

incident if the deterioration or malfunction or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, shall be inspected daily when in use.

(c) The owner or operator shall remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.

(d) The owner or operator shall record inspections in an inspection log or summary. These records shall be kept for at least 3 years from the date of inspection. At a minimum, these records shall include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

(8) CLOSURE. (a) The owner or operator of a facility shall close the facility in a manner that:

1. Minimizes the need for further maintenance, and
2. Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post closure escape of wastes, leachate, contaminated rainfall, or waste decomposition products to ground or surface waters, or to the atmosphere.
3. Meets the additional closure requirements for landfills and surface impoundments as specified in s. NR 181.44 (12), if applicable.

(b) The facility operator shall submit to the department for approval a closure plan demonstrating compliance with this paragraph at the time of and as part of the application for a license under s. NR 181.53 or 181.55 and shall amend the plan whenever changes in operating plans or facility design affect the closure plan. The closure plan shall include, but not be limited to:

1. A description of how the facility shall be closed.
2. A description of possible uses of the land after closure.
3. The anticipated time until closing, the estimated time required for closure and any anticipated partial closures.
4. An estimate of the maximum inventory of wastes in storage or in treatment at any given time during the life of the facility.
5. A description of the steps needed to decontaminate facility structures or equipment.

(c) At least 120 days prior to the closing of a facility, the owner or operator shall notify the department in writing of the intent to close the site. No later than this date, the owner or operator shall notify current users of the facility of the intent to close the site.

(d) Within 60 days after ceasing to accept hazardous waste, all wastes shall be removed from storage and treatment operations and disposed of in accordance with requirements of subch. III and an approved closure plan as specified in par. (b).

(e) At completion of closure, all equipment and structures used in the operation of the facility shall be properly disposed of or decontaminated by removal of all hazardous waste and residues.

(f) At completion of closure, all required equipment shall be provided and arrangements shall be made to implement the long term care provisions contained in the approved plan of operation.

(g) At completion of closure, the owner or operator of a disposal facility shall submit to the department certification by the owner or operator and certification by a registered professional engineer that the facility has been closed in accordance with the requirements of this subchapter, the plan of operation and all applicable license conditions.

(9) LONG-TERM CARE. (a) The owner of a disposal facility shall provide long-term care for a period of 20 or 30 years from the date of closure, under s. 144.441, Stats., unless the owner's responsibility is terminated earlier in accordance with s. 144.441 (2) (d), Stats.

(b) Long-term care shall apply only to disposal facilities and consist of at least the following:

1. Monitoring and reporting in accordance with the requirements of s. NR 181.44 (11) and (12) (c).

2. Maintenance of facility monitoring and waste containment devices and security requirements necessary to prevent hazards to human health.

(c) The use of a site on or in which hazardous waste remains after closure shall never be allowed to disturb the integrity of the final cover, liner, or any other component of any containment system, or the facility's monitoring system, unless the owner or operator can demonstrate to the department that the disturbance:

1. Is necessary to the proposed use of the property and will not increase the potential hazard to human health or the environment; or

2. Is necessary to reduce a threat to human health or the environment.

(10) FINANCIAL RESPONSIBILITY FOR CLOSURE AND LONG-TERM CARE. (a) *Applicability.* 1. 'Closure.' The owner of every hazardous waste storage, treatment or disposal facility shall provide, as part of the initial operating license application, proof of financial responsibility to ensure compliance with the closure requirements of the approved plan of operation for the facility.

2. 'Long-term care.' The owner of every hazardous waste disposal facility shall provide, as part of the initial operating license application and annually thereafter for the period of active site life, proof of financial responsibility to ensure compliance with the long-term care requirements of the approved plan of operation for the facility.

