

**NAC 459.588 Therapeutic X-ray systems: Timer, control panel.**

1. A timer must be provided which has a display at the treatment control panel. The timer must have a preset timer selector and an elapsed time indicator.
  2. The timer must be a cumulative timer which switches on and off with the radiation and retains its reading after irradiation is interrupted or terminated. It must be necessary to zero the elapsed time indicator and the preset time selector after irradiation is terminated.
  3. The timer must terminate irradiation when a preselected time has elapsed.
  4. The control panel must have:
    - (a) An indication of whether electrical power is present and activation of the X-ray tube is possible;
    - (b) An indication of whether X-rays are being produced;
    - (c) The means for indicating kilovoltage and X-ray tube current;
    - (d) The means for terminating an exposure at any time;
    - (e) A locking device which will prevent unauthorized use of the X-ray system; and
    - (f) For new equipment installed after February 28, 1980, a positive display of specific filter or filters in the beam.
  5. When a control panel may energize more than one X-ray tube:
    - (a) It must be possible to activate only one X-ray tube during any one time interval;
    - (b) There must be an indication at the control panel identifying which X-ray tube is energized; and
    - (c) There must be an indication at the X-ray tube housing assembly when that tubehead is energized.
  6. There must be means of determining the target to patient distance to within 1 centimeter.
  7. Unless it is possible to bring the X-ray output to the prescribed exposure parameters within 5 seconds, the entire useful beam must be attenuated by a shutter having a lead equivalency not less than that of the tube housing. In addition:
    - (a) After the unit is at the selected operating parameters, the shutter must be controlled electrically by the operator from the control panel; and
    - (b) An indication of shutter position must appear at the control panel.
- [Bd. of Health, Radiation Control Reg. §§ 6.8.1.9-6.8.1.13.2, eff. 2-28-80]

**NAC 459.590 Therapeutic X-ray systems: Requirements for design of treatment room.** In addition to providing shielding adequate to meet the requirements of NAC 459.320 to 459.374, inclusive, the design of the treatment room must meet the following requirements:

1. Treatment rooms to which access is possible through more than one entrance must be provided with warning lights in a readily observable position near the outside of all access doors, preferably at eye level, which will indicate when the useful beam is on.
2. Provision must be made for two-way aural communication with the patient from the control room.
3. Windows, mirror systems or closed-circuit television viewing screens or equivalent systems must be provided to permit continuous observation of the patient during irradiation and must be so located that the operator may see the patient and the control panel from the same position. When the viewing system is by electronic means, for example, television, an alternate viewing system must be available as a backup in case of electronic failure.
4. Facilities which contain an X-ray system which may be operated above 150 kVp must:
  - (a) Have all necessary shielding, except for any beam interceptor, provided by fixed barriers;
  - (b) Have the control panel in a protected area which is outside the treatment room or within a protective booth which has a door electrically connected to the control panel so that X-ray production cannot occur unless the door is closed;
  - (c) Have all entrance doors of the treatment room electrically connected to the control panel so that X-ray production cannot occur unless all doors are closed;
  - (d) Be arranged so that if the doors referred to in paragraphs (b) and (c) are opened when the therapy tubehead is activated:
    - (1) The machine will shut off within 2 seconds; or

(2) The radiation at a distance of 1 meter from the target will be reduced to 10 mR/hr or less within 2 seconds; and

(e) Be so designed that if the radiation output of the tubehead is affected by any door opening, the machine can be restored to full operation only by:

(1) Closing the door; and

(2) Subsequently reinitiating the exposure by manual action at the control panel.

[Bd. of Health, Radiation Control Reg. §§ 6.8.2-6.8.2.4.5.1, eff. 2-28-80]—(NAC A 4-27-84; 1-18-94)

**NAC 459.592 Therapeutic X-ray systems: Operating procedures; surveys, calibration.**

1. All new facilities and existing facilities not previously surveyed must have a radiation protection survey made by, or under the direction of, a qualified expert. This survey must also be done after any change in the facility which might produce a radiation hazard. The expert shall report his findings, in writing, to the person in charge of the facility and a copy of the report must be transmitted by the registrant to the division within 30 days.

2. The radiation output of each therapeutic X-ray machine must be calibrated by, or under the direction of, a qualified expert who is physically present at the facility during the calibration procedure. The calibration must be repeated after any change in, or replacement of, components of the X-ray generating equipment which could cause a change in X-ray output. Calibration of the therapy beam must be performed with a measuring instrument the calibration of which is directly traceable to national standards of exposure or absorbed dose and which has been calibrated within the preceding year. Records of the calibrations must be provided to and maintained by the registrant. In addition:

(a) Each therapeutic X-ray machine must have the calibrations repeated at time intervals not exceeding 1 year. The calibration must include at least the following determinations:

(1) The accurate determination of the air dose rate or the dose rate in a suitable phantom, as appropriate, for a sufficient number of operating parameters for each effective energy to permit the determination of the dose received by the patient;

(2) Verification that the equipment is operating in accordance with the design specifications concerning the congruence between the radiation field and light localizer, when a localizer is used, and for beam flatness and symmetry at the specified depths;

(3) The effective energy, for example, half-value layer when appropriate, for every combination of kVp and filter used for radiation therapy;

(4) The uniformity of the radiation field and its dependence upon the direction of the useful beam; and

(5) The calibration determinations must be provided in sufficient detail so that the absorbed dose in rads to tissue adjacent to, as well as in the useful beam, may be calculated to within  $\pm 5$  percent of the intended absorbed dose.

(b) Therapeutic X-ray systems capable of operation at greater than 150 kVp must, in addition to the annual calibration required in paragraph (a) have spot checks performed which meet the following criteria:

(1) A spot check must be made at least monthly or after 50 operating hours, whichever is shorter, and must include carefully selected representative or indicative measurements which will demonstrate the consistency of relevant machine operating characteristics or the lack of such characteristics.

(2) The spot-check methods must be in writing and have been designed by a qualified expert. Spot checks must include verification of continued congruency between the radiation field and localizing device where an optical field illuminator is used.

(3) Spot checks which are erratic or inconsistent with calibration data must be investigated promptly.

(4) For machines in which beam quality may vary significantly, spot checks must include beam quality checks.

(5) Whenever a spot check indicates a significant change, as specified in the qualified expert's spot check design, in the operating characteristics of a machine, the machine must be recalibrated as required in paragraph (a).

(6) A log must be kept of all spot-check measurements.

(c) In the therapeutic application of X-ray equipment constructed with beryllium or other low-filtration windows, the registrant must ensure that the unfiltered radiation reaches only the part intended and that the useful beam port is blocked at all times except when actually being used.

(d) Therapeutic X-ray machines must not be left unattended unless the locking device, required by paragraph (e) of subsection 4 of NAC 459.588, is set to prevent activation of the useful beam.

(e) Except as provided in paragraph (f) of subsection 4 of NAC 459.554, no person other than the patient may be in the treatment room during exposures unless he is protected by a barrier sufficient to meet the requirements of NAC 459.325, and no person other than the patient may be in the treatment room when the kVp exceeds 150 during exposures except in emergency situations.

(f) The tube housing assembly must not be held by anyone during exposures.

(g) When a patient must be held in position for radiation therapy, mechanical restraining devices must be used.

[Bd. of Health, Radiation Control Reg. §§ 6.8.3-6.8.3.2.7, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.594 X-ray and electron therapy installations: General requirements.** All of the provisions of NAC 459.740 to 459.752, inclusive, except subsections 3 and 4 of NAC 459.750, apply to medical facilities using medical therapy equipment with energies 1 MeV and above.

[Bd. of Health, Radiation Control Reg. § 6.9, eff. 2-28-80]

**NAC 459.596 X-ray and electron therapy installations: Leakage radiation; beam-limiting devices.**

1. For existing equipment and new equipment manufactured or installed after February 28, 1980:

(a) The leakage radiation, excluding neutrons, at a distance of 1 meter from the source must not exceed 0.1 percent of the useful beam dose rate at 1 meter from the source for any of its operating conditions.

(b) Within 1 year after February 28, 1980, the registrant must determine or obtain from the manufacturer for each machine the leakage radiation of electrons, X-rays or neutrons, existing at the points specified in paragraph (a) of this subsection, for specified operating conditions. Records on radiation leakage must be maintained at the installation.

(c) The division may by specific order impose upon any user of equipment from which neutron leakage may be a hazard such additional requirements as it deems appropriate or necessary to protect health or minimize danger to life or property.

2. Adjustable or interchangeable beam-limiting devices must be provided.

3. For existing equipment and new equipment manufactured or installed after February 28, 1980:

(a) Adjustable or interchangeable beam-limiting devices must attenuate the radiation incident on the beam-limiting devices so that the dose equivalent in rems at any distance from the source does not exceed 2 percent of the maximum dose equivalent in the useful beam measured at an equal distance from the radiation source.

(b) If the beam-limiting device does not meet the specifications in paragraph (a) of this subsection, the division may accept auxiliary equipment or methods for accomplishing attenuation.

4. Dose equivalent measurements may be averaged over an area up to but not exceeding 100 cm<sup>2</sup> at a distance of 1 meter from the target. In case of overlapping beam-limiting devices, the leakage through each set must be measured independently.

[Bd. of Health, Radiation Control Reg. §§ 6.9.1-6.9.1.2.2, eff. 2-28-80]

**NAC 459.598 X-ray and electron therapy installations: Filters, beam monitors.**

1. In equipment which uses a system of wedge filters, interchangeable field flattening filters or beam scattering filters:

(a) Irradiation must not be possible until a selection of filter has been made at the treatment control panel;

(b) An interlock system must be provided to prevent irradiation if the filter is not in the correct position; and

(c) A display must be provided at the treatment control panel showing the filter, filters or zero filter in use.

2. Existing equipment and new equipment manufactured or installed after February 28, 1980, must be provided with at least one radiation detector in the radiation head. This detector must be incorporated into a primary system. Each detector:

(a) Must be capable of independently monitoring and controlling the useful beam; and

(b) Must form part of a dose monitoring system from whose readings in dose monitor units the absorbed dose at a reference point in the treatment volume can be calculated.

3. Each dose monitoring system must have a legible display at the treatment control panel which must:

(a) Maintain a reading until intentionally reset;

(b) In the event of power failure, have the capability of retrieving the information displayed at the time of failure; and

(c) Be designed so that increasing doses are displayed by increasing numbers and in any over-dosage of radiation the absorbed dose may be accurately determined.

[Bd. of Health, Radiation Control Reg. §§ 6.9.1.3-6.9.1.4.3.3, eff. 2-28-80]

**NAC 459.600 X-ray and electron therapy installations: Dose monitors.**

1. Irradiation must not be possible until a selection of a number of dose monitor units has been made at the treatment control panel.

2. After useful beam termination, it must be necessary to reset the preselected dose monitor units before treatment can be reinitiated.

3. The preselected number of dose monitor units must be displayed at the treatment control panel until reset for the next irradiation.

4. Each of the monitoring systems must be capable of independently terminating irradiation. Provisions must be made to test the correct operation of each system.

5. Each primary system must terminate irradiation when the preselected number of dose monitor units has been reached and each secondary system must be used as a backup.

[Bd. of Health, Radiation Control Reg. §§ 6.9.1.5-6.9.1.6.2, eff. 2-28-80]

**NAC 459.602 X-ray and electron therapy installations: Switches, timers.**

1. It must be possible to terminate irradiation and equipment movements or to go from an interruption condition to termination conditions at any time from the treatment control panel.

2. It must be possible to interrupt irradiation and equipment movements at any time from the treatment control panel. Following an interruption it must be possible to restart irradiation by operator action without any reselection of operating conditions.

3. A timer must be provided which has a display at the treatment control panel. The timer must have a preset time selector and an elapsed time indicator.

4. The timer must be a cumulative timer which switches on and off with the radiation and retains its reading after irradiation is interrupted or terminated. It must be necessary to zero and reset the elapsed time indicator and the preset time selector after irradiation is terminated before irradiation will again be possible.

5. To guard against failure of the dose monitoring systems, the timer must terminate irradiation when a preselected time has elapsed.

[Bd. of Health, Radiation Control Reg. §§ 6.9.1.7-6.9.1.9.3, eff. 2-28-80]

**NAC 459.604 X-ray and electron therapy installations: Selections of radiation type, energy, stationary or moving beam.**

1. In equipment capable of both X-ray therapy and electron therapy:

(a) Irradiation must not be possible until a selection of radiation types, either X-rays or electrons, has been made at the treatment control panel; and

(b) The radiation type selected must be displayed at the treatment control panel before and during irradiation.

2. In equipment capable of generating radiation beams of different energies:

(a) Irradiation must not be possible until a selection of energy has been made at the treatment control panel; and

(b) The energy and type of irradiation selected, either X-rays or electrons, must be displayed at the treatment control panel before and during irradiation.

3. In equipment capable of both stationary-beam therapy and moving-beam therapy:

(a) Irradiation must not be possible until a selection of stationary-beam therapy or moving-beam therapy has been made at the treatment control panel;

(b) Moving-beam therapy must be controlled so that the required dose monitor units per degree of rotation is obtained; and

(c) The mode of operation must be displayed at the treatment control panel.

[Bd. of Health, Radiation Control Reg. §§ 6.9.1.10-6.9.1.12.3, eff. 2-28-80]

**NAC 459.606 X-ray and electron therapy installations: Focal spot, beam orientation; system checks.**

1. The registrant must determine or obtain from the manufacturer the location with reference to an accessible point on the radiation head of:

(a) The X-ray target and the virtual source of X-rays;

(b) The electron window or the scattering foil, or both; and

(c) All possible orientations of the useful beam.

2. Facilities must be provided so that all radiation safety interlocks can be checked. When preselection of any of the operating conditions requires action in the treatment room and at the treatment control panel, selection at one location must not give a display at the other location until the requisite selected operations in both locations have been completed.

[Bd. of Health, Radiation Control Reg. §§ 6.9.1.13-6.9.1.14, eff. 2-28-80]

**NAC 459.608 X-ray and electron therapy installations: Shielding requirements.** Shielding must be adequate to meet the requirements of NAC 459.320 to 459.374, inclusive. In addition, each of the following design requirements apply:

1. Except for entrance doors, all the required barriers must be fixed barriers.

2. The control panel must be located outside the treatment room or within a protective booth equipped with an interlocked door which is electrically connected to the control panel so that the door must be closed during radiation production.

