

Attachment - 1

Delaware LUST Data Analysis

In early 2002, Delaware analyzed its LUST closure data in an effort to identify possible causes of a continued downward trend in the number of LUST sites closed since 1999. LUST database queries based on the year of release discovery and the year of closure were tabulated without regard to tracking individual sites. The data were then analyzed as follows:

- LUST site closures were tabulated according to the year of discovery of the release without tracking individual sites. (Table 1)
- Sites both identified and closed in the same year were classified as “New.” Examples of “New” sites include sites where a release occurred, but with soils-only impact or sites closed after impacted soils are excavated and/or groundwater samples indicate no impact to groundwater. (Table 1)
- All other sites were classified as “Old” sites. Examples of “Old” sites include sites undergoing long-term groundwater investigation, sites undergoing long-term groundwater remediation, and sites in long-term groundwater monitoring. (Table 1)
- The number of “New” and “Old” sites closed each year were tabulated and compared. (Figure 1)
- The same process was then used to tabulate the number of “Old” active LUST sites and “New” active LUST sites for each year. This was done by classifying sites identified each year as “New” and the previous years’ balance of active sites as “Old.” (Table 2)

“Old” and “New” LUST Sites by Year

		YEAR LUST SITE CLOSED											
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Dating From													
1970-1985		2	6	8	6	6	2	3	4	1	1	0	0
1986		7	3	8	4	6	1	4	0	1	1	1	1
1987		5	9	10	4	4	4	2	0	1	4	0	1
1988		10	9	6	2	8	2	1	2	1	4	0	0
1989		5	9	4	4	1	2	3	1	1	2	2	2
1990		18	24	7	5	3	4	5	2	1	2	1	0
1991			98	52	26	7	11	3	3	2	4	6	2
1992				130	31	9	13	2	5	4	4	6	3
1993					84	27	14	9	2	2	6	1	3
1994						94	38	7	8	5	3	7	1
1995							117	38	9	3	8	3	5
1996								86	15	4	3	0	2
1997									73	16	5	5	5
1998										83	16	4	7
1999											105	20	8
2000												31	10
2001													23
TOTALS		47	158	225	166	165	208	163	124	125	168	87	73
"Old" Sites Closed		29	60	95	82	71	91	77	51	42	63	56	50
"New" Sites Closed		18	98	130	84	94	117	86	73	83	105	31	23

Table 1. LUST Closure data

“Old and “New” Active LUST Sites by Year

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
"Old Active LUST Sites	223	132	127	180	171	150	181	176	168	136	230	226
"New" Active LUST Sites	67	220	219	156	187	194	119	117	136	181	69	49