3. 'Successors in interest.' Any person acquiring rights of ownership, possession or operation of a licensed hazardous waste storage, treatment, or disposal facility shall be subject to all requirements of the license for the facility and shall provide proof of financial responsibility to the department in accordance with this subsection prior to the transfer of ownership, possession, or operation of the facility.

b. *Methods of providing proof of financial responsibility.* Financial assurances for closure and long-term care shall be established separately. To provide proof of financial responsibility, the applicant shall use one of the following methods for each account:

1. 'Performance or forfeiture bond.' a. If the owner chooses to submit a bond, it shall be in the amount determined according to par. (d) 2. conditioned upon faithful performance by the owner, and any successor in interest, of all closure or long-term care requirements of the approved plan of operation. The bond shall [be] delivered to the department as part of the initial operating license application. Bond forms shall be supplied by the department.

b. Bonds shall be issued by a surety company authorized to do surety business in this state. At the option of the owner, a performance bond or a forfeiture bond may be filed. The department shall be the obligee of the bond. Surety companies may have the opportunity to complete the closure or long-term care of the site in lieu of cash payment to the department if the owner or any successor in interest fails to carry out the closure or long-term care requirements of the approved plan of operation.

c. Each bond shall provide that as long as any obligation of the owner for closure or long-term care remains, the bond shall not be cancelled by the surety, unless a replacement bond or other proof of financial responsibility under this subsection is provided to the department. If the surety proposes to cancel such a bond, notice shall be provided to the department in writing by registered or certified mail not less than 90 days prior to the proposed cancellation date. Not less than 30 days prior to the expiration of the 90-day notice period, the owner shall deliver to the department a replacement bond or other proof of financial responsibility under this subsection in the absence of which all storage, treatment or disposal operations shall immediately cease. If the surety company becomes bankrupt or insolvent or its authorization to do business in the state is revoked or suspended, the owner shall, within 30 days after receiving written notice thereof, deliver to the department a replacement bond or other proof of financial responsibility under this subsection in the absence of which all storage, treatment or disposal operations shall immediately cease.

2. 'Deposit with the department.' If the owner deposits cash, certificates of deposit, or U.S. government securities with the department, the amount of the deposit shall be determined according to par. (d) 1. and shall be submitted as part of the initial operating license application. Deposits placed with the department shall be segregated and, if applicable, invested in an interest bearing account. All interest payments shall be accumulated in the account. The department shall have the right to use part or all of the funds to carry out the closure or long-term care requirements of the approved plan of operation if the owner fails to do so. The department shall mail notification of its intent to use funds for that purpose to the last known address of the owner. If the owner requests a hearing in writing within 60 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing under s. 227.064, Stats., for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation have been carried out.

3. 'Escrow account.' If the owner establishes an escrow account, it shall be with a bank or financial institution located within the state of Wisconsin which is examined and regulated by the state or a federal agency in the amount determined according to par. (d) 1. The assets in the escrow account shall consist of cash, certificates of deposit, or U.S. government securities. All interest payments shall be accumulated in the account. An originally signed duplicate of the escrow agreement shall be submitted to the department as part of the initial operating license application. Escrow account forms shall be supplied by the department. The department shall be a party to the escrow agreement, which shall provide that there shall be no withdrawals from the escrow account except as authorized in writing by the department. The escrow agreement shall further provide that the department shall have the right to withdraw and use part or all of the funds in the escrow account to carry out the closure or long-term care requirements of the approved plan of operation if the owner fails to do so. The department shall mail notification of its intent to use funds for that purpose to the last known address of the owner. If the owner requests a hearing in writing within 60 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing under s. 227.064, Stats., for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation have been carried out.

4. 'Irrevocable trust.' If the owner creates an irrevocable trust, it shall be exclusively for the purpose of ensuring that the owner or any successor in interest will comply with the closure or long-term care requirements of the approved plan of operation. The trust agreement shall designate the department as sole beneficiary. The trustee shall be a bank or other financial institution located within the state of Wisconsin, which has the authority to act as a trustee and whose trust operations are regulated and examined by the state or a federal agency. The trust corpus shall consist of cash, certificates of deposit or U.S. government securities in the amount determined according to par. (d) 1. All interest payments shall be accumulated in the account. An originally signed duplicate of the trust agreement shall be submitted to the department for approval as part of the initial operating license application. Trust forms shall be supplied by the department. The trust agreement shall provide that there shall be no withdrawals from the trust fund except as authorized by the department. The trust agreement shall further provide that sufficient monies shall be paid from the trust fund to the beneficiary in the event that the owner or any successor in interest fails to complete the closure or long-term care requirements of the approved plan of operation. The department shall mail notification of its intent to use funds for that purpose to the last known address of the owner. If the owner requests a hearing in writing within 60 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing under s. 227.064, Stats., for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation have been carried out.

