



Definition

Management of land, water, and plants to control harmful accumulations of salts and/or sodium on the soil surface or in the root zone on non-irrigated areas.

Purposes

- Treatment of salt and/or sodium affected areas to permit desired plant growth.
- Protect surface and ground water resources.

Conditions where practice applies

The practice applies to all non-irrigated land where (a) human-induced soil salinity e.g. oil field activities, and/or sodicity is at or approaching a level that adversely affects land use, or (b) combinations of factors - topography, soils, geology, precipitation, and land use - indicate the future probability of such adverse effects.

Permanent vegetative cover will be used on all sites where at least 75 % of the horizontal electromagnetic induction meter (EM) readings are less than 425 mS/m (millisiemens/meter).

Sites where 50%-75% of the horizontal EM readings are greater than 425 mS/m will likely require a combination of treatments.

Sites with only 50% or less of the horizontal EM readings are less than 425 mS/m are difficult to vegetate and may be treated with either of the following options:

- Organic matter will be applied at a 6 inch thickness or,
- Permanent water cover by diking around the affected site. See Standards and Specifications for Diking (Practice Code 356). Any discharge will be outletted to a grassed waterway or filter strip.

Brine damaged areas are lacking good vegetative cover to protect them from erosion. Special care must be taken in preparation of seedbed, seeding operations, and proper mulching if adequate vegetation is to result.

Soil Amendments

Prior to seeding apply 4-tons/acre gypsum along with sufficient quantities of organic matter to cover the treated area to a depth of 3 inches. Incorporate to a depth of 3 inches. Apply nitrogen at 120 lbs./acre. Apply phosphorus only if soil tests fall below 15 lbs. P/acre. Potassium fertilizers are not recommended for saline soils. Soil tests and the following formula will be used to determine supplemental gypsum applications:

Tons pure gypsum required = $(ESP-5) \times CEC$
x .017 where,

ESP = Percent exchangeable Sodium

CEC = Cation Exchange Capacity

Do not apply more than 5-tons/acre gypsum at one time.

Example: Soil test data for a site requiring additional gypsum. CEC=15, ESP=25

$(25-5) \times (15) \times .017 = 5$ tons

ESTABLISHING AND MAINTAINING OIL BRINE REMEDIATION AREAS

1. Prepare site by removing debris and leveling gullies
2. Apply lime and fertilizer when site is ready for seedbed preparation. Prepare the seedbed with a disk, spring tooth harrow, or similar type equipment to a depth of 3 inches. Seedbed should not be excessively worked as it could cause an increase in salt content in the surface layer.
3. Apply organic matter at the rate indicated. Incorporate into the soil by means of a chisel plow or disk.
4. Seed may be broadcast, drilled, or seeded by hand, rolling is recommended after seeding.
5. Apply mulch, which will help control erosion and hold moisture for the young seedling. Mulch may be anchored by a disk set straight punching the mulch in the ground.
6. Exclude livestock for at least 18 months after seeding to permit vegetation to establish itself. A grazing plan will be developed if the area is to be grazed.
7. Mow during establishment year as needed to control weeds. Keep mowing height at least 6 inches above the established seedling. After establishment, delay mowing until after August 1, to protect valuable wildlife nesting areas. Before mowing, allow grass seed heads to mature to help enhance stand by natural reseeding, mow at a height of not less than 8".
8. Additional fertilizer may be necessary in the spring following initial seeding.

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