Table 2. Active LUST sites data

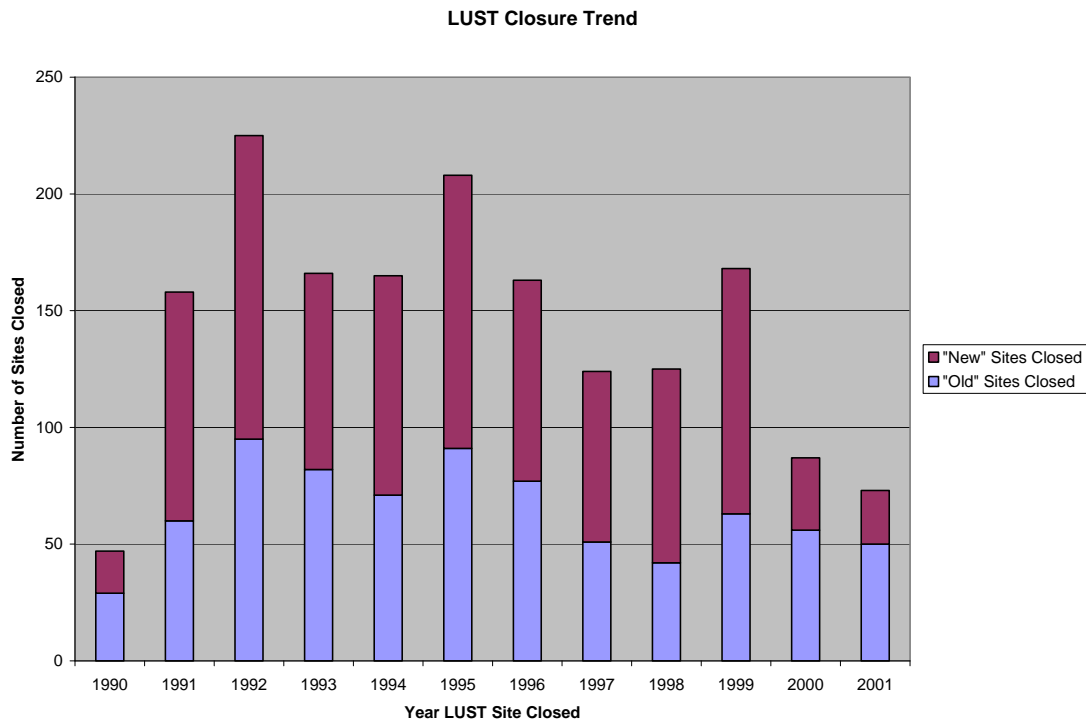


Figure 1. LUST Closure Trend

Programmatic Factors Contributing to the LUST Closure Trend

After tabulating the data, Delaware considered several known events specific to Delaware’s UST program to determine if and how the events correlate to the LUST data. The programmatic factors are:

- A 1991 compliance deadline for spill and overfill protection upgrades meant a lot of tank closures occurred in the early to mid 1990’s putting Delaware ahead of the removal and leak identification curve with its tank universe. Many tanks were closed and releases identified in the early to mid 1990’s as a result of meeting Delaware’s early deadline for spill and overfill upgrades. (Figures 2 and 3)
- Stage II Vapor Recovery requirements implemented in 1995 lead to many more tank upgrades or closures in the mid-1990’s. (Figures 2 and 3)
- As a result, over 90% of the tank universe met 1998 standards by the 1998 deadline.
- Delaware implemented its Risk Based Corrective Action program in 1999. DERBCAP procedures implemented in 1999 established quantitative clean-up goals for LUST sites in long-term monitoring. Some “Old” sites were closed as a result. (Figure 2 and 3)
- Historically the total number of “New” releases identified each year has followed the number of tank closures and as a result contributed to the number of LUST sites closed each year. (Figure 4)

