

Dipping Vat Removal--Limiting Liability

Michael R. Clark
Dames & Moore
Tallahassee, Florida

Introduction

In the early 1990s, the State of Florida's environmental agency became aware of the existence of cattle dipping vats and the problems they posed to public health and the environment. This awareness surfaced when the state began purchasing large-acreage tracts for conservation through various state programs. By early 1995, the state owned 12 sites with identified cattle dip vats.

Further investigations into the cattle dip program revealed that the state had funded the construction of more than 3,200 cattle dip vats in Florida. To address the problem faced by innocent landowners, the 1995 State Legislature passed laws limiting the landowners' liability.

Historical Information

In the early 1900s, cattle tick fever seriously impacted the cattle industry in southern states. Cattle were shipped by rail from the South to northern slaughterhouses. Cattle tick fever is a disease that causes parasites known as piroplasms to develop in the cattle's blood. Although cattle tick fever can be fatal to cattle, the southern cattle had developed a tolerance and generally suffered only from low weight and poor-quality hides. As the cattle were shipped north, herds along the way would become infected with the fever and die. Because of this, southern cattle were banned from northern markets. Southern cattle ranchers, faced with economic hard times, turned to the federal government for assistance and the tick eradication program was started.

From 1906 through 1961 the federal government required that cattle shipped out of the state be dipped in an arsenical solution and be declared tick-free. Federal, state, and local governments funded and oversaw the construction of more than 3,200 dipping vats in Florida. Table

1 presents a breakdown of the number of vats in each Florida county. The vats were constructed to United States Department of Agriculture (USDA) specifications. The vats were 25-30' in length and 2.5-3.5' in width. The vats were usually constructed of concrete; however, vats with wooden sides and bottoms have been found as well.

At the entrance of the vat was a drop-off, so once cattle entered they could not back up. The opposite end of the vat had steps for the cattle to climb out. To ensure an animal's head and ears were dipped, sticks were used to submerge the cattle while they were in the vat. The majority of vats were 4-5' deep, but they ranged from 3.5 to 6.5' in depth. A concrete dripping pad (approximately 12x15') was located at the exit end of the vat. Sometimes these pads were curbed to catch the drippings and funnel them back into the vat. From the drip pad, the cattle were moved into 50x50' pens where they were inspected and ticks were removed or painted with dip.

Until 1940, the USDA-prescribed dipping solution was a mixture of 24 lb sodium carbonate, 8 lb arsenic trioxide, and 1 gal pine tar mixed in water. This mixture resulted in a dipping solution that contained 0.18% arsenic. Because water was needed to make the arsenical dipping solution, cattle dip vat sites were usually located adjacent to a well or a source of surface water. If a source of water was not found nearby, water would be transported to the site in barrels. After 1940, the State of Florida allowed the use of DDT and chlordane in addition to the arsenic. With the use of these pesticides, fuel oil, kerosene and other petroleum products were used as carriers.

Although the last reported outbreak of the tick fever was reported in 1960, the State of Florida maintained an active dipping program until October 1961. In central and south Florida

the tropical variety of the tick proved difficult to eradicate because it could use deer as hosts. This led to what many people referred to as "the deer eradication program" in the southern part of the state. Although many of the cattle dip vats have not been used for more than 50 years, there have also been reports of vats used as mixing areas for pesticides and as swimming holes for children.

The problem with cattle dip vats today is that many of the original sites--which were then rural pastures--have now been developed into subdivisions, industrial facilities, and office parks. Many of the cattle dip vats were destroyed by large-scale timber operations during planting of pine trees. Cattle dip vats have been found in playgrounds, and under high schools, nursing homes, and shopping center parking lots.

State Environmental Regulatory Actions

When cattle dip vats were first identified by the Florida Department of Environmental Protection (FDEP) as a health and environmental risk, FDEP would use Consent Orders to force property owners to remediate contaminated sites. A database identifying more than 3,200 state-funded cattle dip vats was maintained by the Department of Agriculture and Consumer Services (DACCS). The database identified vats either by the property owner's name, or by some familiar landmark-- along with the county in which the vat was located.

