

APPENDIX 3-3

AMITY TOWNSHIP ACT 537 SEWAGE FACILITIES PLAN Field Survey - Summary

Between mid-November 2002 and early January 2003, LTL Consultants conducted a survey of Amity Township residents. LTL's initial research identified approximately 625 residences with on-lot sewage disposal systems (OLDS). PaDEP required a sampling of 25% of that population, so 125 properties were surveyed.¹ Surveys were conducted "door-to-door" by two LTL Sewage Enforcement Officers (SEO's). In addition, in April, visual inspections were made in Bel Air Estates of an additional 13 lots to determine whether the OLDS were malfunctioning. Those residents were not surveyed.

The survey consisted of three parts:

- **Questionnaire** - including questions about **Drinking Water** and **Sewage Disposal System**
- **Visual Inspection**
- **Drinking water testing**

The results are briefly summarized below.

Drinking Water

- All 127 properties had wells; 122 were drilled, 5 were "dug"
 - Average well depth was 171'
- 84 wells were at least 100' from the septic system drain field
 - 27 were closer than 100'
 - 16 were not identified for various reasons
- Slightly more than half the respondents treated their water
 - Most common were
 - water softener (57) - used to remove calcium
 - UV (10) - to treat for coliform bacteria
 - reverse osmosis (4) - to remove nitrates
 - Chlorine (2) - used to treat coliform bacteria, and
 - Ion Exchange (2) - to remove nitrates and other contaminants
- Only 60% had ever had their water tested
 - 1/3 of those had some water quality problem (coliform, nitrates, iron, calcium)
 - Many of those "tests" were for hardness (as evidenced by the number of water softeners), which has no adverse health effect

Comment: 40% of those responding were un aware of the quality of their drinking water.

¹ 127 surveys were conducted, but 2 refused to permit water sampling. Another person provided a water sample (not taken by LTL), but did not participate in the survey, or permit a visual inspection of the OLDS.

Sewage Disposal System

- Almost all were “conventional” - septic tank with
 - in-ground bed (51)
 - in-ground trench (42)
 - elevated sand mound (27)
- There were **NO** wildcat sewers, bore holes, holding tanks, public complaints, or sanitation-related illnesses.
- Graywater disposal was similar, except for:
 - Pipe to ditch (5)
 - Pipe to surface (5)
 - Other or “unknown” (9)
- Average age of the system was 23.5 years
- Small number of confirmed malfunctions, mostly
 - Lush green grass (11)
 - Wetness or spongy soil (16)
 - Odors (11)
 - 16 were seasonal
 - 10 were year-round
- 81.1% had their systems pumped, either at some regular interval, or “as needed”
 - Some who didn’t included newer homes, where system wouldn’t have required pumping yet
 - 62% were inspected for cracked baffles when they were pumped - this should be routine
- Only 18% had ever had any repairs done to the system

Visual Inspection

This was done by the SEO’s to determine whether there were malfunctioning systems. Their assessment, by category, was:

	Tier I & II		Tier I Only		Tier II Only	
	Total	%	Total	%	Total	%
Confirmed	33	23.6%	18	15.7%	15	60.0%
Suspected	5	3.6%	5	4.3%	1	4.0%
Potential	35	25.0%	27	23.5%	7	28.0%
No Malfunction	67	47.9%	65	56.5%	2	8.0%
	140	100.0%	115	100.0%	25	100.0%

The "Tier II" area was the Bellaire Estates mobile home park, which was identified before the start of the survey as requiring more intensive testing.

Drinking Water Testing

As required by Pa DEP, water samples were tested by an independent laboratory for:

- **Presence of coliform bacteria**
 - This indicates some well contamination, including debris, insects, etc.
- **Presence of fecal coliform**
 - This is a more serious health concern, and is an indicator of contamination by untreated sewage
- **Nitrates (NO₃ as N)**
 - Indicates contamination from surface water runoff, including farm waste and lawn fertilizers
 - Only a health concern for infants and pregnant women
 - Nitrate levels greater than 10 ppm are considered as not meeting state standards for safe drinking water
 - Nitrate levels greater than 5 ppm are not considered a health problem, but trigger certain additional requirements before lots can be subdivided

The results of the testing are summarized below:

Total Wells Tested	Wells with COLIFORM PRESENT	% of Wells with TOTAL COLIFORM	Wells with FECAL COLIFORM	% Wells with FECAL COLIFORM	Wells with NITRATES > 5 ppm	% Wells with NITRATES > 5 ppm	Wells with NITRATES > 10 ppm	% Wells with NITRATES > 10 ppm
125	37	29.6%	6	4.8%	47	37.6%	10	8.0%

Although the number of wells with fecal coliform was low, residents should be concerned with the high level of coliform contamination (nearly 30%). Also, the number of wells with nitrates greater than 5 ppm (38%) is cause for some concern.