3. Windows, mirror systems, closed-circuit television viewing screens or other equivalent viewing systems must be provided to permit continuous observation of the patient during irradiation and must be located so that the operator may see the patient and the control panel from the same position. When the viewing system is by electronic means, for example, television, an alternate viewing system must be provided for use in any failure of the primary system.

4. Provisions must be made for two-way aural communication with the patient from the control station.

5. Treatment rooms to which access is possible through more than one entrance must be provided with warning lights in a readily observable position near the outside of all access doors which will indicate when the useful beam is on.

6. Interlocks must be provided so that all entrance doors must be closed before treatment can be initiated or continued. If the radiation beam is interrupted by any door opening, it must be possible to restore the machine to operation only by closing the door and subsequently reinitiating exposure by manual action at the control panel.

[Bd. of Health, Radiation Control Reg. §§ 6.9.2-6.9.2.6, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.610 X-ray and electron therapy installations: Radiation protection survey, calibration.**

1. All new facilities and existing facilities not previously surveyed must have a survey of radiation protection made by, or under the direction of, a qualified expert. This survey must also be done after any change in the facility or equipment which might cause a significant increase in radiation hazard.

2. The expert must report his findings in writing to the person in charge of the facility, and a copy of the report must be transmitted by the registrant to the division.

3. The survey and report must indicate all instances where, in the opinion of the qualified expert, the installation is in violation of any applicable regulation for protection against radiation and must cite the sections violated.

4. No person other than the patient may be in the treatment room during treatment. When a patient must be held in position for radiation therapy, mechanical supporting or restraining devices must be used.

5. The output of each therapeutic X-ray machine must be calibrated by a qualified expert, before the machine is first used for medical purposes. Calibrations must be repeated at least once every 12 months and after any change which might significantly increase radiation hazards. Records of calibrations must be provided to and maintained by the registrant. The calibration must include at least the following determinations:

(a) Verification that the equipment is operating in compliance with the design specifications concerning the light localizer, the side light and backpointer alignment with the isocenter; when applicable, variation in the axis of rotation for the table, gantry and jaw system and beam flatness and symmetry at the specified depths.

(b) The exposure rate or dose rate for the range and field sizes used and for each effective energy and for each treatment distance used for radiation therapy.

(c) The effective energy, for example, half-value layer when appropriate, for every combination of kVp and filter used for radiation therapy.

(d) The congruence between the radiation field and the field indicated by the localizing device when localizing devices are used for radiation therapy.

(e) The uniformity of the radiation field and its dependence upon the direction of the useful beam.

(f) The calibration determinations must be provided in sufficient detail so that the absorbed dose in rads to tissue adjacent to, as well as in the useful beam, may be calculated to within  $\pm 5$  percent of the intended absorbed dose.

[Bd. of Health, Radiation Control Reg. §§ 6.9.3-6.9.3.3.6, eff. 2-28-80]

**NAC 459.612 X-ray and electron therapy installations: Spot checks.**

1. A spot check must be made daily with use and include carefully selected representative or indicative measurements which will demonstrate the consistency of relevant machine operating characteristics or lack of those characteristics.

2. The spot-check methods must be in writing and have been designed by a qualified expert.

3. Spot checks which are erratic or inconsistent with calibration data must be investigated promptly.

4. For machines in which beam quality may vary significantly, spot checks must include quality checks.

5. Whenever a spot check indicates a significant change, as specified in the qualified expert's spot-check design, in the operating characteristics of a machine, the machine must be recalibrated as required in subsection 5 of NAC 459.610.

6. Where a machine has built-in devices which provide a self-check of any parameter during irradiation, that parameter may be spot checked weekly instead of daily.

7. A log must be kept of all spot-check measurements.

[Bd. of Health, Radiation Control Reg. §§ 6.9.3.4-6.9.3.4.7, eff. 2-28-80]

**NAC 459.614 Veterinary medicine radiographic installations.**

1. The protective tube housing must be of the diagnostic type.

2. Diaphragms or cones must be provided for collimating the useful beam to the area of clinical interest and must provide the same degree of protection as is required of the housing.

3. The total filtration permanently in the useful beam must not be less than 0.5 millimeters aluminum equivalent for machines operating up to 50 kVp, 1.5 millimeters aluminum equivalent for machines operating between 50-70 kVp, and 2.5 millimeters aluminum equivalent for machines operating above 70 kVp.

4. A device must be provided to terminate the exposure after a preset time or exposure.

5. A dead-man type of exposure switch must be provided together with an electrical cord of sufficient length so that the operator can stand out of the useful beam and at least 6 feet from the animal during all X-ray exposures.

6. All wall, ceiling and floor areas must be equivalent to or provided with applicable protective barriers as required in NAC 459.325, 459.331 and 459.335.

7. The operator shall stand well away from the useful beam and the animal during radiographic exposures.

8. No person other than the operator may be in the X-ray room while exposures are being made unless the person's assistance is required.

9. When an animal must be held in position during radiography, mechanical supporting or restraining devices should be used. If the animal must be held by a person, he must be protected with appropriate shielding devices, such as protective gloves and apron, and he must be positioned so that no part of his body will be struck by the useful beam. The exposure of any person used for this purpose must be monitored and permanently recorded.

[Bd. of Health, Radiation Control Reg. §§ 6.10-6.10.3.3, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.616 Other radiographic systems: Beam limitation.** The useful beam must be limited to the area of clinical interest.

[Bd. of Health, Radiation Control Reg. §§ 6.6 & 6.6.1, eff. 2-28-80]

**NAC 459.618 General purpose X-ray systems: Stationary and mobile.**

1. A means must be provided for stepless adjustment of the size of the X-ray field.

2. A means must be provided for visually defining the perimeter of the X-ray field. The total misalignment of the edges of the visually defined field with the respective edges of the X-ray field along either the length or width of the visually defined field must not exceed 2 percent of the distance from the source to the center of the visually defined field when the surface upon which it appears is perpendicular to the axis of the X-ray beam.

3. The division may grant an exemption from subsections 1 and 2 for an uncertified X-ray system if the registrant makes a written application for the exemption and in his application demonstrates that:

(a) It is impractical to comply with subsections 1 and 2; and

(b) The purpose of NAC 459.400 to 459.624, inclusive, will be met by other means.

4. All stationary general purpose X-ray systems must meet the following additional requirements:

(a) The beam-limiting device must numerically indicate the field size in the plane of the image receptor to which it is adjusted;

(b) Indication of field size dimensions and source-image receptor distances must be specified in inches or centimeters, or both, and must be such that aperture adjustments result in X-ray field dimensions in the plane of the image receptor which correspond to those of the image receptor to within 2 percent of the source-image receptor distance when the beam axis is perpendicular to the plane of the image receptor; and

(c) A means must be provided to indicate when the axis of the X-ray beam is perpendicular to the plane of the image receptor, to align the center X-ray field with respect to the center of the image receptor to within 2 percent of the source-image receptor distance, and to indicate the source-image receptor distance to within 2 percent.

5. Radiographic equipment designed for only one image receptor size at a fixed source-image receptor distance must be provided with means to limit the field at the plane of the image receptor to dimensions no greater than those of the image receptor, and to align the center of the X-ray field with the center of the image receptor to within 2 percent of the source-image receptor distance.

[Bd. of Health, Radiation Control Reg. §§ 6.6.1.1-6.6.1.3, eff. 2-28-80]—(NAC A 4-27-84)

**NAC 459.620 Other radiographic systems: Special purpose systems.** For special purpose X-ray systems:

1. A means must be provided to limit the X-ray field in the plane of the image receptor so that the field does not exceed each dimension of the image receptor by more than 2 percent of the source-image receptor distance when the axis of the X-ray beam is perpendicular to the plane of the image receptor.

2. A means must be provided to align the center of the X-ray field with the center of the image receptor to within 2 percent of the source-image receptor distance.

3. Subsections 1 and 2 may be met with a system that meets the requirements for a general purpose X-ray system as specified in NAC 459.618, or, when alignment means are also provided, may be met with either:

(a) An assortment of removable, fixed-aperture, beam-limiting devices sufficient to meet the requirement for each combination of image receptor size and source-image receptor distance for which the unit is designed with each such device having clear and permanent markings to indicate the image receptor size and source-image receptor distance for which it is designed; or

(b) A beam-limiting device having multiple fixed apertures sufficient to meet the requirement for each combination of image receptor size and source-image receptor distance for which the unit is designed. Permanent, clearly legible markings must indicate the image receptor size and source-image receptor distance for which each aperture is designed and indicate which aperture is in position for use.

[Bd. of Health, Radiation Control Reg. §§ 6.6.1.4-6.6.1.4.3.2, eff. 2-28-80]

**NAC 459.622 Devices to control exposures.**

1. A means must be provided to terminate the exposure at a preset time interval, preset product of current and time, a preset number of pulses or a preset radiation exposure to the image receptor. In addition:

(a) Termination of exposure must cause automatic resetting of the timer to its initial setting or to zero; and

(b) It must not be possible to make an exposure when the timer is set to a zero or off position if either position is provided.

2. A control must be incorporated into each X-ray system so an exposure can be terminated at any time except for:

(a) Exposure of one-half second or less; or

(b) During serial radiography when means must be provided to permit completion of any single exposure of the series in process.

3. Each X-ray control must be located so that it meets the following criteria:

(a) For stationary X-ray systems, and mobile and portable X-ray systems used as stationary X-ray systems, the control must be permanently mounted in a protected area. The operator shall remain in the protected area during the entire exposure.

(b) For mobile and portable X-ray systems, the exposure switch cord must be at least 6 feet long.

(c) The X-ray control must provide visual indication observable at or from the operator's protected position whenever X-rays are produced. In addition, a signal audible to the operator must indicate that the exposure has terminated.

4. When an automatic exposure control is provided:

(a) Indication must be made on the control panel when this mode of operation is selected;

(b) When the X-ray tube potential is equal to or greater than 50 kVp, the minimum exposure time for field emission equipment rated for pulsed operation must be equal to or less than a time interval equivalent to two pulses;

(c) The minimum exposure time for all equipment other than that specified in paragraph (b) of this subsection must be equal to or less than one-sixtieth of a second or a time interval required to deliver 5 mAs, whichever is greater;

(d) Either the product of peak X-ray tube potential, current, and exposure time must be limited to not more than 60 kW per exposure or the product of X-ray tube current and exposure time must be limited to not more than 600 mAs per exposure except when the X-ray tube potential is less than 50 kVp, in which case the product of X-ray tube current and exposure time must be limited to not more than 2000 mAs per exposure; and

(e) A visible signal must indicate when an exposure has been terminated at the limits described in paragraph (d), and manual resetting must be required before further automatically timed exposures can be made.

5. With a timer setting of 0.5 seconds or less, the average exposure period (T) must be greater than or equal to five times the maximum exposure period (T max) minus the minimum exposure period (T min) when four timer tests are performed, for example,  $T \geq 5(T \text{ max} - T \text{ min})$ .

6. All timers must be accurate to within  $\pm 20$  percent of the selected value.

[Bd. of Health, Radiation Control Reg. §§ 6.6.2-6.6.2.2.5, eff. 2-28-80]

#### **NAC 459.624 Other radiographic systems: Source to skin distance; exposure reproducibility; standby radiation.**

1. All mobile or portable radiographic systems must be provided with a means to limit the source to skin distance to not less than 30 centimeters.

2. The exposure produced must be reproducible to the following criteria: When all technique factors are held constant, the coefficient of variation must not exceed 0.10. This requirement is met if, when four exposures at identical technique factors are made, the value of the average exposure (E) is greater than or equal to five times the maximum exposure (E max) minus the minimum exposure (E min) in accordance with the formula:  $E \geq 5(E \text{ max} - E \text{ min})$ .

3. Radiation emitted from the X-ray tube when the exposure switch or timer is not activated must not exceed a rate of 2 milliroentgens per hour at 5 centimeters from any accessible surface of the diagnostic source assembly, with the beam-limiting device fully open.

[Bd. of Health, Radiation Control Reg. §§ 6.6.3-6.6.5, eff. 2-28-80]

### **Radiation Safety Requirements for Analytical X-ray Equipment**

**NAC 459.640 Definitions.** As used in NAC 459.640 to 459.664, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.642 to 459.654, inclusive, have the meanings ascribed to them in those sections.

(Supplied in codification)

**NAC 459.642 "Analytical X-ray equipment" defined.** "Analytical X-ray equipment" means equipment used for X-ray diffraction or fluorescence analysis.

[Bd. of Health, Radiation Control Reg. § 8.2.1, eff. 2-28-80]

**NAC 459.644 "Analytical X-ray system" defined.** "Analytical X-ray system" means a group of local and remote components utilizing X-rays to determine the elemental composition or to examine the microstructure of materials.

[Bd. of Health, Radiation Control Reg. § 8.2.2, eff. 2-28-80]

**NAC 459.646 "Fail-safe characteristics" defined.** "Fail-safe characteristics" means design features which cause beam port shutters to close or which otherwise prevent emergence of the primary beam upon the failure of a safety or warning device.

[Bd. of Health, Radiation Control Reg. § 8.2.3, eff. 2-28-80]

**NAC 459.648 "Local components" defined.**

1. "Local components" means part of an analytical X-ray system and includes areas exposed to X-rays, such as radiation source housings, port and shutter assemblies, collimators, sample holders, cameras, goniometers, detectors and shielding.

2. The term does not include power supplies, transformers, amplifiers, readout devices and control panels.

[Bd. of Health, Radiation Control Reg. § 8.2.4, eff. 2-28-80]

**NAC 459.650 "Normal operating procedures" defined.** "Normal operating procedures" means operating procedures for conditions suitable for analytical purposes with shielding and barriers in place. Routine and emergency radiation safety considerations and routine alignment procedures are part of these procedures. Maintenance is not included in this term.

[Bd. of Health, Radiation Control Reg. § 8.2.5, eff. 2-28-80]

**NAC 459.652 "Open-beam configuration" defined.** "Open-beam configuration" means an analytical X-ray system in which a person could accidentally place some part of his body in the primary beam path during a normal operation.

[Bd. of Health, Radiation Control Reg. § 8.2.6, eff. 2-28-80]

**NAC 459.654 "Primary beam" defined.** "Primary beam" means ionizing radiation which passes through an aperture of the source housing by a direct path from the X-ray tube or a radioactive source located in the radiation source housing.