In September 1993, FDEP suspended the enforcement activities related to cattle dip vats

Table 1. Number of cattle dip vat locations, by county

Alachua	83	Gulf and(or) Franklin ^a	6	Okaloosa	62
Baker	42	Hamilton	48	Okeechobee	45
Bay and(or) Walton ^a	46	Hardee	42	Orange	77
Bradford	30	Hendry	19	Osceola	75
Brevard	39	Hernando	34	Pasco	51
Calhoun and(or) Franklin ^a	47	Highlands	55	Pinellas	29
Charlotte	24	Hillsborough	111	Polk	165
Citrus	37	Holmes	51	Putnam	48
Clay	38	Indian River	16	Santa Rosa	61
Collier	16	Jackson	103	Sarasota	28
Columbia	51	Jefferson	53	Seminole	28
Dade	1	Lafayette	41	St. Johns	37
DeSoto	32	Lake	76	St. Lucie	17
Dixie	30	Lee	26	Sumter	48
Duval	79	Leon	102	Suwannee	64
Escambia	64	Levy	54	Taylor	80
Flagler	45	Liberty	24	Union	23
Franklin	15	Madison	70	Volusia	83
Gadsden	61	Manatee	51	Wakulla	44
Gilchrist	28	Marion	87	Walton	54
Glades	40	Nassau	42	Washington	60

^aBecause county boundaries have changed since 1906, the county-specific locations of these vats are not clearly identified.

because of issues raised over who was responsible for liability caused by the tick eradication program. The 1994 Florida Legislative Session did not pass funding measures to inventory, prioritize, and develop methods to assess and remediate dip vat sites. The proposed 1994 legislation had also provided for release of liability for certain property owners. This release of liability also did not pass.

The FDEP did begin a study to address questions raised by the legislature in July 1994. The study assessed 12 cattle dip vats located on state-owned lands. The purpose of the assessment was to evaluate the costs associated with investigating and remediating cattle dip vats. (The results of this study are discussed in the section Cost Estimates--Closure of Dip Vats.)

Today, large-dollar property transactions require the completion of a Phase I Environmental Assessment (EA) before a bank will secure the loan. The EA is conducted under standards established by the American Society for Testing and Materials (ASTM). As part of the EA, a title search is conducted to identify past property owners. A competent environmental consultant has a copy of the database and will use it to match past owner names to the original database. If a match is found, the report will conclude that a cattle dip vat may possibly exist on the property. Although the State of Florida has identified 12 vat sites on state-owned property, the total of identified sites in the state is approximately 75.

1996 Legislative Actions

The 1996 Florida Legislative Session passed 96-351, amending Statute 376 (376.306, June 1, 1996) and granting release from state liability for property owners whose property contains a cattle dip vat. The Legislature stated seven findings in the statute, with the following four findings being important:

- Most cattle dip vats were constructed with public funds and operated under local, state, and federal government supervision.
- Most vats were used to dip cattle belonging to people other than the property owner.
- During most of the eradication program, the state established criteria for the dipping

solutions, bid, purchased and distributed the chemicals used, and expressly authorized the chemicals (including--but not limited to--arsenic, DDT, and toxaphene).

- Participation in the program was mandated by state law.

The statute's liability release reads:

Any private owner of property in this state upon which cattle-dipping vats are located shall not be liable to the state under any state law, or to any other person seeking to enforce state law, for any cost, damages, or penalties associated with the discharge, evaluation, contamination, assessment, or remediation of any substances or derivatives thereof that were used in the vat for the eradication of the cattle fever tick.

The statute further states: *"This provision shall be broadly construed to the benefit of said property owner."*

Current Liabilities

Although the Legislature provided the above liability release and allowed it to be broadly construed, liability still exists for government entities that have cattle dip vats on their properties. This means that state and federal agencies, universities, county government and school boards, and local governments are still liable for evaluating, assessing, and remediating cattle dip vats on their property. If a county park or school is built upon a cattle dip vat, the appropriate government agency could be liable for exposures to children who use(d) the facility.

The legislature did not allocate any monies to conduct any type of work at cattle dip vats that have been identified. Any work done to reduce a property owner's liability has to be conducted at the owner's expense.

For property owners who have open vats that still contain sludges from the dipping solution, the liability is greater than for an owner who is not aware that a vat exists on the property because it was buried during land clearing operations. Cattle

dip vats that are intact (i.e., not backfilled) can present an enticement to children as a swimming hole, and a hazard to any unsuspecting person who might fall into the vat. Contact with contaminated soils resulting in health effects is not covered by the liability release.

If the property owner wishes to sell property as residential and knows a cattle dip vat was located on the property, (s)he would have to disclose this information to the buyer. Failure to disclose in this situation is covered by state law. If property is sold as commercial, such disclosure is not required because Florida law concerning commercial property specifies "buyer beware."

The state could enforce rules if actions taken by the property owner worsened a problem. For instance, if a property owner wished to remove a cattle dip vat and, in the process, moved contaminated soil from the area surrounding the vat and spread this soil over a larger area, then the state would contend that the actions of the owner--and not the existence of the vat--resulted in a problem. If, for example, the owner were to lease a parcel for a mobile home and a well was installed that, when pumped, pulled groundwater contamination into the well, then the occupant of the mobile home would possibly have some recourse against the property owner.

