



Cattle Dip Vat Update

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Talk Outline

- Cattle Vat Dipping Program
- Pictures from the field
- Assessment
- Cleanup
- Development Issues
- FDEP Regulatory Framework

1906 Extent of Fever Tick



FIGURE 1.—The heavy black line shows the northern boundary of the tick-infested territory at the beginning of tick eradication in 1906. The shaded patches in Florida and Texas indicate the location of quarantined areas December 15, 1941.

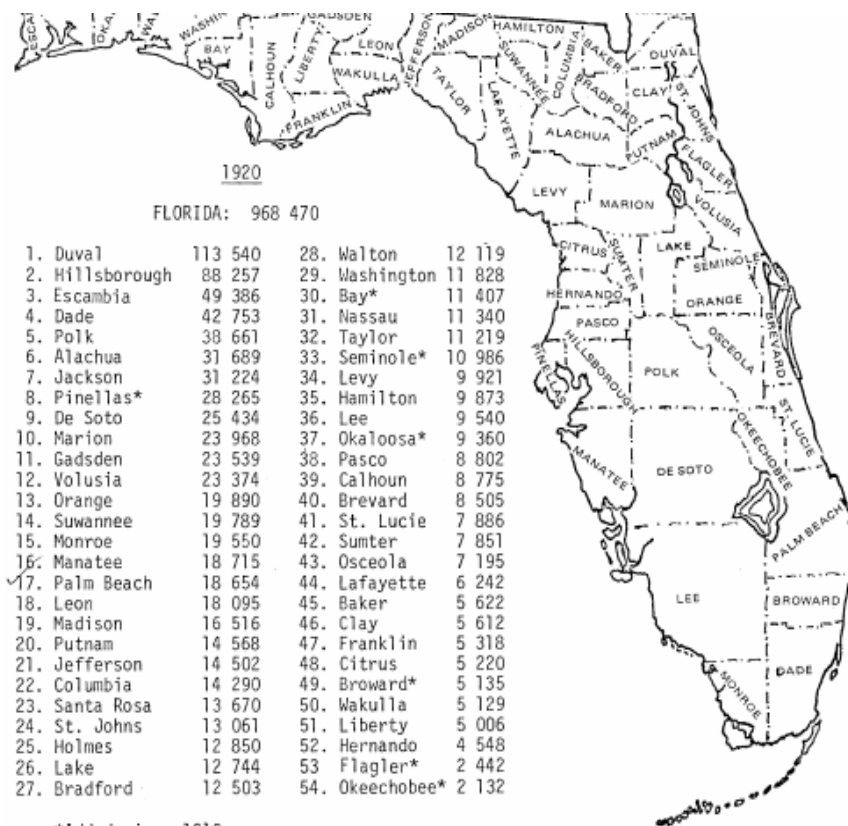
Known Details

- Over 3200 vats constructed
- More than 150 vat locations are known
- Federal requirement of 0.18% arsenic in dipping solution
- Livestock Sanitary Board approved the use of other chemicals in later years