[Bd. of Health, Radiation Control Reg. § 8.2.7, eff. 2-28-80]

**NAC 459.656 Scope.** NAC 459.640 to 459.664, inclusive, provide special requirements for analytical X-ray equipment. These requirements are in addition to, and not in substitution for, other applicable requirements of NAC 459.010 to 459.794, inclusive.

[Bd. of Health, Radiation Control Reg. § 8.1, eff. 2-28-80]

**NAC 459.658 Equipment requirements.**

1. A safety device which prevents the entry of any portion of a person's body into the primary X-ray beam path or which causes the beam to be shut off upon entry into its path must be provided on all open-beam configurations. A registrant or licensee may apply to the division for an exemption from the requirements of a safety device. Such an application must include:

(a) A description of the various safety devices that have been evaluated;

(b) The reason each of these devices cannot be used; and

(c) A description of the alternative methods that will be employed to minimize the possibility of an accidental exposure, including procedures to ensure that operators and others in the area will be informed of the absence of safety devices.

2. Open-beam configuration must be provided with a readily discernible indication of:

(a) X-ray tube status whether on or off, located near the radiation source housing if the primary beam is controlled in this matter; or

(b) Shutter status whether open or closed, located near each port on the radiation source housing if the primary beam is controlled in this manner.

3. Warning devices must be so labeled that their purpose is easily identified. On equipment installed after February 28, 1980, warning devices must have fail-safe characteristics.

4. Unused ports on radiation source housings must be secured in the closed position in a manner which will prevent casual openings.

5. All analytical X-ray equipment must be labeled with a readily discernible sign bearing the radiation caution symbol and the words:

(a) "CAUTION - HIGH INTENSITY X-RAY BEAM," or words having a similar intent, on the X-ray source housing; and

(b) "CAUTION RADIATION - THIS EQUIPMENT PRODUCES RADIATION WHEN ENERGIZED," or words having a similar intent, near any switch that energizes an X-ray tube if the radiation source is an X-ray tube; or

(c) "CAUTION - RADIOACTIVE MATERIAL," or words having a similar intent, on the source housing if the radiation source is a radionuclide.

6. On open-beam configurations installed after February 28, 1980, each port on the radiation source housing must be equipped with a shutter that cannot be opened unless a collimator or a coupling has been connected to the port.

7. An easily visible warning light labeled with the words "X-RAY ON," or words having a similar intent, must be located:

(a) Near any switch that energizes an X-ray tube and be illuminated only when the tube is energized; or

(b) In the case of a radioactive source, near any switch that opens a housing shutter and be illuminated only when the shutter is open.

8. On equipment installed after February 28, 1980, warning lights must have fail-safe characteristics.

9. Each X-ray tube housing must be constructed so that with all shutters closed the leakage radiation measured at a distance of 5 cm from its surface is not capable of producing a dose in excess of 2.5 mrem in 1 hour at any specified tube rating. If radioactive sources are used, corresponding dose limits must not exceed 2 mrem per hour.

10. Each X-ray generator must be supplied with a protective cabinet which limits leakage radiation measured at a distance of 5 cm from its surface so that it is not capable of producing a dose in excess of 0.25 mrem in 1 hour.

[Bd. of Health, Radiation Control Reg. §§ 8.3-8.3.8, eff. 2-28-80]

#### **NAC 459.660 Area requirements.**

1. The local components of an analytical X-ray system must be so located and arranged to include sufficient shielding or access control so that no radiation levels exist in any area surrounding the local component group which could result in a dose to a person present therein in excess of the dose limits given in NAC 459.335. For systems utilizing X-ray tubes, these levels must be met at any specified tube rating.

2. Radiation surveys, as required by NAC 459.337, of all analytical X-ray systems sufficient to show compliance with subsection 1 must be performed:

(a) Upon installation of the equipment and at least every 12 months thereafter;

(b) Following any change in the initial arrangement, number or type of local components in the system;

(c) Following any maintenance requiring the disassembly or removal of a local component in the system;

(d) During the performance of maintenance and alignment procedures if the procedures require the presence of a primary X-ray beam when any local component in the system is disassembled or removed;

(e) Any time a visual inspection of the local components in the system reveals an abnormal condition; and

(f) Whenever personnel monitoring devices show a significant increase over the previous monitoring period or when the readings are approaching the radiation dose limits specified in NAC 459.320 to 459.374, inclusive.

3. Radiation survey measurements are not required if a registrant or licensee can demonstrate compliance with subsection 1 to the satisfaction of the division in some other manner.

4. Each area or room containing analytical X-ray equipment must be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words "CAUTION - X-RAY EQUIPMENT," or words having a similar intent.

[Bd. of Health, Radiation Control Reg. §§ 8.4-8.4.3, eff. 2-28-80]—(NAC A 1-18-94)

#### **NAC 459.662 Operating requirements.**

1. Normal operating procedures must be written and made available to all workers on analytical X-ray equipment. No person may operate analytical X-ray equipment in any manner other than that specified in the procedures unless he has obtained written approval of the person responsible for radiation safety.

2. No person may bypass a safety device unless he has obtained the approval of the person responsible for radiation safety. Such an approval must be for a specified period. When a safety device has been bypassed, a readily discernible sign bearing the words "SAFETY DEVICE NOT WORKING," or words having a similar meaning, must be placed on the radiation source housing and the control panel.

[Bd. of Health, Radiation Control Reg. §§ 8.5-8.5.2, eff. 2-28-80]

#### **NAC 459.664 Personnel requirements.**

1. No person may operate or maintain analytical X-ray equipment unless he has received instruction in and demonstrated competence with regard to:

(a) Identification of radiation hazards associated with the use of the equipment;

(b) Significance of the various radiation warning and safety devices incorporated into the equipment, or the reasons they have not been installed on certain pieces of equipment and the extra precautions required in such cases;

(c) Proper operating procedures for the equipment;

(d) Symptoms of an acute localized exposure; and

(e) Proper procedures for reporting an actual or suspected exposure.

2. Each licensee or registrant shall maintain, for inspection by the division, records of training which demonstrate that the requirements of subsection 1 have been met.

3. Finger or wrist dosimetric devices must be provided to and used by:

(a) Workers on analytical X-ray equipment having an open-beam configuration and not equipped with a safety device; and

(b) Personnel maintaining analytical X-ray equipment if the maintenance procedures require the presence of a primary X-ray beam when any local component in the analytical X-ray system is disassembled or removed.

4. Reported dose values may not be used for the purpose of determining compliance with NAC 459.325 unless evaluated by a qualified expert.

[Bd. of Health, Radiation Control Reg. §§ 8.6-8.6.2.2, eff. 2-28-80]—(NAC A 1-18-94)

### **Radiation Safety Requirements for Industrial Radiographers**

**NAC 459.680 Definitions.** As used in NAC 459.680 to 459.736, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.681 to 459.703, inclusive, have the meanings ascribed to them in those sections.

(Supplied in codification; A by Bd. of Health, 4-27-84; 1-21-94)

**NAC 459.681 "Associated equipment" defined.** "Associated equipment" means any equipment used in conjunction with a radiographic exposure device to make radiographic exposures that drive, guide or come in contact with the source.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.682 "Cabinet radiography" defined.** "Cabinet radiography" means industrial radiography conducted in an enclosure or cabinet so shielded that every location on the exterior meets the conditions specified in NAC 459.335.

[Bd. of Health, Radiation Control Reg. § 5.3.1.1, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.684 "Cabinet X-ray system" defined.** "Cabinet X-ray system" means an X-ray system with the X-ray tube installed in a cabinet which, independently of existing architectural structure except for the floor on which it may be placed, is intended to contain at least the portion of the material being irradiated, to provide radiation attenuation, and to exclude personnel from its interior during generation of X radiation. Included are all X-ray systems designed primarily for the inspection of carry-on baggage at airline, railroad and bus terminals and in similar facilities. An X-ray tube used within a shielded part of a building, or X-ray equipment which may temporarily or occasionally incorporate portable shielding, is not considered a cabinet X-ray system.

[Bd. of Health, Radiation Control Reg. § 5.3.1.1.1, eff. 2-28-80]

**NAC 459.685 "Control tube" defined.** "Control tube" means the protective sheath for guiding a control cable that connects the control drive mechanism to the radiographic exposure device.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.686 "Enclosed radiography" defined.** "Enclosed radiography" means industrial radiography conducted in an enclosed cabinet or room and includes cabinet radiography and shielded room radiography.

[Bd. of Health, Radiation Control Reg. § 5.3.1, eff. 2-28-80]

**NAC 459.6865 "Exposure head" defined.** "Exposure head" means a device that locates the sealed source of gamma radiation in a selected working area.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.687 "Guide tube" defined.** "Guide tube" means a flexible or rigid tube for guiding the source assembly and the attached control cable from the radiographic exposure device to the exposure head.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.688 "Industrial radiography" defined.** "Industrial radiography" means the examination of the macroscopic structure of materials by nondestructive methods utilizing sources of radiation.

[Bd. of Health, Radiation Control Reg. § 5.3.2, eff. 2-28-80]

**NAC 459.689 "Periodic training" defined.** "Periodic training" means a review conducted or provided periodically by a licensee or registrant for his employees on safety requirements for persons using sources of radiation for industrial radiography.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.690 "Personal supervision" defined.** "Personal supervision" means supervision in which the supervisor is physically present at the site of the radiography and in such proximity to the person being supervised that direct communication with him can be maintained and immediate assistance given as required.

[Bd. of Health, Radiation Control Reg. § 5.3.3, eff. 2-28-80]

**NAC 459.692 "Radiographer" defined. (NRS 459.030)** "Radiographer" means any person who performs or provides personal supervision of industrial radiographic operations and who is responsible to the licensee or registrant for ensuring compliance with the requirements of the provisions of NAC 459.010 to 459.950, inclusive, and all conditions of the license or certificate or the registration.

[Bd. of Health, Radiation Control Reg. § 5.3.4, eff. 2-28-80]—(NAC A by R084-98, 1-26-99)

**NAC 459.694 "Radiographer's assistant" defined.** "Radiographer's assistant" means any person who uses sources of radiation, related handling tools or radiation survey instruments in industrial radiography under the personal supervision of a radiographer.

[Bd. of Health, Radiation Control Reg. § 5.3.5, eff. 2-28-80]

**NAC 459.696 "Radiographic exposure device" defined.** "Radiographic exposure device" means an instrument which has a sealed source fastened or contained within the instrument, and the sealed source or its shielding may be moved or otherwise changed from a shielded to an unshielded position for purposes of making a radiographic exposure.

[Bd. of Health, Radiation Control Reg. § 5.3.6, eff. 2-28-80]

**NAC 459.697 "Radiography" defined.** "Radiography" means an examination of the structure of materials by nondestructive methods using a source of radiation.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.698 "Shielded position" defined.** "Shielded position" means the location within the radiographic exposure device or storage container which, by manufacturer's design, is the proper location for storage of the sealed source.

[Bd. of Health, Radiation Control Reg. § 5.3.7, eff. 2-28-80]

**NAC 459.700 "Shielded-room radiography" defined.** "Shielded-room radiography" means industrial radiography conducted in a room so shielded that every location on the exterior meets the conditions specified in NAC 459.335.

[Bd. of Health, Radiation Control Reg. § 5.3.1.2, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.7005 "Source assembly" defined.** "Source assembly" means a sealed source and connector that can be attached to the control cable.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.701 "Source changer" defined.** "Source changer" means a device designed and used for replacement of sealed sources in radiographic exposure devices, including those also used for transporting and storage of sealed sources.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.7015 "Storage area" defined.** "Storage area" means any location, facility or vehicle used to store or secure a radiographic exposure device, storage container or sealed source when it is not in use.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.702 "Storage container" defined.** "Storage container" means a device in which sealed sources are stored.

[Bd. of Health, Radiation Control Reg. § 5.3.8, eff. 2-28-80]—(NAC A 1-21-94)

**NAC 459.703 "Temporary jobsite" defined.** "Temporary jobsite" means any place where sources of radiation are present and radiography is performed. The term does not include a place where shielded-room radiography is performed.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.704 Purpose; applicability. (NRS 459.030)**

1. The provisions of NAC 459.680 to 459.736, inclusive, establish radiation safety requirements for persons using sources of radiation for industrial radiography. These requirements are in addition to and not in substitution for other applicable requirements of NAC 459.010 to 459.950, inclusive.

2. NAC 459.680 to 459.736, inclusive, apply to all licensees or registrants who use sources of radiation for industrial radiography. Except for the provisions of those sections which are clearly applicable only to sealed radioactive sources, both radiation machines and sealed radioactive sources are covered by NAC 459.680 to 459.736, inclusive.

[Bd. of Health, Radiation Control Reg. §§ 5.1 & 5.2, eff. 2-28-80]—(NAC A by R084-98, 1-26-99)

**NAC 459.706 Equipment control: Limits on radiation levels for devices and storage containers.**

1. Radiographic exposure devices measuring less than 4 inches from the sealed source storage position to any exterior surface of the device must not have a radiation level in excess of 50 milliroentgens per hour at 6 inches from any exterior surface of the device.

2. Radiographic exposure devices measuring a minimum of 4 inches from the sealed source storage position to any exterior surface of the device, and all storage containers for sealed sources or outer containers for radiographic exposure devices, must not have a radiation level in excess of 200 milliroentgens per hour at any exterior surface and 10 milliroentgens per hour at 1 meter from any exterior surface.

3. The radiation levels specified are with the sealed source in the shielded or "off" position.

4. The provisions of this section do not apply to any radiographic exposure device:

(a) Manufactured on or after January 21, 1994; or

(b) Used on or after January 10, 1996.

[Bd. of Health, Radiation Control Reg. §§ 5.4 & 5.4.1, eff. 2-28-80]—(NAC A 1-21-94)

**NAC 459.708 Equipment control: Locking sources of radiation.**

1. Each source of radiation must be provided with a lock or lockable outer container designed to prevent unauthorized or accidental production of radiation or removal or exposure of a sealed source and must be kept locked at all times except when under the direct surveillance of a radiographer or radiographer's assistant. Each storage container for sealed sources and each source changer must be provided with a lock and kept locked when containing sealed sources unless the container or changer is under the direct surveillance of a radiographer or radiographer's assistant.

