

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

ANAEROBIC DIGESTER

(No.)

CODE 366

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NRCS CPS ANAEROBIC DIGESTERS 366

DEFINITION

A component of a waste management system that provides biological treatment in the absence of oxygen.

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PURPOSE

For the treatment of manure and other byproducts of animal agricultural operations for one or more of the following reasons to

- capture biogas for energy production
- manage odors
- reduce the net effect of greenhouse gas emissions
- reduce pathogens

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CONDITIONS WHERE PRACTICE APPLIES

This practice applies where:

- Biogas production and capture are components of a planned animal waste and byproduct(s) management system.
- Sufficient and suitable organic feedstocks are readily available.
- Existing facilities can be modified to the requirements of this standard or for new construction.
- The operator has the interest and skills to monitor and maintain processes or contracts with a consultant to provide these services.

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General Criteria

Feedstock Requirements

- Deal with extraneous material
- Exclude excess water
- Food or other waste as designed
- Comply with State and Local regulations

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General Criteria

Safety

- Fences / Warning Signs
- Fire protection and leak detection
- Flare / 90' from source /10' high / electrically grounded
- Flame trap between flare and source
- Marked gas lines above and below ground

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Mesophilic Plug Flow:

11% to 14% solids

20 day minimum retention time

Configured to assure plug flow

Mesophilic Complete Mix:

< 11% solids

17 day minimum retention time

Continuous Mix

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Ambient Covered Lagoon

Waste Treatment Lagoon 359

Waste Storage Facility 313

Waste Facility Cover 367

(Roofs and Covers 367)