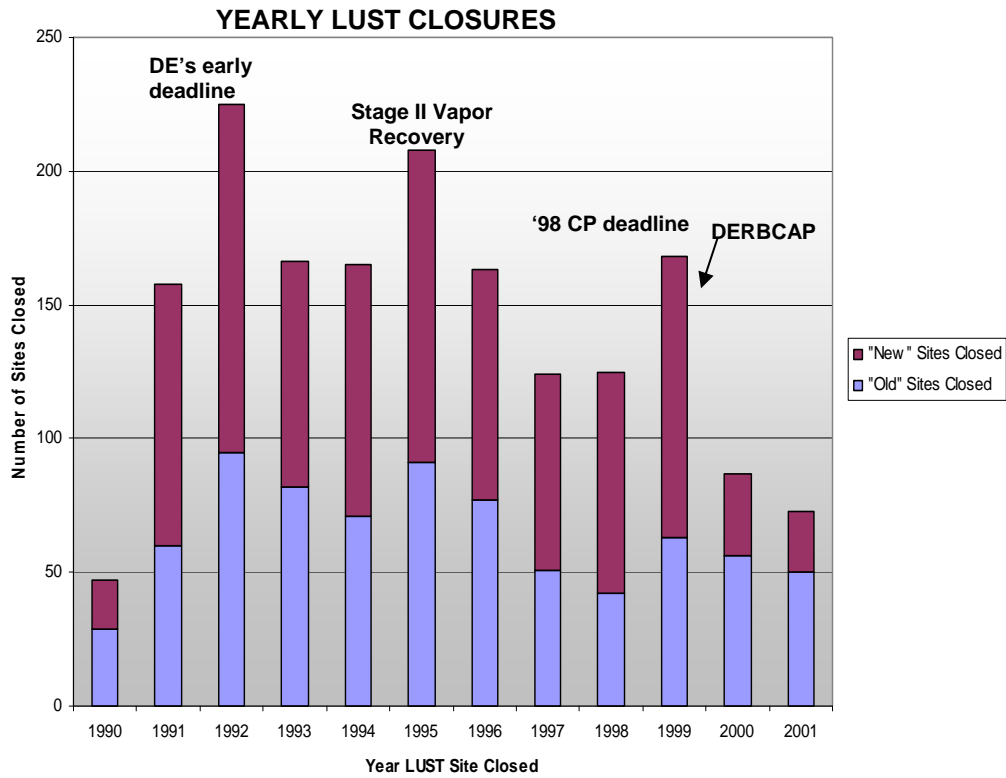


Figure 2. Programmatic Factors Affecting LUST Closures

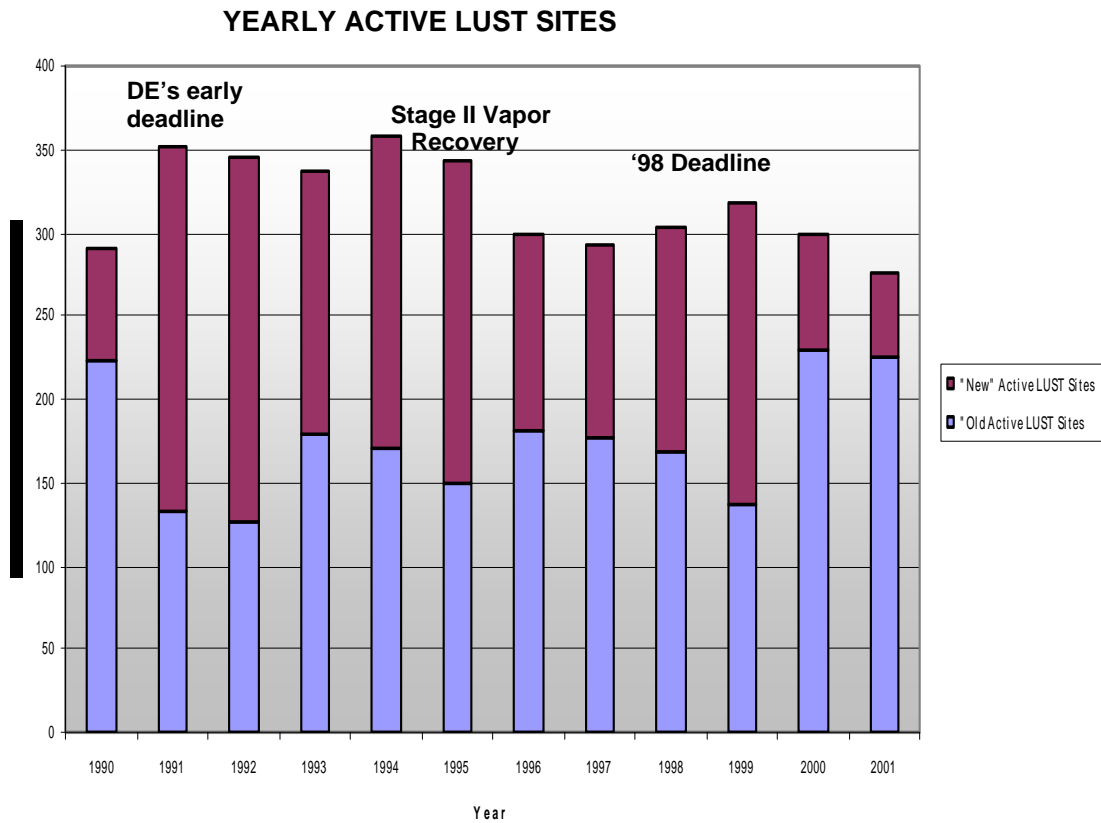


Figure 3. Programmatic Factors on Active LUST Sites

LUST Closure Trends

- Remediation and closure of “Old” sites is overtaking the identification of new releases. This is shown by the number of LUST “New” release sites and “Old” releases sites closed each year. (Figure 4)
- The percentage of “Old” LUST sites closed each year has increased since 1998 after remaining flat through the mid 1990’s. (Figure 5)
- The average age (lifespan) of LUST sites closed each year has increased steadily through the 1990’s and has increased significantly since 1998. (Figure 6)