2. Radiographic exposure devices, source changers and storage containers, before being moved from one location to another or before being secured at a given location, must be locked and surveyed to ensure that the sealed source is in the shielded position.

[Bd. of Health, Radiation Control Reg. §§ 5.4.2 & 5.4.2.2, eff. 2-28-80]—(NAC A 4-27-84; 1-21-94)

**NAC 459.710 Equipment control: Storage precautions.** Locked radiographic exposure devices, storage containers and radiation machines must be physically secured to prevent tampering or removal by unauthorized personnel.

[Bd. of Health, Radiation Control Reg. § 5.4.3, eff. 2-28-80]

**NAC 459.711 Equipment control: Storage areas.** A storage area must be locked or have a physical barrier to prevent accidental exposure to radiation or any unauthorized tampering with or removal of the radiographic exposure device, storage container or sealed source stored in the area.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.712 Equipment control: Radiation survey instruments.**

1. The licensee or registrant shall maintain sufficient calibrated and operable radiation survey instruments to make physical radiation surveys as required by NAC 459.337 and 459.680 to 459.736, inclusive. Instrumentation required by this section must have a range such that 2 milliroentgens per hour through 1 roentgen per hour can be measured.

2. Each radiation survey instrument must be calibrated:

(a) Against appropriate energy at intervals not exceeding 3 months and after each servicing of the instrument;

(b) So that accuracy within plus or minus 20 percent can be demonstrated; and

(c) At two or more widely separated points, other than zero, on each scale.

3. Records of these calibrations must be maintained for at least 3 years after the calibration date for inspection by the division.

[Bd. of Health, Radiation Control Reg. §§ 5.4.4-5.4.4.3, eff. 2-28-80]—(NAC A 1-18-94; 1-21-94)

**NAC 459.713 Equipment control: Radiographic exposure devices and associated equipment. (NRS 459.030)**

1. Except as otherwise provided in subsections 2 and 3, a radiographic exposure device in which a sealed source of radioactive material is used and any associated equipment must comply with the requirements set forth in the American National Standards Institute Standard N43.9-1991, entitled "For Gamma Radiography - Specifications, Design and Testing of Apparatus," which is hereby adopted by reference. The publication may be purchased from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036, for the price of \$40 per copy.

2. Equipment that is used in industrial radiographic operation is not required to comply with paragraph 6.6.2 of the Endurance Test of the American National Standards Institute Standard N43.9-1991 if the equipment has been tested using a torque value representative of the torque value that a natural person using the equipment can actually exert on the lever or crankshaft of the drive mechanism of the equipment.

3. An engineering analysis may be submitted by an applicant or licensee to demonstrate the applicability of a test that has been performed on similar components of radiographic equipment if the division determines, upon review, that the test is acceptable.

4. In addition to the requirements adopted pursuant to subsection 1, a radiographic exposure device and associated equipment must comply with the following requirements:

(a) A licensee who uses a radiographic exposure device shall attach to the device a durable, legible and clearly visible label that includes:

(1) The chemical symbol and mass number of the radionuclide in the device;

(2) The measurement of activity and the date on which this activity was last measured;

(3) The model number and serial number of the sealed source;

(4) The name of the manufacturer of the sealed source; and

(5) The name, address and telephone number of the licensee.

(b) A radiographic exposure device intended for use as a Type B transport container must comply with the applicable requirements adopted pursuant to NAC 459.910.

(c) A radiographic exposure device and associated equipment may not be modified in any manner.

5. In addition to the requirements adopted pursuant to subsection 1 and the requirements set forth in subsection 4, a radiographic exposure device and any associated equipment that allow the source to be moved out of the device for routine operations must comply with the following requirements:

(a) The coupling between the source assembly and the control cable must be designed in such a manner as to prohibit:

(1) The source assembly from becoming disconnected if cranked outside the guide tube.

(2) The coupling from being unintentionally disconnected under normal and reasonably foreseeable abnormal conditions.

(b) The radiographic exposure device must automatically secure the source assembly in the fully shielded position when it is cranked back into the radiographic exposure device. The release of the source assembly from the fully shielded position must require a deliberate operation on the radiographic exposure device.

(c) The fittings for outlets, the lock box and the fittings for drive cables on a radiographic exposure device must be equipped with safety plugs and covers. The safety plugs and covers must be installed during storage and transportation to protect the source assembly from water, mud, sand or other foreign matter.

(d) Each sealed source or source assembly must have attached to it or engraved upon it a durable, legible and visible label with the words "DANGER - RADIOACTIVE." The label must not interfere with the safe operation of the radiographic exposure device or the associated equipment.

(e) The guide tube must have passed the crushing tests for the control tube as specified in the American National Standards Institute Standard N43.9-1991, and a kinking resistance test that closely approximates the kinking forces likely to be encountered during use.

(f) A guide tube must be used when moving the source out of the radiographic exposure device.

(g) An exposure head or other similar device designed to prevent the source assembly from passing out of the end of the guide tube must be attached to the outermost end of the guide tube during radiographic operations.

(h) The connection between the guide tube and the exposure head must be able to withstand the tensile strength for control units specified in the American National Standards Institute Standard N43.9-1991.

(i) A source changer must provide a system that ensures the source will not be accidentally withdrawn from the changer when connecting or disconnecting the drive cable to or from the source assembly.

6. The provisions of this section apply to:

(a) Any radiographic exposure device and associated equipment that is manufactured on or after January 21, 1994; and

(b) Any radiographic exposure device and associated equipment that is used after January 10, 1996.

(Added to NAC by Bd. of Health, eff. 1-21-94; A by R084-98, 1-26-99)

#### **NAC 459.7135 Equipment control: Report of incidents involving radiographic equipment.**

1. In addition to any other reporting requirements set forth in this chapter, a licensee shall submit a written report to the division within 30 days after the occurrence of any of the following incidents involving radiographic equipment:

(a) An unintentional disconnection of the source assembly from the control cable.

(b) An inability to retract the source assembly to its fully shielded position and to secure it in this position.

(c) The failure of any component that is critical to the safe operation of radiographic equipment to perform properly its intended function.

2. A report submitted pursuant to subsection 1 must include:
  - (a) A description of the malfunction of the radiographic equipment;
  - (b) The cause of the incident, if known;
  - (c) The name of the manufacturer and the model number of the radiographic equipment;
  - (d) The place, time and date of the incident;
  - (e) A description of the actions taken to establish normal operations;
  - (f) A description of any corrective actions taken or planned to prevent a recurrence of the incident;
  - (g) The qualifications of personnel involved in the incident; and
  - (h) The dosimeter readings indicating the exposure to radiation of all persons involved in the incident.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.714 Equipment control: Testing for leakage, repair, tagging, opening, modification and replacement of sealed sources.**

1. The replacement of any sealed source fastened to or contained in a radiographic exposure device and leak testing, repair, tagging, opening or any other modification of any sealed source may be performed only by persons specifically authorized to do so by the division, the Nuclear Regulatory Commission or any agreement state.

2. Each sealed source must be tested for leakage at intervals not exceeding 6 months. In the absence of a certificate from a transferor that a test has been made within the 6-month period before the transfer, the sealed source must not be put into use until tested.

3. The leak test must be capable of detecting the presence of 0.005 microcurie of removable contamination on the sealed source. An acceptable leak test for sealed sources in the possession of a radiography licensee is to test at the nearest accessible point to the sealed source storage position or other appropriate measuring point by a procedure approved pursuant to subsection 5 of NAC 459.260. Records of the results of a leak test must be kept in units of microcuries and maintained for inspection by the division for at least 3 years.

4. Any test conducted pursuant to subsections 2 and 3 which reveals the presence of 0.005 microcurie or more of removable radioactive material is evidence that the sealed source is leaking. The licensee shall immediately notify the radiological health section of the division by telephone, withdraw the equipment involved from use and place it in storage. Within 5 days after obtaining the results of the test, the licensee shall file a report with the division describing the equipment involved, the results of the test and the location of the equipment.

5. A sealed source which is not fastened to or contained in a radiographic exposure device must have permanently attached to it a durable tag at least 1 inch square bearing the prescribed caution symbol for radiation in conventional colors, magenta or purple on a yellow background, and the instructions:

DANGER  
RADIOACTIVE MATERIAL  
DO NOT HANDLE  
NOTIFY CIVIL AUTHORITIES IF FOUND

[Bd. of Health, Radiation Control Reg. §§ 5.4.5-5.4.5.5, eff. 2-28-80]—(NAC A 9-6-88; 1-21-94)

**NAC 459.716 Equipment control: Inspection and maintenance.**

1. The licensee shall check for obvious defects in radiographic exposure devices, source changers and storage containers prior to use each day the equipment is used.

2. Each licensee shall conduct a program of at least quarterly inspection and maintenance of radiographic exposure devices, source changers and storage containers to ensure proper functioning of components important to safety. All appropriate parts must be maintained in

accordance with manufacturer's specifications. Records of inspection and maintenance must be kept for inspection by the division until it authorizes their disposal.

3. If any inspection conducted pursuant to subsection 1 reveals damage to components critical to radiation safety, the device must be removed from service until repairs have been made.

[Bd. of Health, Radiation Control Reg. §§ 5.4.8-5.4.8.2, eff. 2-28-80]—(NAC A 4-27-84)

**NAC 459.718 Equipment control: Quarterly inventory.** Each licensee shall conduct a quarterly physical inventory to account for all sealed sources received or possessed by him. The records of the inventories must be maintained for at least 3 years after the date of the inventory for inspection by the division and include the quantities and kinds of radioactive material, the location of sealed sources and the date of the inventory.

[Bd. of Health, Radiation Control Reg. § 5.4.6, eff. 2-28-80]—(NAC A 1-21-94)

**NAC 459.720 Equipment control: Utilization logs.** Each licensee or registrant shall maintain current logs, which must be kept available for inspection by the division for at least 3 years after the date of the recorded event, showing for each source of radiation the following information:

1. A description or make and model number of each source of radiation or storage container in which the sealed source is located;
2. The identity of the radiographer to whom it was assigned; and
3. The locations where it was used and the dates of use.

[Bd. of Health, Radiation Control Reg. §§ 5.4.7-5.4.7.3, eff. 2-28-80]—(NAC A 1-21-94)

**NAC 459.722 Equipment control: Alarms at entrances.**

1. In addition to the requirements in NAC 459.341, each entrance that may be used for access by personnel to a shielded room containing a high radiation area must be equipped with both visible and audible alarm signals to warn of the presence of radiation. The visible signal must be actuated by radiation whenever the source is exposed. The audible signal must be actuated when an attempt is made to enter the room while the source is exposed.

2. The visible and audible warning signals at each entrance to the shielded room must be tested for proper operation at the beginning of each period of use. Records of such tests must be maintained for inspection by the division until it authorizes their disposal.

[Bd. of Health, Radiation Control Reg. § 5.4.9, eff. 2-28-80]—(NAC A 4-27-84; 1-18-94)

**NAC 459.7225 Examination to perform industrial radiography; issuance of identification card. (NRS 459.030)**

1. A person who wishes to take the examination to perform industrial radiography for a licensee or registrant must apply to the division on a form prescribed and furnished by the division. The application must be accompanied by a nonrefundable fee in an amount equal to the division's cost of administering the examination and must be received by the division at least 20 working days before the announced date of the examination.

2. A person whose identification card issued by the division has been suspended or revoked must obtain written approval from the division before applying to retake the examination.

3. The examination to perform industrial radiography for a licensee or registrant will be held at such times and places as are determined by the division. The division shall determine the scope of the examination, the methods by which it is administered and the passing grade. The examination must test the applicant's knowledge to use safely sources of radiation and related equipment in the practice of industrial radiography and his knowledge and ability to comply with the appropriate regulations of the division. All answers to the examination must be written in English.

4. An applicant may not be allowed to take the examination unless he presents an identification card with his picture on the card at the time of the examination.

5. A representative of the division shall proctor the examination and may terminate the examination of any person he believes is cheating.

6. The names and scores of persons taking the examination are public records.

7. The division shall issue to a person who passes the examination an identification card that is valid for 3 years. The identification card shall be deemed valid when the person to whom it is issued has his picture placed on the card at an office of the department of motor vehicles and public safety. A violation of any provision of NAC 459.010 to 459.950, inclusive, is a ground for the suspension or revocation of an identification card issued pursuant to this subsection.

(Added to NAC by Bd. of Health, eff. 1-21-94; A by R084-98, 1-26-99)

#### **NAC 459.723 Requirements for radiographers.**

1. Except as otherwise provided in subsection 3, a licensee or registrant shall not permit a person to act as a radiographer until:

(a) The licensee or registrant has submitted evidence to the division that the person has:

(1) Successfully completed a course in the subjects set forth in NAC 459.726 that provides at least 40 hours of instruction. The course must be approved by the division, an agreement state or the Nuclear Regulatory Commission.

(2) Completed training while on the job as a radiographer's assistant that complies with the requirements set forth in subsection 2 or has at least 1 year of experience as a radiographer.

(b) The person has passed within the immediately preceding 3 years the appropriate examination that is administered by the division pursuant to NAC 459.7225, or an equivalent examination.

(c) The person has been issued an identification card by the division pursuant to NAC 459.7225 or an appropriate identification card by an agreement state. A radiographer shall have a valid identification card on his person at all times when he is performing radiography.

(d) The person has received copies of and instruction in the regulations contained in NAC 459.680 to 459.736, inclusive, and the applicable provisions of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive, an appropriate license and the licensee's or registrant's operating and emergency procedures and has demonstrated an understanding thereof.

(e) The person has demonstrated competence to use the source of radiation, radiographic exposure device, related handling tools and radiation survey instruments which will be employed in his assignment.

(f) The person has demonstrated an understanding of the instructions received pursuant to this subsection by successfully completing a written examination and a field examination on the subjects covered.

2. Training while on the job as a radiographer's assistant must be under the supervision of one or more radiographers. The training must include at least 200 hours of active participation in industrial radiography related to radioactive materials or 120 hours of active participation in industrial radiography related to X-ray machines. To perform industrial radiography related to radioactive materials and X-ray machines, a person must have completed both types of training. Hours spent in attendance at safety meetings or for training in the classroom may not be applied toward the hours required for training while on the job.