**Note:** These forms may be obtained from the Department of Natural Resources, Bureau of Solid Waste Management, P.O. Box 7921, Madison, Wisconsin, 53707.

(c) *Cost estimates.* 1. For the purpose of determining the amount of proof of financial responsibility that is required in par. (a), the owner shall estimate the total cost of closure for the point in time in the opera-

tion of the facility when the extent or manner of its operation make closure most expensive, estimate the annual cost of long-term care of the site or facility for the period of owner responsibility and submit the estimated closure and long-term costs, together with all necessary justification to the department for approval, as part of the plan of operation submittal. The costs shall be reported on a per unit basis. The source of the estimates shall be indicated.

2. At a minimum, closure costs shall include cover material, topsoil, seeding, fertilizing, mulching, labor, and disposal or decontamination of hazardous waste and residues on equipment and structures.

3. At a minimum, long-term care costs shall include land surface care; gas monitoring; leachate pumping, transportation, monitoring and treatment; groundwater monitoring, collection and analysis; maintenance of facility monitoring and waste containment devices; and security requirements necessary to prevent hazards to human health.

4. The estimated annual rate of inflation shall be calculated by dividing the latest published gross national product implicit price deflator by the deflator published for the previous year in the survey of current business of the bureau of economic analysis, U.S. department of commerce. The result is the estimated annual rate of inflation.

5. The estimated annual rate of interest shall be the rate specified by the financial institution managing the fund or deposit.

(d) *Formulas for calculating the amount of proof of financial responsibility.* 1. 'Deposits in escrow, trust or department accounts.' a. Deposits for closure. The formula for closure shall be:

$$D = C \frac{(1 + f)^{SL}}{(1 + i)^{SL+c}}$$

in which:

D = the unknown deposit for closure	SL = the estimated active life of the site in years
C = the estimated cost of closure	i = the estimated annual rate of interest
f = the estimated annual rate of inflation	c = the period of closure

b. Deposits for long-term care. 1) The following statistics used in calculating the amounts deposited to the long-term care account shall be specified in the plan of operation: the rate of outpayment during the period of long-term care, expressed in equal or unequal annual amounts, and the equal annual rate of inpayment, expressed as either "real" or "actual" dollars.

2) The following general formula shall be used in the calculation.

$$A = R$$

When equal annual outpayments are used, R shall be expressed as:

$$R(1 + f)^{SL} \left( \frac{1 + f}{1 + i} \right)^c \left[ \frac{1 - \left( \frac{1 + f}{1 + i} \right)^{LTC}}{\left( \frac{1 + i}{1 + f} \right) - 1} \right]$$

When unequal annual outpayments are used, R shall be expressed as:

$$R_x(1 + f)^{SL} \left( \frac{1 + f}{1 + i} \right)^{x+c}$$

When equal "actual" dollar inpayments are used, A shall be expressed as:

$$A(1 + i) \left[ \frac{(1 + i)^{SL} - 1}{i} \right]$$

When equal "real" dollar inpayments are used, A shall be expressed as:

$$A(1 + i)^{SL+1} \left[ \frac{1 - \left( \frac{1 + f}{1 + i} \right)^{SL}}{i - f} \right]$$

in which:

A = the unknown annual inpayment for long-term care	R = the estimated annual cost
i = the estimated annual rate of interest	x = the year of long-term care
f = the estimated annual rate of inflation	LTC = the period of long-term
SL = the estimated active life of the site in years	c = the period of closure

2. 'Performance or forfeiture bonds.' a. Bonds for closure. The formula for closure is:

$$CB = C(1 + f)^{SL+c}$$

in which:

CB = the unknown amount of the closure bond	SL = the estimated active life of the site
C = the estimated closure cost	c = the period of closure
f = the estimated annual rate of inflation	

b. Bonds for long-term care. The rate of outpayment shall be as specified in par. (d) 1. b., the rate of inpayment shall be in equal "actual" dollars as specified in the plan of operation.