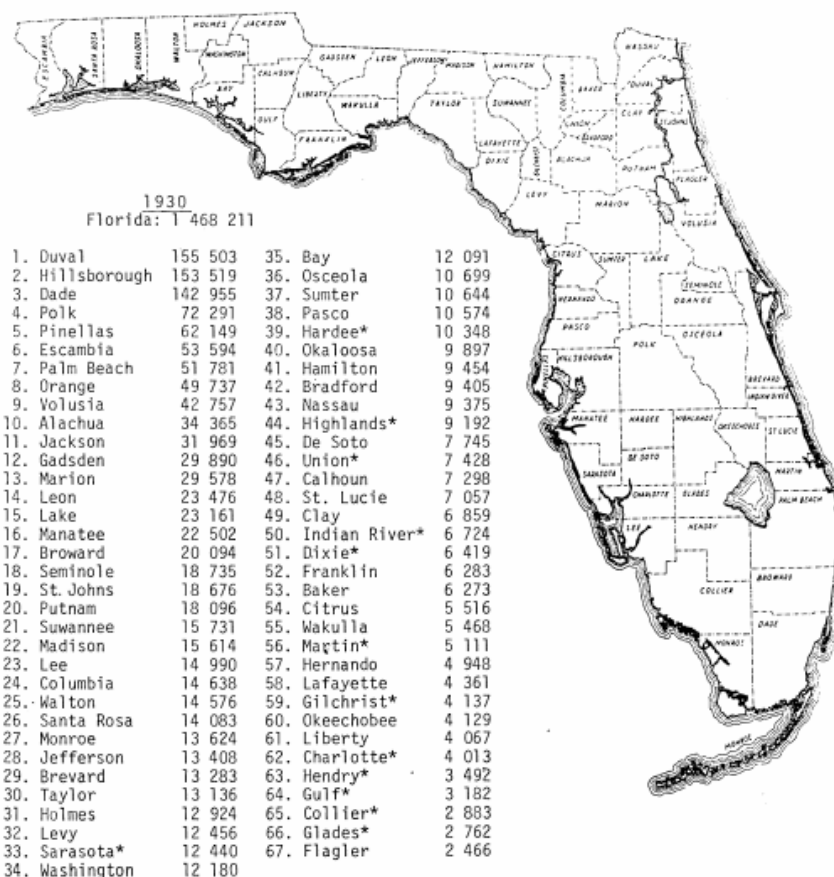
Problems

- Vat Locations were not recorded.
- Local landmarks used for naming (“Peach Orchard” or “Sink Hole” or “Log Camp”)
- Vats named after the property owner may be difficult to locate (“Alford” owned more than 14,000 acres)
- Vats may have been buried, dynamited, or removed (without the contaminated soil)
- County Boundaries have been revised

1920 and 1930 County Lines



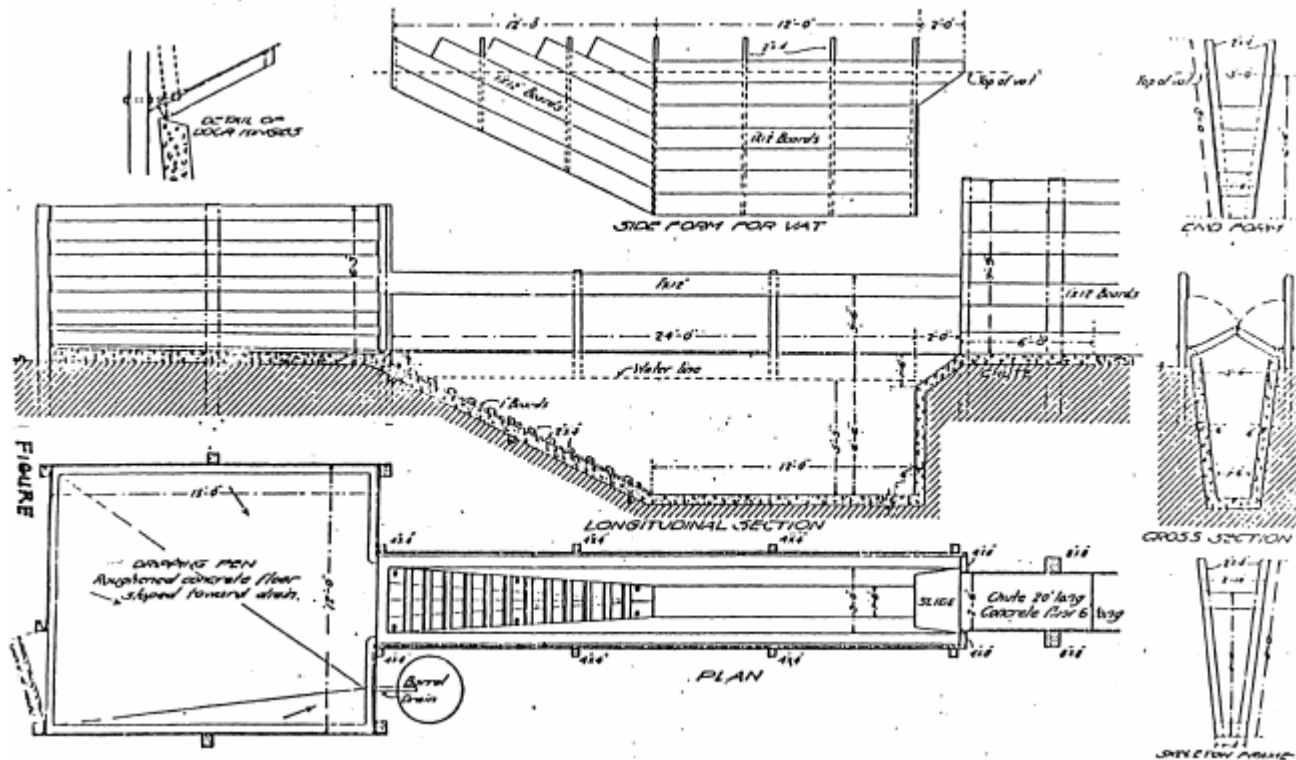
Source: OUTLINE MAP OF THE UNITED STATES, March 1920 by the
U.S. Department of Agriculture



Information Sources

- Local libraries and area old timers may have historical information
- Historical aerial photographs in stereo pairs may record the pen fencing
- Local citizens, hunters, etc.