3. The division may waive the requirements of paragraphs (b) and (c) of subsection 1 for the first 90 days after a license is granted pursuant to NAC 459.210 to a radiographer from another state, or for the period required by that radiographer to perform radiography in this state during that time, whichever period is less. A waiver may be granted to a radiographer pursuant to this subsection one time only. At the end of the period of the waiver, the radiographer must comply with the requirements of paragraphs (b) and (c) of subsection 1 to perform industrial radiography in this state.

4. Each licensee or registrant shall maintain for inspection by the division until it authorizes their disposal, records of training and testing which demonstrate that the requirements of paragraphs (d), (e) and (f) of subsection 1 are met.

(Added to NAC by Bd. of Health, 1-21-94, eff. 5-22-94)

**NAC 459.7232 Requirements for radiographer's assistants.**

1. A licensee or registrant shall not permit a person to act as a radiographer's assistant until:

(a) The licensee or registrant has submitted evidence to the division that the person has successfully completed a course in the subjects set forth in NAC 459.726 that provides at least 40 hours of instruction. The course must be approved by the division, an agreement state or the Nuclear Regulatory Commission.

(b) The person has been issued an identification card by the division indicating his status as a radiographer's assistant.

(c) The person has received copies of and instruction in the licensee's or registrant's operating and emergency procedures and has demonstrated an understanding thereof.

(d) The person has demonstrated competence to use, under the personal supervision of a radiographer, the sources of radiation, radiographic exposure device, related handling tools and radiation survey instruments which will be employed in his assignment.

2. Whenever a radiographer's assistant uses radiographic exposure devices, sealed sources or related tools to handle sources, or conducts surveys of radiation to determine that a sealed source has been returned to the shielded position after an exposure, he must be under the personal supervision of a radiographer. The personal supervision must include:

(a) The radiographer's personal presence at the site where the sealed sources are being used;

(b) The ability of the radiographer to give immediate assistance if required; and

(c) The radiographer's watching the performance by the assistant of the operations referred to in this subsection.

3. Each licensee or registrant shall maintain for inspection by the division until it authorizes their disposal, records of training and testing which demonstrate that the requirements of paragraphs (c) and (d) of subsection 1 are met.

(Added to NAC by Bd. of Health, 1-21-94, eff. 5-22-94)

**NAC 459.7234 Requirements for radiation safety officer.**

1. An application for a license or registration authorizing the use of a source of radiation for industrial radiography must include the name of the person who will act as the radiation safety officer for the radiographic operation.

2. A radiation safety officer must have:

(a) Completed the training and testing requirements set forth in subparagraph (1) of paragraph (a) and paragraphs (d), (e) and (f) of subsection 1 of NAC 459.723; and

(b) At least 2 years of experience in industrial radiography.

3. A radiation safety officer shall:

(a) Ensure that the daily operation of industrial radiography is conducted in accordance with the provisions of this chapter.

(b) Establish and oversee operating and emergency procedures and procedures to ensure that the level of radiation is as low as is reasonably achievable. The radiation safety officer shall review these procedures at least once each year to ensure that the procedures conform to the requirements set forth in this chapter.

(c) Approve and oversee all phases of the training program for radiographic personnel to ensure that they receive training in appropriate and effective protection practices.

(d) Ensure that the required surveys and tests for the leakage of radiation are performed and documented in accordance with applicable regulations and that corrective measures are taken if the levels of radiation exceed the levels established in this chapter.

(e) Ensure that monitoring devices are calibrated and used properly by personnel who are performing industrial radiography and the results of exposures to radiation are properly recorded and notices of those exposures are submitted on a timely basis.

(f) Ensure that the radiographic operations are conducted safely and institute corrective actions if necessary, including terminating the operations in an emergency or if unsafe conditions exist.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.724 Safety requirements for radiographers and radiographers' assistants.**  
**(NRS 459.030)**

1. The operating and emergency procedures of a licensee or registrant must include, without limitation, instructions in:

- (a) The handling and use of sources of radiation to be employed so that no person is likely to be exposed to radiation doses in excess of the limits established in NAC 459.320 to 459.374, inclusive;
- (b) Methods and occasions for conducting radiation surveys;
- (c) Methods for controlling access to radiographic areas;
- (d) Methods and occasions for locking and securing sources of radiation;
- (e) The monitoring of personnel and the use of personnel monitoring equipment;
- (f) Transportation to field locations, including packing sources of radiation in the vehicles, posting vehicles and controlling sources of radiation during transportation;
- (g) Minimizing the exposure of persons in the event of an accident;
- (h) The procedure for notifying proper personnel in the event of an accident;
- (i) The maintenance of records; and
- (j) The inspection and maintenance of radiographic exposure devices, source changers, storage containers and radiation machines.

2. Except as otherwise provided in this subsection, a licensee or registrant shall not permit any person to act as a radiographer or as a radiographer's assistant unless, at all times during radiographic operations, the person wears a direct reading pocket dosimeter, an alarm rate meter and either a film badge or a thermoluminescent dosimeter. An alarm rate meter is not required to be worn for shielded-room radiography if other appropriate alarm or warning devices are used. Pocket dosimeters must have a range from zero to 200 milliroentgens and be recharged daily or at the start of each shift. Each film badge or thermoluminescent dosimeter must be assigned to and worn by only one person and must not be replaced less often than once a month.

3. Pocket dosimeters must be read and exposures recorded daily. A person's film badge or thermoluminescent dosimeter must be immediately processed if his pocket dosimeter is discharged beyond its range. Reports received from the film badge or thermoluminescent dosimeter processor and records of the pocket dosimeter readings must be maintained for inspection by the division until it authorizes their disposal.

4. Each pocket dosimeter must be checked at periods not to exceed 1 year for response to radiation. To be acceptable, a dosimeter must read within plus or minus 30 percent of the true radiation exposure.

5. Each alarm rate meter must:

- (a) Be inspected before the start of each shift to ensure that the alarm functions properly and can be heard;
- (b) Be set to give the alarm at a level of radiation that is preset at 500 milliroentgens per hour;
- (c) Require a deliberate action to change the preset alarm;
- (d) Be calibrated at periods not to exceed 1 year for correct response to radiation; and
- (e) Give an alarm within plus or minus 20 percent of the true rate of the radiation dose.

6. A licensee or registrant shall provide periodic training for radiographers and radiographer's assistants at least once each calendar year.

[Bd. of Health, Radiation Control Reg. §§ 5.5-5.5.3.2, eff. 2-28-80]—(NAC A 4-27-84; 1-18-94; 1-21-94, eff. 4-22-94; 1-21-94, eff. 5-22-94; R084-98, 1-26-99)

**NAC 459.726 Topics for instruction of radiographers.** The subjects to be taught during the instruction of radiographers are:

1. The fundamentals of radiation safety, including:
  - (a) Characteristics of gamma radiation;
  - (b) Units of radiation dose (mrem) and quantity of radioactivity (curie);
  - (c) Significance of radiation dose:
    - (1) Radiation protection standards; and

- (2) Biological effects of radiation dose;
  - (d) Levels of radiation from sources of radiation;
  - (e) Methods of controlling radiation dose:
    - (1) Working time;
    - (2) Working distances; and
    - (3) Shielding; and
  - (f) Incident reports and case histories of radiography accidents.
  - 2. The radiation detection instrumentation to be used, including:
    - (a) Use of radiation survey instruments:
      - (1) Operation;
      - (2) Calibration; and
      - (3) Limitations;
    - (b) Survey techniques; and
    - (c) Use of personnel monitoring equipment:
      - (1) Film badges;
      - (2) Thermoluminescent dosimeters;
      - (3) Pocket dosimeters; and
      - (4) Alarm ratemeters.
  - 3. The radiographic equipment to be used, including:
    - (a) Remote handling equipment;
    - (b) Radiographic exposure devices and sealed sources;
    - (c) Storage containers and source changers; and
    - (d) Operation and control of X-ray equipment.
  - 4. Inspection and maintenance of radiographic equipment which must be performed by radiographers.
  - 5. The requirements of pertinent federal and state regulations.
  - 6. The licensee's or registrant's written operating and emergency procedures.
- [Bd. of Health, Radiation Control Reg. Art. 5, Appendix A, eff. 2-28-80]—(NAC A 4-27-84; 1-21-94, eff. 4-22-94)

**NAC 459.730 Precautionary procedures: Posting.** Areas in which radiography is being performed must be conspicuously posted as required by NAC 459.3555.

[Bd. of Health, Radiation Control Reg. §§ 5.6.2 & 5.6.2.1, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.732 Radiation surveys and survey records.**

1. No radiographic operation may be conducted unless calibrated and operable instruments for surveying radiation, as described in NAC 459.712, are available and used at each site where radiographic exposures are made.

2. A physical radiation survey must be made after each radiographic exposure utilizing radiographic exposure devices or sealed sources of radioactive material to determine that the sealed source has been returned to its shielded position. The entire circumference of the radiographic exposure device must be surveyed. If the radiographic exposure device has a source guide tube, the survey must include the guide tube.

3. A physical survey of radiation must be made to determine that each sealed source is in its shielded position whenever a radiographic exposure device, storage container or source is stored, transported or secured when it is not in use. Any location, facility or vehicle used to store, transport or secure a device, container or source must be locked or have a physical barrier to prevent accidental exposure of, tampering with and unauthorized removal of the device, container or source. The entire circumference of the radiation exposure device must be surveyed.

4. Records must be made of the surveys required by subsection 3. The records must be maintained for inspection by the division for 3 years after completion of the survey. If a survey was used to determine a person's exposure, the records of the survey must be maintained until the division authorizes their disposition.

[Bd. of Health, Radiation Control Reg. §§ 5.6.3-5.6.3.4, eff. 2-28-80]—(NAC A 11-20-91)

**NAC 459.733 Required personnel for performance of industrial radiography at temporary jobsites.**

1. A licensee who is responsible for providing industrial radiography with sealed sources of radioactive material at a temporary jobsite shall ensure that at least two persons are performing the industrial radiography, one of whom is qualified as a radiographer and one of whom is qualified as a radiographer or a radiographer's assistant. Industrial radiography may not be performed at a temporary jobsite if only one qualified person is present.

2. A temporary jobsite must be under constant surveillance by a radiographer or radiographer's assistant and immediate action must be taken by the person conducting the surveillance to prevent unauthorized entry into an area with high radiation.

(Added to NAC by Bd. of Health, eff. 1-21-94)

**NAC 459.734 Records required for temporary jobsites.** Each licensee or registrant conducting industrial radiography at a temporary site shall have the following records available at that site for inspection by the division:

1. The appropriate license or certificate of registration or equivalent document;
2. Operating and emergency procedures;
3. Applicable regulations;
4. Survey records required pursuant to NAC 459.732 for the period of operation at the site;
5. Daily records for each pocket dosimeter for the period of operation at the site; and
6. The latest instrument calibration and leak test record for specific devices in use at the site.

[Bd. of Health, Radiation Control Reg. §§ 5.6.4-5.6.4.6, eff. 2-28-80]

**NAC 459.736 Requirements and exemptions for enclosed radiography.**

1. Systems for enclosed radiography designed to allow admittance of persons must:

(a) Comply with all applicable requirements of NAC 495.335 and 459.680 to 459.736, inclusive. If such a system is a certified cabinet X-ray system, it must comply with all applicable requirements of NAC 459.680 to 459.736, inclusive, and 21 C.F.R. § 1020.40.

(b) Be evaluated at intervals of not more than 1 year to ensure compliance with the applicable requirements specified in paragraph (a) of this subsection. Records of these evaluations must be maintained for inspection by the division for a period of 2 years after the evaluation.

2. Cabinet X-ray systems designed to exclude persons are exempt from the requirements of NAC 459.680 to 459.736, inclusive, except that:

(a) Operating personnel must be provided with film badges or thermoluminescent dosimeters and reports of the results must be maintained for inspection by the division.

(b) A registrant shall not permit any person to operate a cabinet X-ray system until the person has received a copy of instructions in the operating procedures for the unit and has demonstrated competence in its use. Records which demonstrate compliance with this subsection must be maintained for inspection by the division until disposition is authorized by the division.

(c) Tests for the proper operation of the control devices or alarm systems in an area of high radiation must, if applicable, be conducted and recorded in accordance with NAC 459.722.

(d) The registrant shall perform an evaluation, at intervals of not more than 1 year, to determine conformance with NAC 459.335. If a system is a certified cabinet X-ray system, it must be evaluated at intervals of not more than 1 year to determine conformance with 21 C.F.R. § 1020.40.

(e) Records of these evaluations must be maintained for inspection by the division for 2 years after the evaluation.

3. Certified cabinet X-ray systems must be maintained in compliance with 21 C.F.R. § 1020.40 unless prior approval has been granted by the division pursuant to NAC 459.120.

[Bd. of Health, Radiation Control Reg. §§ 5.6.5-5.6.5.3, eff. 2-28-80]—(NAC A 1-18-94)

## **Radiation Safety Requirements for Particle Accelerators**

### **NAC 459.740 Purpose; applicability. (NRS 459.030)**

1. NAC 459.740 to 459.752, inclusive, establish procedures for the registration and the use of particle accelerators.

2. In addition to the requirements of NAC 459.740 to 459.752, inclusive, all registrants are subject to the requirements of NAC 459.010 to 459.166, inclusive, 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive. Registrants engaged in industrial radiographic operations are subject to the requirements of NAC 459.680 to 459.736, inclusive, and registrants engaged in the healing arts are subject to the requirements of NAC 459.400 to 459.624, inclusive. Registrants engaged in the production of radioactive material are subject to the requirements of NAC 459.180 to 459.314, inclusive.

[Bd. of Health, Radiation Control Reg. §§ 9.1-9.1.2, eff. 2-28-80]—(NAC A 1-18-94; R084-98, 1-26-99)

### **NAC 459.742 Requirements for registration. (NRS 459.030)**

1. No person may receive, possess, use, transfer, own or acquire a particle accelerator except as authorized in a registration issued pursuant to NAC 459.010 to 459.950, inclusive, or as otherwise provided for in those sections. The general procedures for registration of particle accelerator facilities are included in NAC 459.150 to 459.166, inclusive.

