE NOTED PUBLIC HEALTH AND ENVIRONMENTAL PROTECTION DEFICIENCIES. PROPERTY TRANSFER NOT APPROVED

Water supply system is in substantial non-conformance for one or more of the following reasons:

Unsafe water sample (includes positive Bacteria; nitrates > 10 ppm; arsenic > 49ppb)	Dug Well
Major cross connections present	Unprotected suction line
Buried well head	Well could not be found
Well less than 50' to septic tank or drainfield	Casing less than 25 feet deep
Well less than 50' to chemical storage	Improperly abandoned wells
Well less than 50' to UST (300' if UST > 1100 gal.)	Well not located on subject property; no easement or use agreement
Well Less than 150' to agri-chemical storage	Well in undrained pit

SEWAGE DISPOSAL SYSTEM:

**A = SYSTEM IS IN SUBSTANTIAL CONFORMANCE
APPROVAL GRANTED FOR PROPERTY TRANSFER**

The system may have one or more construction or operational deviations, however the sewage disposal system will be considered to be in substantial conformance.

Examples of deviations include:

More than 24" cover over field

Tank/Riser more than 18" below grade

**Water softener/footings to septic
required area**

Drainfield 50-99% of

Tanks 33-99% of required capacity

0-50% of drainfield sludged or saturated

System is less than 10 feet to property line

**B = SYSTEM NOT IN SUBSTANTIAL CONFORMANCE AND MUST BE UPGRADED
TO ELIMINATE NOTED PUBLIC HEALTH AND ENVIRONMENTAL
PROTECTION DEFICIENCIES. PROPERTY TRANSFER NOT APPROVED**

System is in substantial non-conformance for one or more of the following reasons:

Violated Board of Health Variance

System use violates deed restriction

Liquid in septic tank above outlet invert

Shared drainfield with other properties

No drainfield found

Discharge of effluent to ground surface

Tank capacity less than 33% of required size

Discharge of effluent to surface water

Field is less than 50% of required size

Available municipal sewer not utilized

Any dry well

Less than 50 feet to surface water

System extends off subject property

50-100% of the field saturated above the

tile

I, _____, being a Washtenaw County Certified Inspector,
(Print name)

Inspected the: _____ Onsite water supply System,
_____ Onsite sewage disposal system,

that serves the property referenced in this report. I certify that this inspection was done within the guidelines established by the Washtenaw County Environmental Health Division and was completed in a thorough and complete manner. Further, I certify that this report includes all knowledge that I have concerning the operation and function of said system(s).

Signature

Date: _/___/___

Certification Number: _____

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WATER SUPPLY SYSTEM
(Rev. 2-5-01)

Report #:(For office use only)

Tax ID # :

Drilling Year:Well Log Permit #:

Well Depth: Well depth verified from: *Well Log*
 Driller
 Owner
 County Records

Type of Storage Tank: *Bladder*
 Captive air
 Other

CASING:

Diameter (circle one): *1.25"* Termination: *Pitless Adapter*
 2" *Basement Offset*
 3" *Drained Well Pit*
 4" *Dug Well*
 5" *Not Found*
 6" *Undrained Well Pit*

PUMPING SYSTEM:

Type: *Deep Well Jet* Cycling: *Long* Yielded GPM:
 Hand Pump *Adequate (OK)* (approximate)
 Shallow Well Jet *Short*
 Submersible

-
- Proper ventilation
 - Unprotected suction line
 - Signs of insect infestation
 - Major cross-connections found:

- System located on subject property
- Well shared with other premises
- Easement / Use agreement

- Non-potable water supply
- Chemical mixing tank
- Sewage system
- Other _____

Number of **other** wells on property:
Purposes: *Not Used* *Potable / Domestic*
 Livestock *Irrigation*

- Improperly abandoned well(s) found

Minimum Isolation Distances Met or Exceeded:

- 100' from septic drainfield
 - 100' from any discernable buried fuel tank
 - 100' from hazardous materials storage
 - 10' from approved sewer
 - 3' from any building / structure
 - 50' from septic tank
 - 50' from grinder pump
 - 50' from main sewer
 - 50' from other/unapproved sewer
- Well head 12" above grade

WATER QUALITY information (laboratory analysis) (please, see in "Other Notes" page)

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ONSITE DISPOSAL SYSTEM
(Rev. 2-5-01)

Report #: (for office use only) Tax ID #:

OSDS installed under a County Permit Number:Date of Approval: ./../.....