Vat Construction









Arsenical Recipe

- Heat 30-40 gallons of water to boiling
- Add 24 lbs of sodium carbonate
- When dissolved, Add 8 lbs arsenic trioxide
- When dissolved, allow to cool to 140 F
- Add 1 gallon pine tar and dilute to 500 gallons
- Dipping prior to Interstate Travel required a stronger solution ratio of 25 to 10 lbs

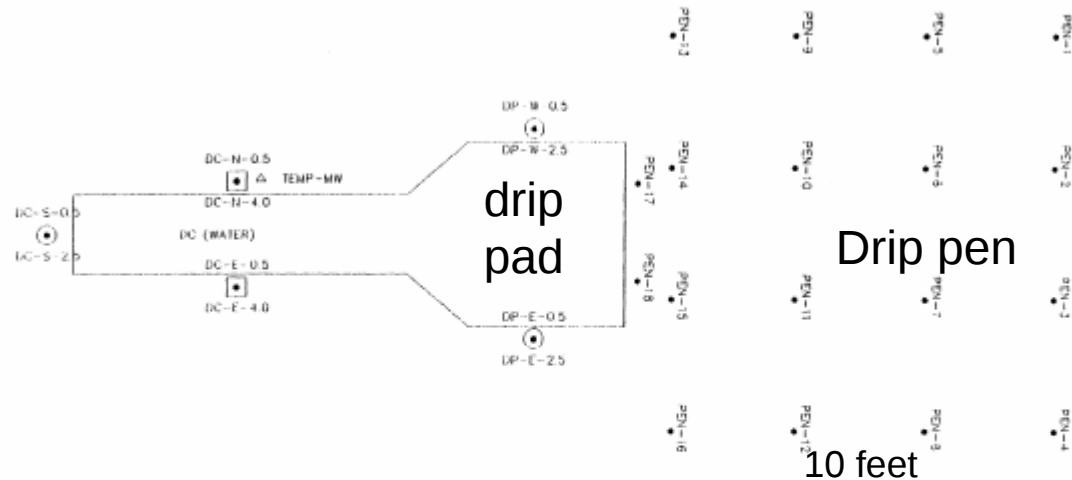
Historic Disposal

- Add 6 lbs of slacked lime for each 100 gallons of vat solution
- Mix thoroughly and allow to stand for a couple hours
- For each 100 gallons of vat solution, dissolve 6 lbs sulfate of iron in hot water
- Add to the vat solution, mix well and allow to stand 10-12 hours
- Release the water and bury the solids

Initial Phase Sampling Plan

Sample water and sludge in the vat

Entry side



LEGEND

- | | |
|-------------------------------------|--|
| TEMP-MW = TEMPORARY MONITORING WELL | • = SOIL SAMPLE LOCATION |
| DP = DRIP PAD | △ = TEMPORARY MONITORING WELL |
| DC = DRIP CHAMBER | ○ = SOIL SAMPLE COLLECTED AT 0.5 FT. BLS AND 2.5 FT. BLS |
| PEN = DRIP PEN | □ = SOIL SAMPLE COLLECTED AT 0.5 FT. BLS AND 4.0 FT. BLS |
| E = DIRECTION | |
| 2.5 = DEPTH OF SAMPLE | |

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Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment Tallahassee, Florida			
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION			
SCALE: 1"=10'-0"	DRAWN BY: JH	DATE: 11/5/96	FILE NO.: 941685
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TYPICAL PHASE I SAMPLING PLAN			FOUR 3



Cow exiting the vat onto the drip pad



Assessment

- Historic analyses: EPA 8260/8270, EPA 8080, and As, Pb, Cr, Cd, Fe, and Cu
- Found As, organochlorine pesticides, Fe, aromatics, and cPAHs
- Present analyses : As and organochlorine pesticides as both drive cleanup with regard to extent and CTLs

Past and Present Cleanup Levels

- January 1995
 - Cattle Dip Vat Report, Woodward-Clyde Consultants
 - Soil Cleanup Levels for Residential, Commercial/Industrial, Restricted I, and Restricted II
- Present
 - Exposure scenarios Restricted I and II are no longer used
 - Chapter 62-777 CTLs apply
 - Call Ligia Mora-Applegate for special cases

Cleanup

- Addressed through Voluntary cleanup
- Chapter 62-780, FAC applies
- Any of the Risk Management Options can be used
- If an SRCO is desired, must satisfy the Public Notice and IC/EC provisions, as applicable

Examples of Vat Sites

- Individual parcels to tracts of land proposed for development – Lake Weeks Subdivision
- Citizens with a vat on or next to their property
- Government entities purchase land containing a vat – 9 Vats Within the Kissimmee River Restoration Project

Regulatory Framework

- DEP enforcement stopped in 1993
- Chapter 376.306 F.S., Release of Liability
- Chapter 403.161 F.S. Pollution Prevention
- Education Statute 1013.365 F.S.
- EPA retains full CERCLA Liability

Contrasting Views of Chapter 376.306

- Is an all encompassing Total Exemption - no exceptions
- Total exemption as long as undisturbed - Chapter 403 applies to any spreading of soil or groundwater contamination
- Is no different from any other contaminant source (EPA)

Who's Responsible?

- DEP does not regulate land development
- Local government land development regulations generally do not cover contaminated media
- Lending Institutions want their liability defined
- DOH concerned with immediate threats and $10E-04$ cancer risk

Summary

- Vats are exempt from enforcement
- Encourage Voluntary cleanup before development
- Area of contaminated media cannot be enlarged
- Seek cooperative solutions to eliminate human exposure and environmental impacts