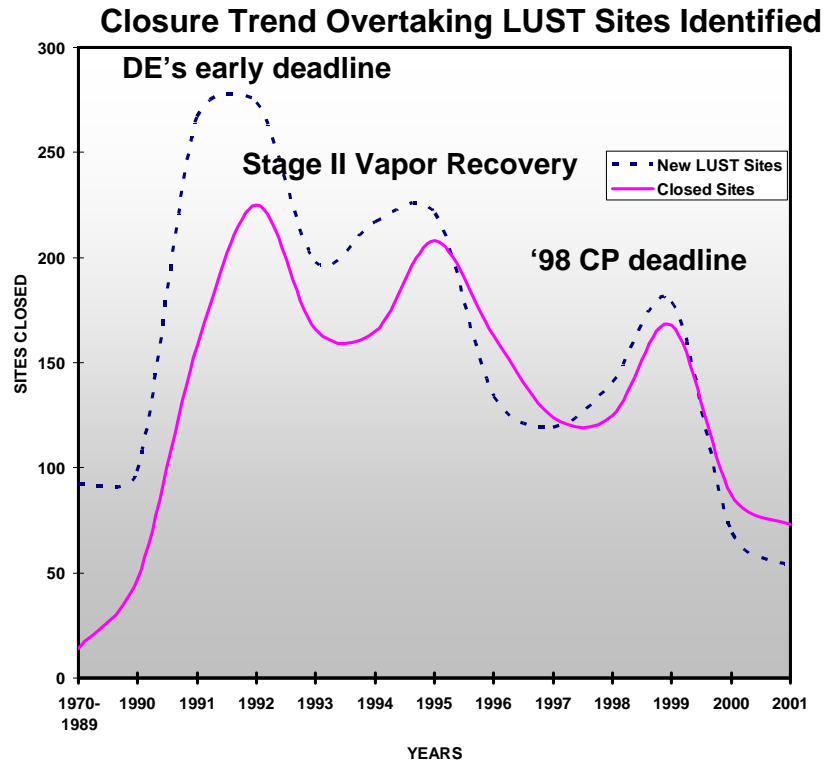


Figure 4. Closure Trend Overtaking New LUST Sites

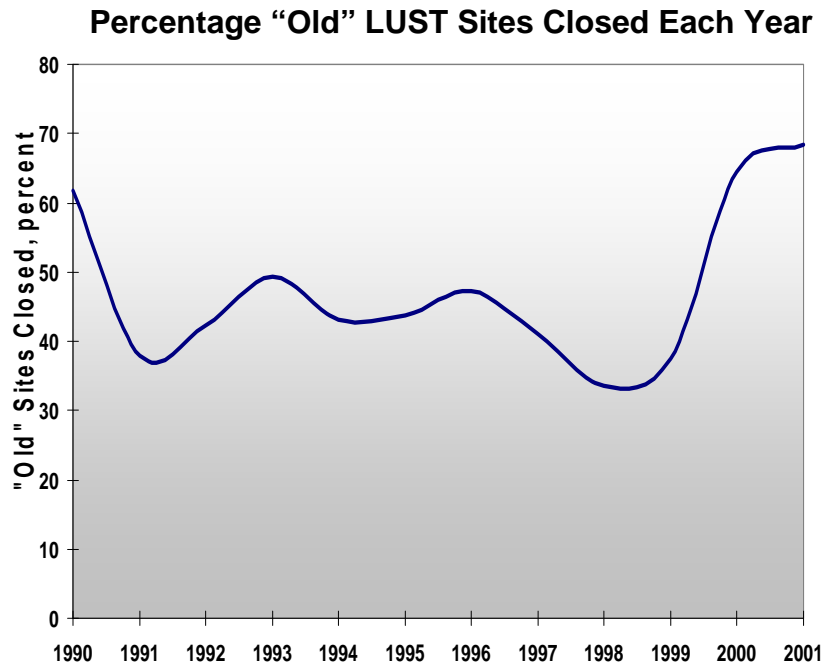


Figure 5. Percentage "Old" Sites Closed by Year

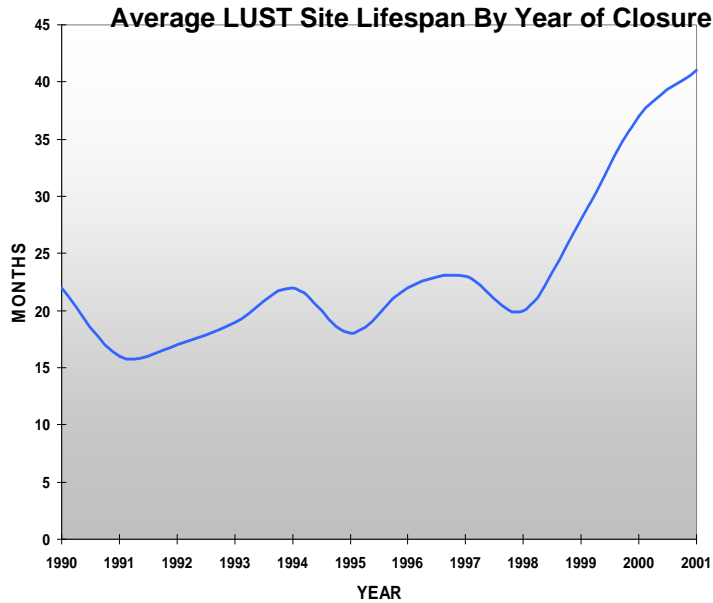


Figure 6. LUST Lifespan by Year of Closure

Possible Factors Affecting LUST Closure Trends

- Through the 1990's the number of LUST closures each year track the number of new releases identified -- the easy sites have been closed already. (Figure 4)
- Delaware has maintained an increasing "level of effort." The percentage of "Old" sites closed each year has increased since 1998 after remaining flat through the mid 1990's. (Figures 5 and 7)
- Delaware does not have a great backlog of tanks to close or LUST sites waiting for closure/clean up assessment. (Figures 8 and 9)
- The population of active LUST sites and USTs is declining. (Figures 8 and 9)