2. In addition to the requirements of NAC 459.150 to 459.166, inclusive, a registration application for use of a particle accelerator may be approved only if the division determines that:

(a) The applicant is qualified by reason of training and experience to use the accelerator in question for the purpose requested in accordance with NAC 459.320 to 459.374, inclusive, 459.740 to 459.752, inclusive, and 459.780 to 459.794, inclusive, in such a manner as to minimize danger to public health and safety or property;

(b) The applicant's proposed or existing equipment, facilities, operating and emergency procedures are adequate to protect health and minimize danger to public health and safety or property;

(c) The issuance of the registration will not be inimical to the health and safety of the public and the applicant satisfies any applicable special requirement in subsection 3;

(d) The applicant has appointed a safety officer in radiation;

(e) The applicant or the applicant's staff has substantial experience in the use of particle accelerators and training sufficient for application to its intended uses;

(f) The applicant has established a safety committee in radiation to approve, in advance, proposals for uses of the particle accelerator, whenever deemed necessary by the division; and

(g) The applicant has an adequate training program for operators of the particle accelerator.

3. In addition to the requirements in NAC 459.150 to 459.166, inclusive, a registration for use of a particle accelerator in the healing arts will be issued only if the following requirements are met:

(a) The applicant has appointed a medical committee of at least three members to evaluate all proposals for research, diagnostic and therapeutic use of the particle accelerator whenever deemed necessary by the division. Membership of the committee should include physicians expert in internal medicine, hematology, therapeutic radiology and a person experienced in depth dose calculations and protection against radiation.

(b) The persons designated on the application as the users have substantial training and experience in deep therapy techniques or in the use of particle accelerators to treat humans.

(c) Any person designated on the application as the user is a physician.

[Bd. of Health, Radiation Control Reg. §§ 9.2-9.2.3.3, eff. 2-28-80]—(NAC A 1-18-94; R084-98, 1-26-99)

**NAC 459.744 Safety requirements: General provisions, limitations.**

1. NAC 459.740 to 459.752, inclusive, establish radiation safety requirements for the use of particle accelerators. These provisions are in addition to, and not in substitution for, other applicable provisions of NAC 459.010 to 459.794, inclusive.

2. The registrant is responsible for ensuring that all requirements of NAC 459.740 to 459.752, inclusive, are met.

3. No registrant may permit any person to act as an operator of a particle accelerator until the person:

(a) Has been instructed in radiation safety and has demonstrated an understanding of it;

(b) Has received a copy of, and instruction in the requirements of, NAC 459.740 to 459.752, inclusive, and the applicable provisions of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive, pertinent registration conditions and the registrant's operating and emergency procedures and has demonstrated an understanding of that material; and

(c) Has demonstrated competence to use the particle accelerator, related equipment and survey instruments which will be employed in his assignment.

4. Members of the safety committee in radiation and the safety officer in radiation must have the authority to terminate the operations at a particle accelerator facility if such action is deemed necessary to protect health and minimize danger to public health and safety or property.

[Bd. of Health, Radiation Control Reg. §§ 9.3-9.3.2.2, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.746 Safety requirements: Shielding; design safety; controls, interlock systems.**

1. A qualified expert, specifically accepted by the division, must be consulted in the design of a particle accelerator installation and called upon to perform a radiation survey when the accelerator is first capable of producing radiation.

2. Each installation of a particle accelerator must be provided with such primary and secondary barriers as are necessary for compliance with NAC 459.325 and 459.335.

3. Instrumentation, readouts and controls on the particle accelerator control console must be clearly identified and easily discernible.

4. All entrances into a target room or other area of high radiation must be provided with interlocks that shut down the machine when any entrance is penetrated.

5. After an interlock system has been tripped, it must be possible to resume operation of the accelerator only by manually resetting controls first at the position where the interlock has been tripped and last at the main control console.

6. Each safety interlock must be on a circuit which allows its operation independently of all other safety interlocks.

7. All safety interlocks must be fail safe, that is, designed so that any defect or component failure in the interlock system prevents operation of the accelerator.

8. A scram button or other emergency power cutoff switch must be located and easily identifiable in all designated areas of high radiation. Such a cutoff switch must include a manual reset so that the accelerator cannot be restarted from the accelerator control console without resetting the cutoff switch.

[Bd. of Health, Radiation Control Reg. §§ 9.3.3-9.3.4.6, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.748 Safety requirements: Warning devices; operating procedures.**

1. All locations designated as areas of high radiation and all entrances to those locations must be equipped with easily observable flashing or rotating warning lights that operate when, but only when, radiation is being produced.

2. Except in facilities designed for human exposure, each area of high radiation must have an audible warning device which is activated for 15 seconds before the creation of high radiation within the area. The warning devices must be clearly audible in all high radiation areas and all radiation areas.

3. Entrances and pathways leading to high radiation areas must be identified in accordance with NAC 459.355.

4. Particle accelerators, when not in operation, must be secured to prevent unauthorized use.
5. The safety interlock system must not be used to turn off the accelerator beam except in an emergency.
6. All safety and warning devices, including interlocks, must be checked for proper operability at intervals of not more than 3 months. Results of the checks must be maintained at the accelerator facility for inspection by the division.
7. Diagrams of the electrical circuit of the accelerator and associated interlock systems must be kept current and maintained for inspection by the division and must be available to the operator at each accelerator facility.
8. If it is necessary to bypass a safety interlock or interlocks intentionally, the bypass must be:
  - (a) Authorized by the radiation safety committee or radiation safety officer;
  - (b) Recorded in a permanent log and a notice posted at the accelerator control console; and
  - (c) Terminated as soon as possible.
9. A copy of the current operating and the emergency procedures must be maintained at the accelerator control panel.

[Bd. of Health, Radiation Control Reg. §§ 9.3.5-9.3.6.6, eff. 2-28-80]—(NAC A 1-18-94)

#### **NAC 459.750 Safety requirements: Monitoring.**

1. There must be available at each particle accelerator facility appropriate portable monitoring equipment which is operable and calibrated for the appropriate radiations being produced at the facility. This equipment must be tested for proper operation daily and calibrated at intervals of not more than 1 year and after each servicing and repair.
2. A radiation protection survey must be performed and documented by a qualified expert specifically approved by the division when changes have been made in shielding, operation, equipment or occupancy of adjacent areas.
3. Radiation levels in all high radiation areas must be continuously monitored. The monitoring devices must be electrically independent of the accelerator control and interlock systems and capable of providing a remote and local readout with visual or audible alarms, or both, at the control panel, at the entrance to high radiation areas and at other appropriate locations so that persons entering or present become aware of the existence of the hazard.
4. All area monitors must be calibrated at intervals of not more than 1 year and after each servicing and repair.
5. Whenever applicable, periodic surveys must be made to determine the amount of airborne particulate radioactivity present in areas of airborne hazards.
6. Whenever applicable, periodic smear surveys must be made to determine the degree of contamination in target and other pertinent areas.
7. All area surveys must be made in accordance with the written procedures established by a qualified expert or the radiation safety officer of the particle accelerator facility.
8. Records of all radiation protection surveys, calibration results, instrumentation tests and smear results must be kept current and on file at each accelerator facility.

[Bd. of Health, Radiation Control Reg. §§ 9.3.7-9.3.7.8, eff. 2-28-80]

#### **NAC 459.752 Safety requirements: Ventilation systems.**

1. A means must be provided to ensure that personnel entering any area where airborne radioactivity may be produced will not be exposed to airborne radioactive material in excess of the limits specified in table I of appendix B.
2. A registrant, as required by NAC 459.3355, shall not vent, release or otherwise discharge airborne radioactive material to an unrestricted area in excess of the limits specified in table II of appendix B, except as authorized pursuant to NAC 459.3355. For the purposes of NAC 459.740 to 459.752, inclusive, concentrations may be averaged over a period not greater than 1 year. Every reasonable effort must be made to maintain releases of radioactive material to uncontrolled areas as far below these limits as is reasonably achievable.

[Bd. of Health, Radiation Control Reg. §§ 9.3.8-9.3.8.2, eff. 2-28-80]—(NAC A 1-18-94)

## **Radiation Safety Requirements for Well Logging**

**NAC 459.756 Definitions.** As used in NAC 459.756 to 459.7745, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.757 to 459.763, inclusive, have the meanings ascribed to them in those sections.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.757 "Field station" defined.** "Field station" means a facility where radioactive material may be stored or used and from which equipment is dispatched to temporary jobsites.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7575 "Fresh water aquifer" defined.** "Fresh water aquifer" means a geologic formation that is capable of yielding fresh water to a well or spring.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.758 "Injection tool" defined.** "Injection tool" means a device used for controlled subsurface injection of radioactive tracer material.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7585 "Irretrievable well logging source" defined.** "Irretrievable well logging source" means any sealed source containing radioactive material that is pulled off or not connected to the wireline that suspends the source in the well and for which all reasonable effort at recovery has been expended.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.759 "Logging assistant" defined.** "Logging assistant" means any person who, under the personal supervision of a logging supervisor, handles sealed sources or tracers that are not in logging tools or shipping containers or who performs surveys required by NAC 459.7725.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7595 "Logging supervisor" defined.** "Logging supervisor" means any person who uses radioactive material or provides personal supervision in the use of radioactive material at a temporary jobsite and who is responsible to the licensee for assuring compliance with the requirements of the division's regulations and the conditions of the license.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7598 "Logging tool" defined.** "Logging tool" means a device used below the surface to perform well logging.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7605 "Personal supervision" defined.** "Personal supervision" means guidance and instruction by a logging supervisor who:

1. Is physically present at a temporary jobsite;
2. Is in personal contact with logging assistants; and
3. Can give immediate assistance.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.761 "Radioactive marker" defined.** "Radioactive marker" means material used for depth determination or direction orientation. The term includes radioactive collar markers and radioactive iron nails.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7615 "Safety review" defined.** "Safety review" means a periodic review provided by the licensee for its employees on radiation safety as it relates to well logging. The review may include, as appropriate:

1. The results of internal inspections;
2. New procedures or equipment;
3. Accidents or errors that have been observed; and
4. Safety questions of employees.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7621 "Source holder" defined.** "Source holder" means a housing or assembly into which a sealed source is placed to facilitate the handling and use of the source in well logging.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7625 "Subsurface tracer study" defined.** "Subsurface tracer study" means the release of unsealed radioactive material or a substance labeled with radioactive material in a single well for the purpose of tracing the movement or position of the material or substance in the well or adjacent formation.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.763 "Surface casing" defined.** "Surface casing" means a pipe or tube used as a lining in a well to isolate fresh water aquifers from the well.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7635 Purpose and applicability. (NRS 459.030)** The provisions of NAC 459.756 to 459.7745, inclusive:

1. Establish radiation safety requirements for persons using sources of radiation for well logging which are in addition to and not in substitution for other applicable requirements of NAC 459.010 to 459.950, inclusive;
2. Apply to all licensees or registrants who use sources of radiation for well logging; and
3. Apply to both radiation machines and radioactive materials unless the context otherwise requires.

(Added to NAC by Bd. of Health, eff. 9-6-88; A by R084-98, 1-26-99)

**NAC 459.7641 Approval of operation required; submission of information to division.**

1. A person shall not perform a well logging operation without prior approval of the division.
2. A person who wishes to perform a well logging operation shall submit to the division a description of the operation which contains:
  - (a) A designation of the township, range and section in which the well is located;
  - (b) The distance in feet from the well to two different section lines;
  - (c) The name or number assigned to the well;
  - (d) The depth of the well and the surface casing in feet;
  - (e) The location and distance of any freshwater aquifers within 3 miles of the well which is to be logged and a determination of whether the well penetrates an aquifer; and
  - (f) The location and identification of any wells within 3 miles of the well which is to be logged that are producing water for human or animal consumption or irrigation and the depths of those wells and the depths of their surface casings.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7645 Agreement with owner or operator of well.**

1. A licensee shall not perform well logging with a sealed source before entering into a written agreement with the owner or operator of the well who is employing him.

2. The written agreement required by subsection 1 must identify the person who will assure that:

(a) If a sealed source becomes lodged in the well, a reasonable effort will be made to recover it;

(b) A person will not attempt to recover a sealed source in a manner which, in the licensee's opinion, could result in its rupture;

(c) The radiation monitoring required in NAC 459.773 will be performed;

(d) If the environment or any personnel are contaminated with radioactive material, they will be decontaminated;

(e) If any equipment is contaminated with radioactive material it will be decontaminated before it is released from the jobsite or released for unrestricted use at the jobsite; and

(f) If a sealed source is classified as irretrievable after reasonable efforts at recovery have been expended, the following requirements will be carried out within 30 days:

(1) Each irretrievable well logging source must be immobilized and sealed in place with a cement plug;

(2) A mechanical device to prevent inadvertent intrusion on the irretrievable well logging source must be set at some point in the well above the cement plug, unless the cement plug and source are not accessible to any subsequent drilling operations; and

(3) A permanent identification plaque, constructed of long lasting material such as stainless steel, brass, bronze or monel, must be mounted at the surface of the well. The size of the plaque must be at least 7 inches square and 1/8-inch thick and contain:

(I) The word "CAUTION";

(II) The radiation caution symbol, but the color requirement in NAC 459.355 need not be met;

(III) The date on which the irretrievable source was abandoned;

(IV) The name of the well owner or well operator, as appropriate;

(V) The name of the well and the well identification number or other designation;

(VI) An identification of the sealed source by radionuclide and quantity;

(VII) The depth of the sealed source and depth to the top of the plug; and

(VIII) An appropriate warning such as "DO NOT RE-ENTER THIS WELL."

3. A licensee shall retain a copy of the written agreement required by subsection 1 for 3 years after the completion of the well logging operation.

(Added to NAC by Bd. of Health, eff. 9-6-88; A 1-18-94)

**NAC 459.765 Labeling of components and containers; transportation of radioactive material.**

1. A licensee may not use a source, a source holder or a logging tool that contains radioactive material unless the smallest component that is transported as a separate piece of equipment with radioactive material inside bears a durable, legible and clearly visible marking or label. The marking or label must contain the radiation caution symbol specified in NAC 459.355 without the conventional color requirements, and the wording "CAUTION (or DANGER) RADIOACTIVE MATERIAL."

2. A licensee may not use a container to store radioactive material unless the container has securely attached to it a durable, legible and clearly visible label. The label must contain the radiation caution symbol specified in NAC 459.355 and the wording "CAUTION. (or DANGER.) RADIOACTIVE MATERIAL. NOTIFY CIVIL AUTHORITIES (or NAME OF COMPANY) IF FOUND."

3. A licensee may not transport radioactive material unless the material is packaged, labeled, marked and accompanied with appropriate shipping papers in accordance with regulations of the United States Department of Transportation.

