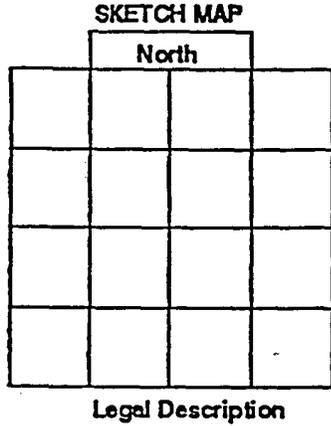


WASTE TREATMENT LAGOON (ANAEROBIC)

Owner/Operator _____ County _____ Field Office _____
 NRD _____ Date _____



Storage

- (1) Maximum Length of Storage Days
- (2) Storage Months ----->
- (3) Frequency of Sludge cleanout years

Waste characterization

- (4) Volume of Animal waste (from Ne-Eng-82 (7) DAILY) cu ft/day

Sec. _____, T _____, R _____

- (5) Total Solids (TS) = (a) *Taken from Table 4-5, 4-8, 4-11 or 4-14* lb/AU/Day x _____ AU = (b) lb/day
- (6) Volatile solids (VS) = (a) lb/AU/Day x _____ AU = (b) lb/day

VOLUME OF ACCUMULATED SLUDGE

If the lagoon is agitated prior to liquid removal the Sludge Volume will be ZERO

- (7) Sludge Accumulation Ratio (SAR) = cu ft/lb See Table 10-4
- (8) Sludge Volume = 365 x (5b) x (7) x (3) = cu ft

MINIMUM TREATMENT VOLUME

- (9) Selected lagoon VS loading rate = lb VS/1000 cu-ft/Day See page 10-29 4.0--->45 in Nebr
- (10) Minimum Treatment Volume = (6b) x 1000 / (9) = cu ft

DESIGN FOR THE MINIMUM ANAEROBIC DEPTH

- (11) (8) + (10) = cu ft

(A) The bottom dimensions and the side slopes of the lagoon should be now be determined so that the volume (11) will have depth of 6 feet or greater. The lagoon should never operate below this depth.

TOTALS SOLIDS AND WASTEWATER TO TREAT

(12) Daily Wastewater Volume = cu ft/AU/Day X (AU) = cu ft/day
See page 4-18

(13) Total wastewater Volume = (1) x (12) = cu ft

(14) Total Waste Volume = (13) + (Ne-Eng-82 item (7)) = cu ft

DEPTH ADJUSTMENT

(15) (8) + (10) + (14) = ----- > cu ft

(16) With the bottom dimensions and side slopes in (A) & the volume of (15) determine depth = ft

From Form NE-ENG-81 add the depth of a 25 yr storm and the precip - evap for the critical months

(17) (16) + 81-(4C) + 81-(5) + 1 FOOT = final depth of lagoon = ft

Now you will know the required bottom dimensions the side slope ratios, and the depth of the lagoon.
 You now can develop a final met of Plans.

CALCULATIONS BY _____ DATE _____

ANAEROBIC LAGOON CROSS SECTION