Closure Trends Showing Increasing Level of Effort

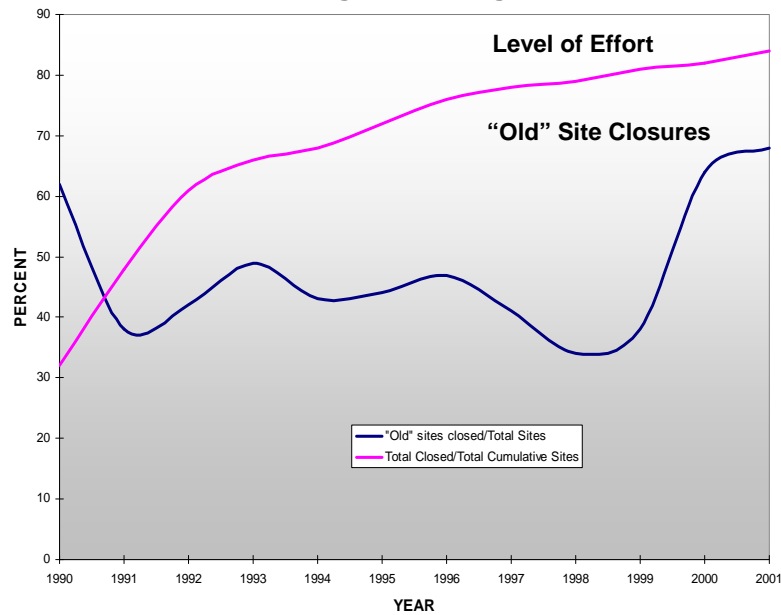


Figure 7. LUST Site Closure Trend and Level of Effort

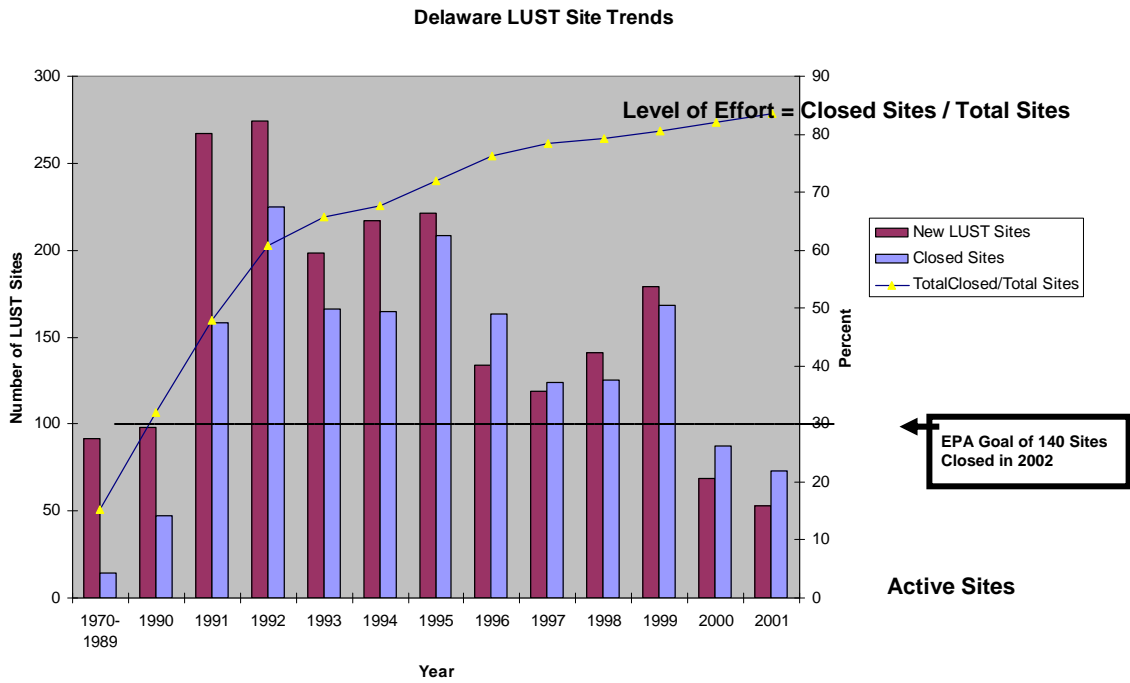