TANK(S) SPECIFICATIONS: Tank Capacity verified from: County records
 Installation receipts
 Pumping receipts
 Field measurements

Number: Total Capacity: Date of last pumping: ../../.....

DRAINFIELD SPECIFICATIONS: Field Size verified from: County Permit
 Field measurement

Type: Bed system Approximate dimensions: x Total surface:
 Deep excavation
 Built Up (or Raised)
 Dry well
 Modified Fill system
 Not found
 Other
 Sand Filter
 Single pipe
 Trench #Trenches: ____ Trench length: ____ Trench width: ____ Area: ____

TANK(S): County inspected tank(s)? (If no, this section must be completed)

- Confirmed location acceptable
- Structural integrity
- Liquid level at / below the outlet invert
- Depth to lid / riser less than 18"
- Outlet tee / baffle present and in acceptable condition

MINIMUM TANK ISOLATION DISTANCES MET OR EXCEEDED:

- 50' from any surface water
- 50' from any well
- 5' from slab / crawl space
- 10' from property line
- 10' from basement

PUMPING SYSTEM USED

- The system is pressure dosed

DRAINFIELD:

- Effluent found in ditch
- Lush vegetation over disposal area
- Effluent found on the ground surface
- Objectionable odors present

- Stone: clean and dry
- Stone: black/gray below tile and/or saturated **below** tile outlet holes over% (percentage of field)
- Stone: black/gray above tile and/or saturated **above** tile outlet holes over% (percentage of field)

If built 1972 or earlier:

- Plastic tile
- Clay or concrete tile: interior of tile _____% sludged

Minimum isolation distances met or exceeded:

- 100' from all wells
- 50' from surface water
- 15' from basement
- 10' from slab / crawl space
- 10' from property line

<input type="checkbox"/> ADDITIONAL COMMENTS (please, see in "Other Notes")

Depth of cover over the drainfield:

OTHER NOTES

Water Quality Information:

Parameter	Sampling Date	Collection Point	Result	Standard	X	Laboratory
Total Coliform				0 organism/100 liters	X	
Nitrates				10.0 ppm	X	
					X	
					X	
					X	

Recommendations & Notes:

Comments:

Onsite Disposal System:

Excessive loading from:

- Footing drains
- Water softener recharge effluent
- Storm water drains
- Other

Other observations:

- Sewage back up into the home
- Surface water diverted from system
- Automated irrigation in area of septic system
- Encroachment to the septic system

Sewage discharges not connected to system:

- Laundry waster water
- Other

Soil Conditions under drainfield stone:

Comments:

Recommendations & Notes:

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(revised 2-5-01)

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(Revised 1-11-00)

**Time of Sale Statistics
Year end 2000**

Total inspections: 978
 Failure rate: 24%
 Correction rate: 71 % after 6 months
 Sewage inspections: 854
 Failure rate: 18%
 Correction rate: 47% complete by year end
 13% in progress

Comparison of sewage failure types

<u>Type of failure</u>	<u>%</u>	<u>Potential solution</u>
System saturated	29	Replace system
Inadequate design	28	Replace or expand system
Sewage surfacing	20	Replace system or connect discharge to system
Unknown discharge point	14	Install system or Connect to existing system
Drywell	10	Replace system
Municipal sewer available	7	Connect to municipal
System damaged	6	Repair damage

Water supply inspections: 923
 Failure rate: 15%
 Correction rate: 47% complete by year end
 15% in progress

Comparison of water supply failure types

<u>Type of deficiency</u>	<u>%</u>	<u>Potential solution</u>
Buried well head/unprotected suction line	35	Upgrade or replace the well
Improperly abandoned well	29	Fill abandoned well
Undrained pit	14	Upgrade or replace
Distance to potential contamination source	14	Remove contamination source, control the source, or replace well
Unsafe sample	12	Disinfect system

The number of replacement well and septic permits increased dramatically as a result of the program.

Number of permits issued to replace failing systems

<u>Permit</u>	<u># in 1999</u>	<u># in 2000</u>	<u>Change</u>	<u>% increase</u>
Well	122	244	+122	100
Septic	76	129	+53	70