(Added to NAC by Bd. of Health, eff. 9-6-88; A 1-18-94)

**NAC 459.7655 Storage of radioactive material; securing packages for transportation.**  
A licensee shall:

1. Store each source containing radioactive material in a storage container or transportation package. The container or package must be locked and physically secured to prevent tampering or removal of radioactive material from storage by unauthorized persons.
2. Store radioactive material in a manner which will minimize danger from explosion or fire.
3. Lock and physically secure a transport package containing radioactive material in the transporting vehicle to prevent accidental loss, tampering or unauthorized removal of the radioactive material from the vehicle.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7661 Availability and calibration of instruments to survey and detect radiation.** A licensee shall:

1. Keep a calibrated and operable radiation survey instrument capable of detecting beta and gamma radiation at each field station and temporary jobsite to make the radiation surveys required by NAC 459.337 and 459.7725. The radiation survey instrument must be capable of measuring as little as 0.1 milliroentgen per hour and as much as 50 milliroentgens per hour.
2. Have available additional calibrated and operable radiation detection instruments sensitive enough to detect the low radiation and contamination levels that could be encountered if a sealed source ruptured.
3. Have each radiation survey instrument required under subsection 1 calibrated:
  - (a) At intervals not to exceed 6 months; and
  - (b) In accordance with subsection 2 of NAC 459.712.

(Added to NAC by Bd. of Health, eff. 9-6-88; A 1-18-94)

**NAC 459.7665 Inspection and maintenance of equipment; restrictions on handling sealed sources.**

1. Each licensee shall visually inspect source holders, logging tools and source handling tools for defects before each use to ensure that the equipment is in good working condition and that the required labeling is present.
2. If defects in equipment are found during the inspection required by subsection 1, the equipment must be removed from service until repaired and a record must be made listing:
  - (a) The date of inspection;
  - (b) The name of the licensee who performed the inspection;
  - (c) The equipment involved;
  - (d) The defects found; and
  - (e) The repairs made.
3. The records required by subsection 2 must be retained by the licensee for 3 years after the defect is found.
4. Each licensee must have a program for semiannual visual inspection and routine maintenance of source holders, logging tools, injection tools, source handling tools, storage containers, transport containers and uranium sinker bars to ensure that the required labeling is legible and that no physical damage is visible.
5. If defects are found during the inspection required by subsection 4, the defective equipment must be removed from service until repaired and a record must be made listing:
  - (a) The date of inspection;
  - (b) The equipment involved;
  - (c) The inspection and maintenance operations performed;
  - (d) The defects found; and
  - (e) The repairs made.
6. The records required by subsection 5 must be retained by the licensee for 3 years after the defect is found.

7. A licensee shall not remove a sealed source from a source holder or logging tool or perform maintenance on a sealed source or source holder unless a written procedure developed for that purpose has been approved by the division.

8. If a sealed source is stuck in a source holder a licensee shall not perform any operation to remedy the situation, such as drilling, cutting or chiseling on the source holder, unless the licensee is specifically approved by the division to perform such an operation.

9. No person shall open, repair or modify any sealed source unless specifically approved by the division to perform such an operation.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.767 Testing sealed sources for leakage.** A licensee shall test, as provided in NAC 459.307, each sealed source for leakage of radioactive material, at intervals not to exceed 6 months.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7675 Semiannual inventories of radioactive material.**

1. Each licensee shall conduct a semiannual physical inventory to account for all radioactive material received and possessed under his license. The licensee must retain records of the physical inventory for 3 years after the date of the inventory for inspection by the division.

2. The physical inventory required by subsection 1 must indicate:

(a) The quantity and kind of radioactive material;

(b) The location of the radioactive material;

(c) The date of the inventory; and

(d) The name of the person conducting the inventory.

3. Physical inventory records may be combined with the records of leak tests required by NAC 459.767.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7681 Records of sources of radiation used.**

1. Each licensee or registrant shall maintain records of each use of a source of radiation in well logging, which must include:

(a) The make, model and number of sources of radiation used and a serial number or a description of each source of radiation;

(b) The name of the logging supervisor who is responsible for the safe use of sources of radiation;

(c) The names of logging assistants present; and

(d) The location and date of use of the sources of radiation.

2. A licensee or registrant shall make available for inspection by the division the records required by subsection 1 and must retain the records for 3 years after the date of the recorded use of a source of radiation in a well logging operation.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7685 Criteria for design and performance of sealed sources.**

1. Except as otherwise provided in subsection 2, a licensee shall not use a sealed source in well logging unless the sealed source:

(a) Is doubly encapsulated;

(b) Contains radioactive material whose chemical and physical forms are as insoluble and nondispersible as practical; and

(c) Has been tested as a prototype and found to maintain its integrity after:

(1) A temperature test in which the prototype is subjected to  $-40^{\circ}\text{C}$  for 20 minutes and is subjected to  $600^{\circ}\text{C}$  for 1 hour and then is subjected to a thermal shock test in which the prototype is subjected to a temperature drop from  $600^{\circ}\text{C}$  to  $20^{\circ}\text{C}$  within 15 seconds;

(2) An impact test in which a 5 kg steel hammer measuring 2.5 cm in diameter is dropped from a height of 1 m onto the prototype;

(3) A vibration test in which the prototype is subjected to a vibration ranging from 25 Hz to 500 Hz at 5 g amplitude for 30 minutes;

(4) A puncture test in which a 1 gram hammer attached to pin measuring 0.3 cm in diameter is dropped from a height of 1 m onto the prototype; and

(5) A pressure test in which the prototype is subjected to an external pressure of 24,600 pounds per square inch absolute.

2. The requirements of subsection 1 do not apply to sealed sources that contain radioactive material in gaseous form.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.769 Use of sealed source in well without surface casing.** A licensee may use a sealed source to log a well that does not have a surface casing if:

1. The well does not penetrate a fresh water aquifer; and

2. The licensee follows a procedure which has been approved by the division for reducing the probability of the source becoming lodged in the well.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7695 Use of radioactive markers and uranium sinker bars.**

1. A licensee shall not use radioactive markers in wells if the individual markers contain quantities of radioactive material which exceed the quantities specified in NAC 459.188.

2. The use of radioactive markers is subject to the requirements of NAC 459.7675.

3. A licensee shall not use a uranium sinker bar in well logging if the bar is not legibly impressed with the words "CAUTION - RADIOACTIVE-DEPLETED URANIUM" and "NOTIFY CIVIL AUTHORITIES (or COMPANY NAME) IF FOUND."

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7701 Logging supervisors and assistants: Qualifications; safety reviews; records. (NRS 459.030)**

1. A licensee shall not permit a person to act as a logging supervisor until that person:

(a) Has completed training in the subjects set forth in NAC 459.7705.

(b) Has received copies of, and instruction in:

(1) The regulations contained in NAC 459.010 to 459.950, inclusive;

(2) The division license under which the logging supervisor will perform well logging;

and

(3) The licensee's operating and emergency procedures required by NAC 459.7715.

(c) Has completed on-the-job training and demonstrated his competence, in a field evaluation, in the use of:

(1) Radioactive materials;

(2) Remote handling tools; and

(3) Radiation survey instruments.

(d) Has demonstrated his understanding of the requirements of paragraphs (a) and (b) of subsection 1, by successfully completing a written test.

2. A licensee shall not permit a person to act as a logging assistant until that person:

(a) Has received instruction in the regulations contained in NAC 459.010 to 459.950, inclusive;

(b) Has received copies of, and instruction in the licensee's operating and emergency procedures required by NAC 459.7715;

(c) Has demonstrated his understanding of the materials listed in paragraphs (a) and (b) of this subsection by successfully completing a written or oral test; and

(d) Has received instruction appropriate for his job responsibilities in the use of:

(1) Radioactive materials;

(2) Remote handling tools; and

(3) Radiation survey instruments.

3. A licensee shall provide a safety review for logging supervisors and logging assistants at least once during each calendar year.

4. A licensee shall maintain a record of the training and safety review provided each logging supervisor and logging assistant. The records of training must include copies of written tests and dates of oral tests. The records of training must be retained for 3 years after the termination of employment of the supervisor or assistant. Records of the annual safety reviews must list the topics discussed and be retained for 3 years.

(Added to NAC by Bd. of Health, eff. 9-6-88; A by R084-98, 1-26-99)

**NAC 459.7705 Logging supervisors: Training.** A licensee shall include the following subjects in the training required by NAC 459.7701:

1. Fundamentals of radiation safety, including:
  - (a) Characteristics of radiation;
  - (b) Units of radiation dosage and quantity of radioactivity;
  - (c) Hazards of exposure to radiation;
  - (d) Levels of radiation from radioactive material;
  - (e) Methods of controlling radiation dosage (time, distance and shielding); and
  - (f) Radiation safety practices, including prevention of contamination and methods of decontamination.
2. Radiation detection instruments, including:
  - (a) Use, operation, calibration and limitations of radiation survey instruments;
  - (b) Survey techniques; and
  - (c) Use of personnel monitoring equipment.
3. Equipment, including:
  - (a) Operation of equipment, including source handling equipment and remote handling tools;
  - (b) Storage, control and disposal of licensed material; and
  - (c) Maintenance of equipment.
4. The requirements of pertinent division regulations.
5. Case histories of accidents in well logging.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.771 Logging supervisors: Presence at temporary jobsites; surveillance of operations.**

1. A logging supervisor shall be physically present at a temporary jobsite when radioactive materials are being handled or are not stored and locked in a vehicle or storage place. The logging supervisor may leave the temporary jobsite in order to obtain assistance if a source becomes lodged in a well.

2. Except when radiation sources are below ground or in shipping or storage containers, a logging supervisor or other person designated by the logging supervisor shall, during well logging, maintain direct surveillance of the operation to prevent unauthorized entry into a restricted area, as defined in NAC 459.090.

(Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7715 Operating and emergency procedures.** Each licensee shall develop and follow written operating and emergency procedures that cover:

1. The handling and use of radioactive materials including, if appropriate, the use of sealed sources in wells without surface casing;
2. The use of remote handling tools for handling sealed sources and radioactive tracer material, except low activity calibration sources;
3. Methods and occasions for conducting radiation surveys, including surveys for detecting contamination, as required by NAC 459.7725;
4. Minimizing exposure of personnel to radiation including exposure from inhalation and ingestion of tracer radioactive materials;
5. Methods and occasions for locking and securing stored radioactive materials;

6. Equipment and procedures for monitoring personnel;
  7. The transportation of radioactive materials to field stations or temporary jobsites, including:
    - (a) The packaging of radioactive materials for transport in vehicles;
    - (b) Placing placards on vehicles when needed; and
    - (c) Physically securing radioactive materials in transport vehicles during transportation to prevent accidental loss, tampering or unauthorized removal;
  8. Picking up, receiving and opening packages containing radioactive materials, in accordance with NAC 459.3585;
  9. The use of tracers;
  10. Decontamination of the environment, equipment and personnel;
  11. Maintenance of records generated by logging personnel at temporary jobsites;
  12. The inspection and maintenance of:
    - (a) Sealed sources;
    - (b) Source holders;
    - (c) Logging tools;
    - (d) Injection tools;
    - (e) Source handling tools;
    - (f) Storage containers;
    - (g) Transport containers; and
    - (h) Uranium sinker bars,
 as required by NAC 459.7665;
  13. Actions to be taken if a sealed source is lodged in a well;
  14. Notifying proper persons in the event of an accident; and
  15. Actions to be taken if a sealed source is ruptured, including:
    - (a) Actions to prevent the spread of contamination and minimize inhalation and ingestion of radioactive materials; and
    - (b) Actions to determine the boundaries of radioactive contamination with suitable radiation survey instruments described in NAC 459.7661.
- (Added to NAC by Bd. of Health, eff. 9-6-88; A 1-18-94)

**NAC 459.7721 Monitoring personnel.**

1. A licensee shall not permit a person to act as a logging supervisor or a logging assistant unless that person wears, at all times during the handling of radioactive materials, either a film badge or a thermoluminescent dosimeter. Each film badge or thermoluminescent dosimeter must be assigned to, and worn by, only one person. Film badges must be replaced at least once every month and thermoluminescent dosimeter's must be replaced at least once every 3 months. After replacement, each film badge or thermoluminescent dosimeter must be promptly processed.
  2. A licensee shall provide bioassay services to persons using radioactive materials in subsurface tracer studies if required by his license.
  3. A licensee shall retain records of film badge, thermoluminescent dosimeter and bioassay results for inspection until the division authorizes disposition of the records.
- (Added to NAC by Bd. of Health, eff. 9-6-88)

**NAC 459.7725 Surveys of radiation: Requirements; records.**

1. A licensee shall make radiation surveys of each area where radioactive materials are used and stored.
2. Before transporting radioactive materials, a licensee shall make a radiation survey of the position occupied by each person in the vehicle and of the exterior of each vehicle used to transport the materials.
3. If a sealed source assembly is removed from a logging tool before departure from a temporary jobsite, the licensee shall confirm that the logging tool is free of contamination by energizing the logging tool detector or by using a survey meter.

4. If a licensee has reason to believe that, as a result of any operation involving a sealed source, the encapsulation of the sealed source could have been damaged by the operation, the licensee shall conduct a radiation survey, including a contamination survey, during and after the operation.

5. A licensee shall make a radiation survey at a temporary jobsite before and after each subsurface tracer study to confirm the absence of contamination.

6. The results of surveys required by subsections 1 to 5, inclusive, must be recorded and must include:

- (a) The date of the survey;
- (b) The name of the person making the survey;
- (c) The identification of the survey instrument used; and
- (d) The location of the survey.

7. A licensee shall retain the records of surveys required by subsection 6, for inspection by the division, for 3 years after they are made.

(Added to NAC by Bd. of Health, eff. 9-6-88)

#### **NAC 459.773 Control of radioactive contamination.**

1. If a licensee detects evidence that a sealed source has ruptured or radioactive materials have caused contamination, the licensee shall immediately initiate the emergency procedures required by NAC 459.7715.

2. If contamination results from the use of radioactive material in well logging, a licensee shall decontaminate all work areas, equipment and unrestricted areas.

3. During efforts to recover a sealed source lodged in a well, a licensee shall continuously monitor, with an appropriate radiation detection instrument or logging tool with a radiation detector, the circulating fluids from the well, if any, to check for contamination resulting from damage to the sealed source.

