Time period | Annual Cd application rate (kg/ha)
--- | ---
Present to June 30, 1984 | 2.0
July 1, 1984 to December 31, 1986 | 1.25
Beginning January 1, 1987 | 0.5

(iii) The cumulative application of cadmium from waste does not exceed the levels in either paragraph (c)(1)(iii)(A) or (B) of this section.

(A) Soil caption exchange capacity (meq/100g) | Maximum cumulative application (kg/ha)
--- | ---
| Back-ground soil pH less than 6.5 | Back-ground soil pH greater than 6.5
Less than 5 | 5 | 5
5 to 15 | 5 | 10
Greater than 15 | 5 | 20

(B) For soils with a background pH of less than 6.5, the cumulative cadmium application rate does not exceed the levels below: Provided, that the pH of the waste and soil mixture is adjusted to and maintained at 6.5 or greater whenever food chain crops are grown.

(2)(i) The only food chain crop produced is animal feed.

(ii) The pH of the waste and soil mixture is 6.5 or greater at the time of waste application or at the time the crop is planted, whichever occurs later, and this pH level is maintained whenever food chain crops are grown.

(iii) There is a facility operating plan which demonstrates how the animal feed will be distributed to preclude ingestion by humans. The facility operating plan describes the measures to be taken to safeguard against possible health hazards from cadmium entering the food chain, which may result from alternative land uses.

(iv) Future property owners are notified by a stipulation in the land record or property deed which states that the property has received waste at high cadmium application rates and that food chain crops must not be grown except in compliance with paragraph (c)(2) of this section.

[Comment: As required by §265.73, if an owner or operator grows food chain crops on his land treatment facility, he must place the information developed in this section in the operating record of the facility.]

§ 265.277 [Reserved]

§ 265.278 Unsaturated zone (zone of aeration) monitoring.

(a) The owner or operator must have in writing, and must implement, an unsaturated zone monitoring plan which is designed to:

(1) Detect the vertical migration of hazardous waste and hazardous waste constituents under the active portion of the land treatment facility, and

(2) Provide information on the background concentrations of the hazardous waste and hazardous waste constituents in similar but untreated soils nearby; this background monitoring must be conducted before or in conjunction with the monitoring required under paragraph (a)(1) of this section.

(b) The unsaturated zone monitoring plan must include, at a minimum:

(1) Soil monitoring using soil cores, and

(2) Soil-pore water monitoring using devices such as lysimeters.

(c) To comply with paragraph (a)(1) of this section, the owner or operator must demonstrate in his unsaturated zone monitoring plan that:

(1) The depth at which soil and soil-pore water samples are to be taken is below the depth to which the waste is incorporated into the soil;

(2) The number of soil and soil-pore water samples to be taken is based on the variability of:

(i) The hazardous waste constituents (as identified in §265.273(a) and (b)) in the waste and in the soil; and

(ii) The soil type(s); and

(3) The frequency and timing of soil and soil-pore water sampling is based on the frequency, time, and rate of waste application, proximity to ground water, and soil permeability.

(d) The owner or operator must keep at the facility his unsaturated zone.
monitoring plan, and the rationale
used in developing this plan.

(e) The owner or operator must ana-
lyze the soil and soil-pore water sam-
ples for the hazardous waste constitu-
ents that were found in the waste dur-
ing the waste analysis under §265.273
(a) and (b).

[Comment: As required by §265.73, all data and
information developed by the owner or oper-
ator under this section must be placed in the
operating record of the facility.]

§ 265.279 Recordkeeping.

The owner or operator must include
hazardous waste application dates and
rates in the operating record required
under §265.73.

[47 FR 32368, July 26, 1982]

§ 265.280 Closure and post-closure.

(a) In the closure plan under §265.112
and the post-closure plan under
§265.118, the owner or operator must
address the following objectives and in-
dicate how they will be achieved:

(1) Control of the migration of haz-
ardous waste and hazardous waste con-
stituents from the treated area into
the ground water;

(2) Control of the release of contami-
nated run-off from the facility into sur-
face water;

(3) Control of the release of airborne
particulate contaminants caused by
wind erosion; and

(4) Compliance with §265.276 con-
cerning the growth of food-chain crops.

(b) The owner or operator must con-
sider at least the following factors in
addressing the closure and post-closure
care objectives of paragraph (a) of this
section:

(1) Type and amount of hazardous
waste and hazardous waste constitu-
tuents applied to the land treatment fa-
cility;

(2) The mobility and the expected
rate of migration of the hazardous
waste and hazardous waste constitu-
ents;

(3) Site location, topography, and
surrounding land use, with respect to
the potential effects of pollutant mi-
gration (e.g., proximity to ground
water, surface water and drinking
water sources);

(4) Climate, including amount, fre-
quency, and pH of precipitation;

(5) Geological and soil profiles and
surface and subsurface hydrology of
the site, and soil characteristics, in-
cluding cation exchange capacity, total
organic carbon, and pH;

(6) Unsaturated zone monitoring in-
formation obtained under §265.276; and
(7) Type, concentration, and depth of
migration of hazardous waste constitu-
tuents in the soil as compared to their
background concentrations.

(c) The owner or operator must con-
sider at least the following methods in
addressing the closure and post-closure
care objectives of paragraph (a) of this
section:

(1) Removal of contaminated soils;

(2) Placement of a final cover, consid-
ering:

(i) Functions of the cover (e.g., infil-
tration control, erosion and run-off
control, and wind erosion control); and

(ii) Characteristics of the cover, in-
cluding material, final surface con-
tours, thickness, porosity and perme-
ability, slope, length of run of slope,
and type of vegetation on the cover;

(3) Monitoring of ground water.

(d) In addition to the requirements of
subpart G of this part, during the clo-
sure period the owner or operator of a
land treatment facility must:

(1) Continue unsaturated zone moni-
toring in a manner and frequency spec-
ified in the closure plan, except that
soil pore liquid monitoring may be ter-
minated 90 days after the last applica-
tion of waste to the treatment zone;

(2) Maintain the run-on control sys-
tem required under §265.272(b);

(3) Maintain the run-off management
system required under §265.272(c); and

(4) Control wind dispersal of particu-
late matter which may be subject to
wind dispersal.

(e) For the purpose of complying with
§265.115, when closure is completed the
owner or operator may submit to the
Regional Administrator certification
both by the owner or operator and by
an independent, qualified soil scientist,
in lieu of a qualified Professional Engi-
neer, that the facility has been closed
in accordance with the specifications
in the approved closure plan.

(f) In addition to the requirements of
§265.117, during the post-closure care