When equal annual outpayments are used, the formula shall be:

$$PB(SL) = R(1+f)^{SL+1+c} \left[ \frac{(1+f)^{LTC} - 1}{f} \right]$$

When unequal annual outpayments are used, the formula shall be:

$$PB(SL) = R_x(1+f)^{SL+x+c}$$

in which:

- PB = the unknown annual performance bond amount for long-term care;  
 f = the estimated annual rate of inflation; LTC = the period of long-term care;  
 SL = the estimated active life of the site; x = the year of the long-term care;  
 R = the estimated annual outpayments; c = the period of closure

(e) *Adjustment of financial responsibility.* The owner of a hazardous waste facility shall prepare a new closure cost estimate whenever a substantial change in the closure plan affects the cost of closure and a new long-term care cost estimate whenever a substantial change in the long-term care requirements of the plan of operation affects the cost of long-term care. Proof of the increase in value of all bonds, escrow accounts and trust accounts established under this subsection shall be submitted annually to the department. The department may adjust the amount of the required proof of financial responsibility for closure or long-term care based upon prevailing or projected interest and inflation rates and the latest cost estimates, and may annually require the owner to increase or decrease the amount of proof of financial responsibility accordingly.

(f) *Access and default.* Whenever on the basis of any reliable information and after opportunity for a hearing, the department determines that an owner or operator of a hazardous waste facility is in violation of any of the requirements for closure or long-term care specified in the approved plan of operation, the department shall have the right to enter upon the facility and carry out the closure or long-term care requirements. The department may use part or all of the money deposited with it, or the money deposited in the escrow or trust accounts, or performance or forfeiture bonds to carry out these requirements.

(g) *Authorization to release funds.* 1. 'Closure.' When an owner or operator has completed closure, the owner may apply to the department for release of a bond or return of money held on deposit, in escrow, or in trust for closure of the facility. Such application shall be accompanied by an itemized list of costs incurred. Upon determination by the department that complete closure has been accomplished, the department shall authorize release and return of all funds accumulated in such accounts or give written permission for cancellation of a bond. Such determinations shall be concluded within 90 days of the application.

2. 'Long-term care.' One year after closure, and annually thereafter for the period of owner responsibility, the owner, who has

carried out all necessary long-term care during the preceding year, may make application to the department for reimbursement from an escrow account, trust account, or deposit with the department, or for reduction in a bond equal to the estimated costs for long-term care for that year. Such application shall be accompanied by an itemized list of costs incurred. Upon determination that the expenditures incurred are in accordance with the long-term care requirements anticipated in the approved plan of operation, the department may authorize release of the funds or approve a reduction in a bond. Prior to authorizing a release of funds or bond reduction, the department shall determine that adequate funds exist to complete required long-term care work for the remaining period of owner responsibility. Such determinations shall be concluded within 90 days of the application. Any funds remaining in an escrow account, trust account, or on deposit with the department at the termination of owner responsibility shall be released to the owner.

(11) **FACILITY LIABILITY REQUIREMENTS.** The owner or operator of a hazardous waste facility or group of facilities shall have and maintain liability insurance from an insurer licensed or eligible to insure facilities in the jurisdiction where the facilities are located, for sudden and accidental occurrences in the amount of \$1 million per occurrence with an annual aggregate per firm of \$2 million, exclusive of legal defense costs, for claims arising out of injury to persons or property from the operations of each such hazardous waste facility or group of facilities. The deductible written into the insurance policy shall not exceed 5% of the per incident limit of liability of the policy.

(12) **WASTE MANAGEMENT FUND.** (a) *Payment into the fund.* All owners or operators of licensed hazardous waste disposal facilities shall pay to the department the fees specified in par. (c), for each ton of hazardous waste received and disposed of at the site from the effective date of these rules until the site is closed and no longer receives waste, except as otherwise provided in s. 144.441 (3) (a), Stats. The department shall deposit all such fees into the waste management fund provided for in s. 25.45, Stats.

(b) *Certification.* The owner or operator of a licensed hazardous waste disposal facility shall certify, on a form provided by the department, the amount of hazardous waste received and disposed of during the preceding reporting period. The department shall specify the term of the reporting period on the certification form. The certification form shall be completed and returned to the department with the appropriate fee within 30 days after mailing of the form by the department to the owner or operator.