Lastly, the liability release does not apply to federal laws. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) commonly known as Superfund was created to handle uncontrolled hazardous waste sites. Although no cattle dip vats have been investigated by the program, the possibility exists that if a vat site posed a serious threat to the public health or the environment, it could be investigated under CERCLA.

Limiting Liability

A number of steps can be taken to further limit the potential liabilities of owners whose properties contain cattle dip vats. In its 1995 assessment study, FDEP suggested that vat sites should be ranked using the following criteria:

- Site located within 1,000' of a development
- Site within 1,000' of a drinking water

supply well

- Groundwater at site within 10' of land surface
- Present or anticipated land use at the site

If a site meets any of the first three criteria, the site should be assessed immediately. The FDEP suggested that activities generating dust be discontinued and the need for fencing be considered at those sites with unacceptable exposure scenarios. The FDEP did not provide further guidance on dealing with cattle dip vat sites in relationship to limiting liability. Although these suggestions are not enforceable by FDEP, they are good practices to consider.

It is recommended that cattle dip vats that are open (i.e., have not been backfilled with clean material) be viewed as a serious liability problem. Such sites should, at the very least, be backfilled to prevent exposure to humans. Backfilling should be conducted in a manner such that no water or sludge remaining in the tank might be spilled out of the tank. For tanks with a direct connection to groundwater, the backfilling should be conducted over a period of days: The amount of dirt placed in the vat should not be so great that the water overflows; if allowed to sit overnight, the water level in the vat will equilibrate with the water table and more dirt can be added. This process is repeated until the vat is completely backfilled. If the bottom of the vat is located above the water table and contains water, the water should be chemically analyzed, pumped out of the vat, then disposed of properly.

The existence of a cattle dip vat on one's property can have a direct effect on value of the property. In such situations, it may be advantageous to remove the vat. Purchases of large-acreage tracts by state agencies have resulted in the exclusion of 100 acres surrounding any vat site. Removal of a dip vat should be conducted with the knowledge and concurrence of FDEP. Water, sludges, soil, and even the concrete could be classified as hazardous waste; and improper disposal of hazardous waste is a costly mistake to make.

Cost Estimates--Closure of Dip Vats

As part of FDEP's 1995 study and investigation

of cattle dip vats, records of costs expended during assessment were kept. The final report presented these costs, and estimated the costs to properly remediate a vat site. The FDEP used a phased approach, Phase I determining whether contamination existed and Phase II determining the extent of contamination.

Phase I assessments were conducted at 10 sites around the state to obtain information from various physiographical and geological settings. The average cost of a Phase I assessment was \$36,000. The average number of samples collected from each site was 31 soil and 2 groundwater samples. The FDEP was attempting to define the problem with dip vats, so laboratory analyses included volatile and semivolatile compounds, organochlorine pesticides, and arsenic. Only 3% of the total samples collected during the study were found to contain volatile and semivolatile compounds, and it was recommended that only 15% of the samples collected be analyzed for the compounds. This reduces laboratory costs from \$31,365 to approximately \$17,100. And better prices for laboratory analysis can be found than prices used by FDEP, lowering costs by almost \$10,000 and resulting in a revised average cost of \$12,000 per site.

Phase II studies conducted by FDEP ranged in price from \$24,000 to \$190,000. Obtaining better prices for laboratory analysis lowers the range from \$20,000 to \$140,000, depending upon the number of samples collected and the analytical parameters selected. Of the 10 sites where FDEP conducted its Phase I assessments, only 6 were found contaminated enough to warrant Phase II assessment.

Cost of soil removal and disposal is difficult to estimate because volume is variable and contamination concentrations are not known until after Phase II assessment is complete. The FDEP estimated that cost to excavate, transport, and dispose of 100 yd³ soil would range from \$28,600 to \$285,000 depending on which compounds were found and their respective concentrations. If the groundwater is found to be contaminated above allowable concentrations and a pump-and-treat system is required, cost was estimated to run between \$25,000 and \$200,000 with maintenance cost ranging from \$5,000 to \$20,000 annually.

Total costs for assessment of a cattle dip vat site would range from \$12,000 for a site that is not contaminated to more than \$500,000 for a worst-case scenario. The use of risk-based closure, which takes into account present and future use of the property as well as the actual concentrations of contaminants found at the site, can significantly reduce these costs.

References

Woodward—Clyde Consultants. 1995 January. Cattle dip vat assessment program: A summary report. Prepared for Florida Department of Environmental Protection.