May exclude rainfall

Min. 8' deep over 50% of the area

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Ambient Covered Lagoon

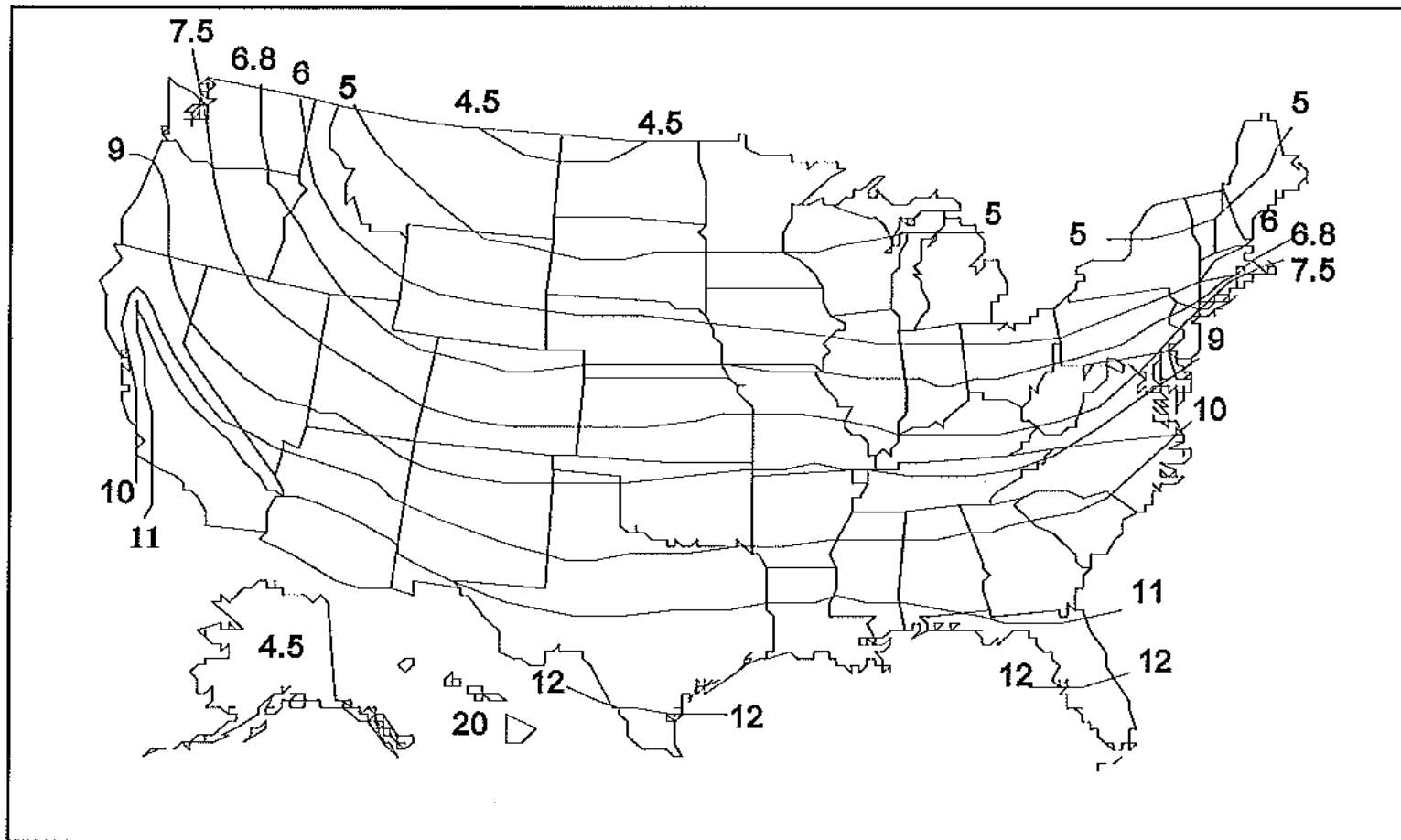


Figure 1. Covered lagoons - maximum loading rate (lb VS/1,000 ft³/day).

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Ambient Covered Lagoon

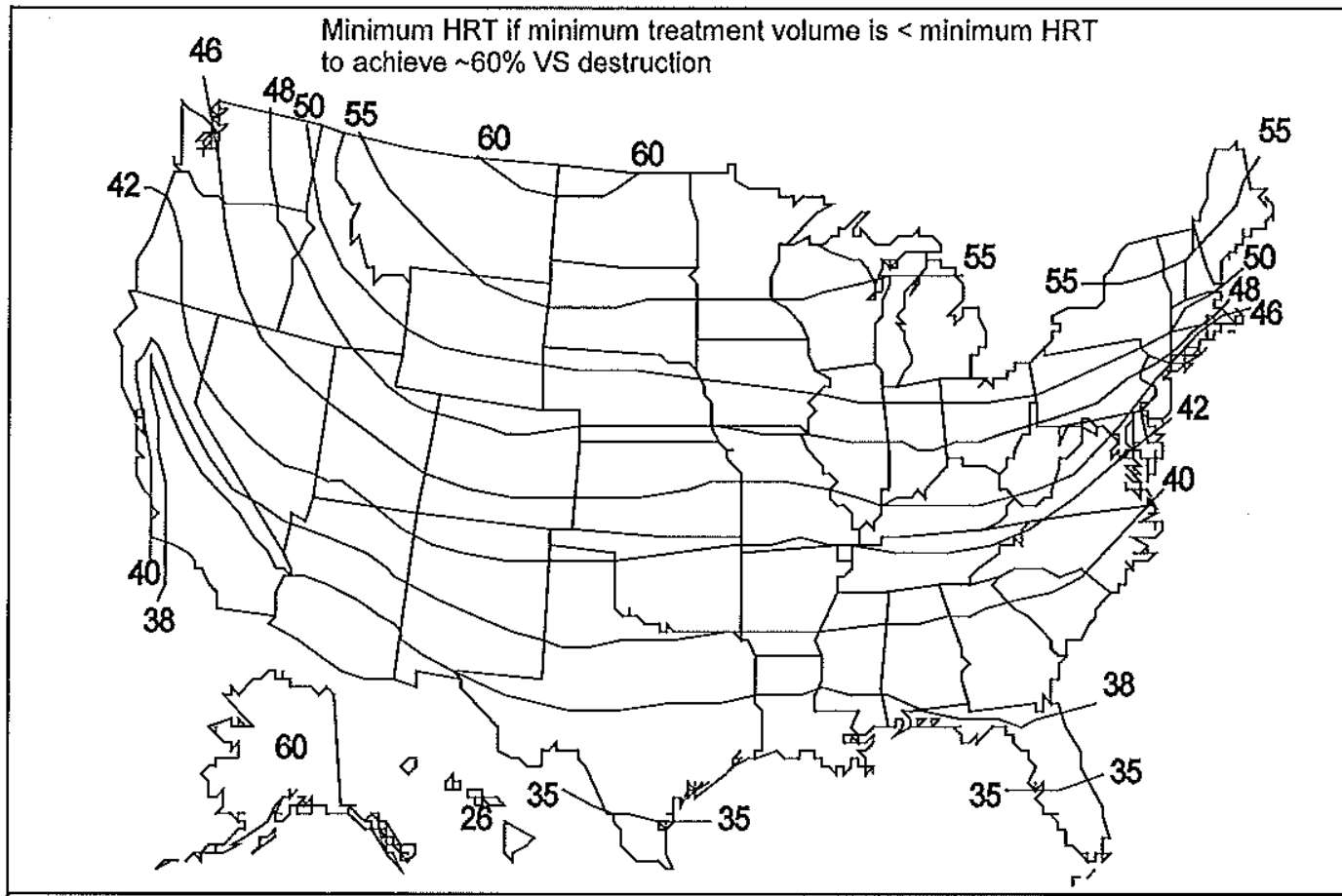


Figure 2. Covered lagoons - minimum hydraulic retention times (MINHRT) in days.