Figure 8. EPA Closure Goal and Delaware LUST Site Trends

STATUS OF UNDERGROUND STORAGE TANKS IN DELAWARE

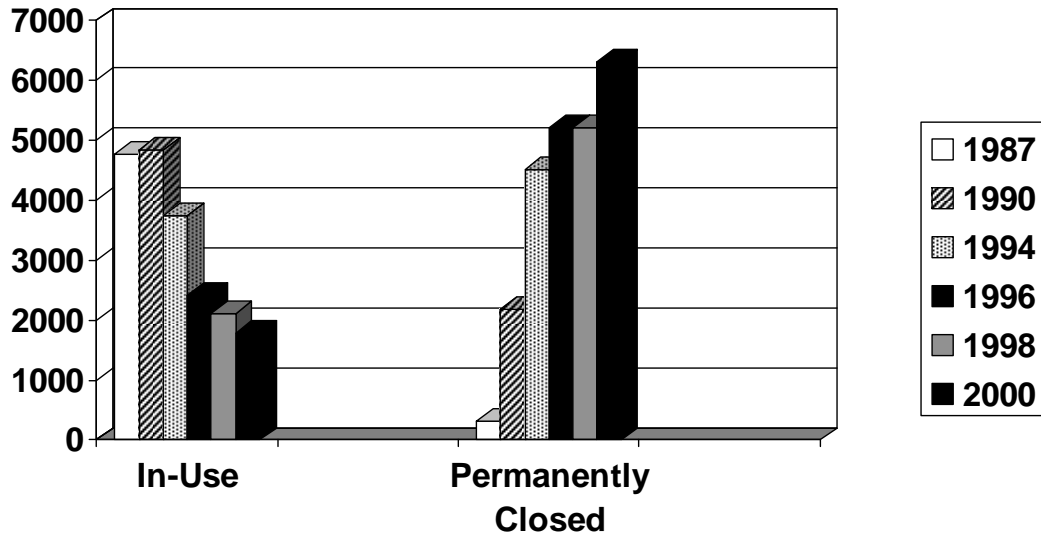


Figure 9. Population of USTs