(c) *Fees.* 1. For all disposal facilities with an approved plan of operation the owner may choose to be responsible for the long-term care of the facility for either 20 years or 30 years after site closure. The fees to be paid into the fund shall be at a rate of payment of 35¢ per ton for 20-year responsibility and 15¢ per ton for 30-year responsibility, except for ashes or sludges from electric or process steam generating facilities, sludges produced by waste treatment or manufacturing processes at pulp or paper mills,



manufacturing process solid wastes from foundries, or sludges produced by municipal wastewater treatment facilities for which the rate of payment shall be 3.5¢ per ton for 20-year responsibility and 1.5¢ per ton for 30-year responsibility.

2. For all disposal facilities without an approved plan of operation, the fees to be paid shall be those indicated in subd. 1. at the 30-year responsibility rate of payment.

(d) *Use of fund.* Only facilities with an approved plan of operation are eligible for use of the money accumulated in the waste management fund. The owner or operator of any hazardous waste disposal site or facility in existence on the effective date of these rules shall be required to seek approval of a plan of operation before an operating license is issued. The monies in the waste management fund shall be expended exclusively as set forth in s. 144.441 (3) (g), Stats.

**History:** Cr. Register, July, 1981, No. 307, eff. 8-1-81; r. and rec. (10), Register, September, 1981, No. 309, eff. 10-1-81; reprinted to correct formulas in sub. (10), Register, November, 1981, No. 311.

**NR 181.43 Storage standards.** (1) **GENERAL.** Except as otherwise provided in sub. (2), no person shall maintain or operate a hazardous waste storage facility unless the person has obtained an interim license or an operating license from the department, in accordance with the requirements of s. NR 181.53 or 181.55.

(2) **EXEMPTIONS.** (a) A generator may accumulate hazardous waste on-site without a storage license for 90 days or less provided that:

1. Within 90 days, all such waste is either:

a. Shipped off-site to a designated facility which meets the requirements of s. NR 181.23 (2) (b); or

b. Treated, stored or disposed of in an on-site facility that is either licensed under subch. VI or exempt from licensing under s. NR 181.42 (1) (a).

2. The waste is placed in containers which meet the packaging requirements of s. NR 181.26 (1) and are managed in accordance with subs. (6) (a) and (8) except for sub. (8) (d), or is placed in tanks, provided the generator complies with sub. (6), with the exception of subs. (6) (c) and (d), and sub. (7), with the exception of sub. (7) (f);

3. The date upon which each period of accumulation begins is clearly marked and visible for inspection on each container or tank;

4. Each container is properly labeled and marked according to s. NR 181.26 (2) and (3); and

5. The generator complies with the contingency plan, security and personnel training requirements for owners and operators specified in s. NR 181.42 (4) and (5).

(b) The owner or operator of industrial wastewater facilities, sewerage systems and waterworks treating liquid wastes which are approved under s. 144.04, Stats., or permitted under ch. 147, Stats., are exempt from all the requirements of this section, except that this exemption does not apply to the storage or disposal of sludges or other hazardous waste produced during the treatment process.

(c) The owner or operator of a solid waste disposal site or facility licensed under ch. NR 180, Wis. Adm. Code, provided that the only hazardous waste the facility stores is excluded from regulation under this subchapter by s. NR 181.13 and the facility has been approved under s. NR 181.13 (7) to accept small quantities of hazardous waste.

(d) The owners or operators of facilities used for the storage of materials resulting from a mining operation as defined in s. 144.81 (5), Stats., except where requirements in this section are referenced in the rules adopted by the department under s. 144.435 (1m), Stats.

(3) FEASIBILITY REPORT. (a) Unless specifically exempted in sub. (2), no person shall establish, construct or expand a hazardous waste storage facility or be issued an initial operating license under s. NR 181.55 without first obtaining written approval of a feasibility report and subsequently obtaining approval of a plan of operation from the department. The purpose of the feasibility report is to determine whether the site has potential for use as a hazardous waste storage facility and to identify any conditions which the applicant shall include in the plan of operation. Favorable feasibility determination does not guarantee plan of operation approval and licensure. The feasibility report shall be submitted in accordance with the requirements of s. NR 181.51 and shall contain the applicable material required by s. NR 181.44 (6). The applicant is encouraged to submit an initial site report as outlined in s. NR 181.44 (5). The department may waive in writing any of the complete feasibility report requirements specified in s. NR 181.44 (6). Feasibility report re-