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Ambient Covered Lagoon

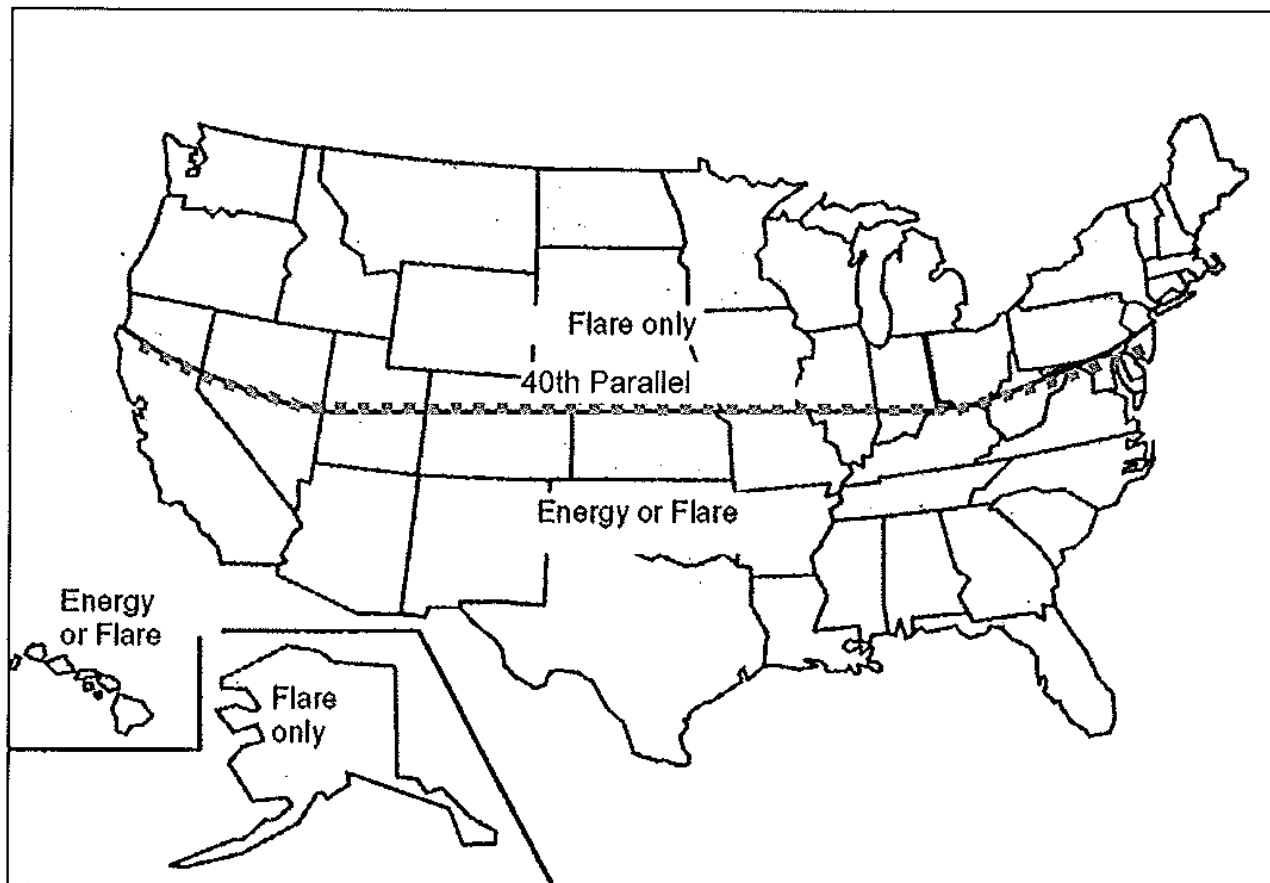


Figure 3. Covered lagoons - locations suitable for biogas to energy conversion generally fall below the 40th parallel.

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Alternative Design

Fixed Film / Induced Blanket / Thermophilic

Design based on documented successful
implementations

Approved variances

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Gas collection, transfer, and control systems

Gas utilization systems

Monitoring

Waste Storage

Considerations

Plans and Specifications

Operation and Maintenance

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[http://www.nrcs.usda.gov/Internet/FSE DOCUMENTS/nrcs143_026149.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_026149.pdf)



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