(Added to NAC by Bd. of Health, eff. 9-6-88)

#### **NAC 459.7735 Prohibited acts.**

1. A licensee shall not use sealed sources in a well that penetrates a fresh water aquifer if the well does not have a surface casing, or if the well has a surface casing that does not isolate the fresh water aquifer from the well.

2. A licensee shall not use sealed sources in any well that is producing water for human or animal consumption, or for irrigation purposes.

3. A licensee shall not release any tracer radioactive materials in a well unless a written authorization has been obtained from the division for each specific operation.

4. A registrant shall not activate a radiation machine used in a well logging operation so that it emits radiation, unless the radiation machine is in the well and at least 10 feet below the surface of the ground.

(Added to NAC by Bd. of Health, eff. 9-6-88)

#### **NAC 459.7741 Notifying radiological health section of certain events; procedure when sealed source is not retrievable.**

1. A licensee shall immediately notify the radiological health section of the division by telephone and subsequently, within 30 days, by confirmatory letter if the licensee knows, or has reason to believe, that a sealed source has been ruptured. The letter must:

- (a) Designate the well or other location;
- (b) Describe the magnitude and extent of the escape of radioactive materials;
- (c) Assess the consequences of the rupture; and
- (d) Explain efforts planned or being taken to mitigate the consequences of the rupture.

2. A licensee or registrant shall notify the radiological health section by telephone of:

- (a) The theft or loss of a source of radiation;
- (b) Overexposures to radiation;
- (c) Excessive levels and concentrations of radiation; and

(d) Accidents, as required by NAC 459.369, 459.3695 and 459.371;

3. When a sealed source becomes lodged in a well and it becomes apparent that efforts to recover the sealed source will not be successful, a licensee shall:

(a) Notify the radiological health section by telephone of the circumstances that resulted in the inability to retrieve the source and obtain approval to carry out abandonment procedures;

(b) Advise the well owner or operator of the abandonment procedures set forth in NAC 459.7645;

(c) Ensure that abandonment procedures are completed within 30 days after the sealed source has been classified irretrievable or request an extension of time from the division to permit completion of the abandonment procedures; and

(d) Make a report in writing to the division within 30 days after a sealed source has been classified irretrievable. The licensee must send a copy of the report to each state or federal agency that issued permits or otherwise approved of the well drilling operation. The report must contain the following information:

(1) The date of occurrence;

(2) A description of the irretrievable well logging source involved, including the radionuclide and its quantity and chemical and physical form;

(3) The surface location and identification of the well;

(4) The results of efforts to immobilize and seal the source in place;

(5) A brief description of the attempted recovery effort;

(6) The depth of the source;

(7) The depth of the top of the cement plug;

(8) The depth of the well;

(9) Any other information required by the division, such as a warning statement contained on the permanent identification plaque; and

(10) The names of the state and federal agencies receiving a copy of the report.

(Added to NAC by Bd. of Health, eff. 9-6-88; A 1-18-94)

#### **NAC 459.7745 Maintenance of documents and records. (NRS 459.030)**

1. Each licensee and registrant shall maintain the following documents and records at the field station:

(a) The regulations contained in NAC 459.010 to 459.950, inclusive;

(b) The license or registration authorizing the use of a source of radiation;

(c) The records of calibration of radiation survey instruments;

(d) Operating and emergency procedures;

(e) The records of leak tests;

(f) Physical inventory records;

(g) Utilization records;

(h) Records of inspection and maintenance;

(i) Training records; and

(j) Survey records.

2. Each licensee and registrant shall maintain the following documents and records at a temporary jobsite while well logging operations are being conducted:

(a) Operating and emergency procedures;

(b) Evidence of the latest calibration of the radiation survey instruments in use at the site;

(c) The latest survey records required by NAC 459.7725;

(d) The shipping papers for transportation of radioactive material;

(e) The latest leak test record;

(f) A copy of the license or registration authorizing the use of a source of radiation; and

(g) Identification documents for each person who enters the restricted area at the site which indicates his classification as logging supervisor, logging assistant or other category, and states that he is an employee of the licensee or registrant.

(Added to NAC by Bd. of Health, eff. 9-6-88; A by R084-98, 1-26-99)

## Notices; Instructions and Reports to Employees; Inspections

### **NAC 459.780 Purpose; applicability.** NAC 459.780 to 459.794, inclusive:

1. Establish requirements for notices, instructions and reports by licensees or registrants to persons engaged in work under a license or registration and options available to those persons in connection with the division's inspections of licensees or registrants to ascertain compliance with the provisions of chapter 459 of NRS and regulations, orders and licenses issued thereunder regarding radiological working conditions.

2. Apply to all persons who receive, possess, use or transfer sources of radiation licensed by or registered with the division pursuant to NAC 459.150 to 459.314, inclusive.

[Bd. of Health, Radiation Control Reg. § 10.1, eff. 2-28-80]

### **NAC 459.782 Notices to employees.**

1. Each licensee or registrant shall post current copies of the following documents:

(a) The provisions of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive;

(b) The license, certificate of registration, conditions or documents incorporated into the license by reference and amendments thereto;

(c) The operating procedures applicable to work under the license or registration; and

(d) Any notice of a violation involving radiological working conditions, any proposed imposition of a civil penalty or an order issued pursuant to NAC 459.010 to 459.142, inclusive, and any response from the licensee or registrant.

2. If posting of a document specified in paragraphs (a) to (c), inclusive, of subsection 1 is not practicable, the licensee or registrant shall post a notice which describes the document and states where it may be examined.

3. Form NRC-1, "Notice to Employees," must be posted by each licensee or registrant.

4. Any notices, forms or other documents posted must appear in a sufficient number of places to permit persons engaged in work under the license or registration to observe them on the way to or from any particular work location to which the document applies. The documents must be conspicuous and must be replaced if defaced or altered.

5. Documents to be posted pursuant to paragraph (d) of subsection 1 must be posted within 5 working days after receipt of the documents from the division. The licensee's or registrant's response, if any, must be posted within 5 working days after dispatch from the licensee or registrant. These documents must remain posted for a minimum of 5 working days or until action correcting the violation has been completed, whichever is later.

[Bd. of Health, Radiation Control Reg. §§ 10.2-10.2.5, eff. 2-28-80]—(NAC A 1-18-94)

### **NAC 459.784 Instructions to employees. (NRS 459.030)**

1. All persons who in the course of employment are likely to receive in 1 year an occupational dose of more than 100 millirems must:

(a) Be informed of the storage, transfer or use of radioactive material or of radiation;

(b) Be instructed in the problems of health protection associated with exposure to such radioactive material or radiation;

(c) Be instructed in precautions or procedures to minimize exposure and in the purposes and functions of the protective devices which are provided;

(d) Be instructed in and required to comply with the provisions of NAC 459.010 to 459.794, inclusive, and licenses which pertain to the protection of personnel from any exposures to radiation or radioactive materials;

(e) Be informed of their responsibility to report promptly to the licensee or registrant any condition which may cause or lead to a violation of NAC 459.010 to 459.794, inclusive, or licenses or any unnecessary exposure to radiation or radioactive material;

(f) Be instructed in the appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation or radioactive material; and

(g) Be advised of the existence of exposure reports to radiation which workers may request pursuant to NAC 459.786.

2. In determining which persons are subject to the requirements of this section, licensees shall consider:

(a) The assigned activities of the person during normal and abnormal situations involving exposure to radiation or radioactive material that can reasonably be expected to occur during the life of the licensed facility; and

(b) The potential problems relating to the protection against radiation and radioactive material present in the licensed facility.

[Bd. of Health, Radiation Control Reg. §§ 10.3-10.3.8, eff. 2-28-80]—(NAC A by R084-98, 1-26-99)

**NAC 459.786 Other notices, reports.**

1. Data concerning a person's exposure to radiation and the results of any measurements, analyses and calculations of radioactive material deposited or retained in the body of a person must be reported to him, as specified in this section. The information reported must include data and results obtained pursuant to NAC 459.010 to 459.794, inclusive, orders or conditions set forth in the license or registration, as shown in records maintained by the licensee or registrant pursuant to those sections. Each notification and report must:

(a) Be in writing;

(b) Include the name of the registrant or licensee, the name of the person and his social security number;

(c) Include the information relating to the person's exposure; and

(d) Contain the following statement:

This report is furnished to you pursuant to NAC 459.780 to 459.794, inclusive, adopted by the state board of health. You should preserve this report for further reference.

2. Each licensee and registrant shall advise each of its workers annually of their exposure to radiation or radioactive material as shown in records maintained by the licensee or registrant pursuant to NAC 459.3665.

3. At the request of a worker formerly engaged in work controlled by the licensee or the registrant, the licensee or registrant shall furnish to the worker a report of his exposure to radiation or radioactive material. The report must be furnished within 30 days after the time the request is made or within 30 days after his exposure has been determined, whichever is later. The report must cover, within the period specified in the request, each calendar quarter in which the worker's activities involved exposure to radiation from radioactive material licensed by or radiation machines registered with the division and must include the dates and locations of work under the license or registration in which the worker participated during this period.

4. When a licensee or registrant is required pursuant to NAC 459.3695 to report to the division any exposure of a person to radiation or radioactive material, the licensee or registrant shall also provide the person with a report on his exposure data. The report to the person must be transmitted to him before transmittal of the report to the division.

5. At the request of a worker who is terminating employment with a licensee or registrant in work involving exposure to radiation in a calendar quarter or of a worker who, while employed by another person, is terminating an assignment to work involving exposure to radiation in the licensee's or registrant's facility in a calendar quarter, the licensee or registrant shall provide the worker at the time of the termination a written report specifying the dose of radiation which he received from the operations of the licensee or registrant during the calendar quarter or fraction thereof or shall provide him a written estimate of that dose if the results of personnel monitoring have not been finally determined and are not available at that time. An estimated dose must be clearly indicated as such.

[Bd. of Health, Radiation Control Reg. §§ 10.4-10.4.5, eff. 2-28-80]—(NAC A 1-18-94)

**NAC 459.788 Inspections: Presence of representatives of licensees, registrants, employees.**

1. Each licensee or registrant shall permit the division, at all reasonable times, an opportunity to inspect materials, machines, activities, facilities, premises and records pursuant to NAC 459.010 to 459.794, inclusive.

2. During an inspection, division inspectors may consult privately with workers, as specified in NAC 459.790. The licensee or registrant may accompany the division's inspectors during other phases of an inspection.

3. If, at the time of an inspection, a person has been authorized by the workers to represent them during the inspection, the licensee or registrant must notify the inspectors of the authorization and give the workers' representative an opportunity to accompany the inspectors during the inspection of physical working conditions.

4. Each workers' representative must be routinely engaged in work under control of the licensee or registrant and must have received instructions as specified in NAC 459.784.

5. Different representatives of licensees or registrants and workers may accompany the inspectors during different phases of an inspection if there is no resulting interference with the conduct of the inspection, but only one workers' representative at a time may accompany the inspectors.

6. With the approval of the licensee or registrant and the workers' representative, a person who is not routinely engaged in work under control of the licensee or registrant, for example, a consultant to the licensee or registrant or to the workers' representative, may be afforded the opportunity to accompany division inspectors during the inspection of physical working conditions.

7. Notwithstanding the other provisions of this section, division inspectors may refuse to permit accompaniment by any person who deliberately interferes with a fair and orderly inspection. With regard to any area containing proprietary information, the workers' representative for that area must be a person previously authorized by the licensee or registrant to enter that area.

[Bd. of Health, Radiation Control Reg. §§ 10.5-10.5.7, eff. 2-28-80]

**NAC 459.790 Inspections: Consultation with employees.**

1. The inspectors of the division may consult privately with workers on matters related to their protection from occupational radiation and matters related to applicable provisions of NAC 459.010 to 459.794, inclusive, to the extent that the inspectors deem necessary for the conduct of an effective and thorough inspection.

2. During the course of an inspection, any worker may bring privately to the attention of the inspectors, either orally or in writing, any past or present condition which he has reason to believe may have contributed to or caused any violation of chapter 459 of NRS, NAC 459.010 to 459.794, inclusive, or license condition, or any unnecessary exposure of a person to radiation from licensed radioactive material or a registered radiation machine under the licensee's or registrant's control. Any such notice in writing must comply with the requirements of subsection 1 of NAC 459.792.

3. Subsection 2 is not an authorization to disregard instructions in NAC 459.784.

[Bd. of Health, Radiation Control Reg. §§ 10.6-10.6.3, eff. 2-28-80]

**NAC 459.792 Inspections: Requests by employees.**

1. Any worker or representative of workers who believes that a violation of chapter 459 of NRS, NAC 459.010 to 459.794, inclusive, or license conditions exists or has occurred in work under a license or a registration with regard to radiological working conditions in which the worker is engaged, may request an inspection by giving notice of the alleged violation to the division. Any such notice must be in writing, set forth the specific grounds for the notice, and must be signed by the worker or representative of the workers. A copy must be given to the licensee or registrant by the division no later than at the time of inspection except that, upon the request of the worker giving the notice, his name and the name of the persons referred to therein

must not be disclosed in any copy or on any record published, released or made available by the division, except for good cause shown.

2. If, upon receipt of the notice, the division determines that the complaint meets the requirements in subsection 1, and that there is a reasonable ground to believe that the alleged violation exists or has occurred, the division shall cause an inspection to be made as soon as practicable, to determine whether the alleged violation exists or has occurred. Inspections pursuant to this section need not be limited to matters referred to in the complaint.

3. No licensee or registrant may discharge or in any manner discriminate against any worker because the worker has filed any complaint, instituted or caused to be instituted any proceeding under NAC 459.010 to 459.794, inclusive, or has testified or is about to testify in any such proceeding or because the worker, on behalf of himself or others, has exercised any option afforded by NAC 459.780 to 459.794, inclusive.

[Bd. of Health, Radiation Control Reg. §§ 10.7-10.7.3, eff. 2-28-80]

**NAC 459.794 Inspections: Informal review. (NRS 439.200, 457.065, 459.201)**

1. If the division determines, with respect to the complaint under NAC 459.792, that an inspection is not warranted because there are no reasonable grounds to believe that a violation exists or has occurred, the division must notify the complainant in writing of that determination.

2. The complainant may obtain a review of the determination by submitting a written statement of his position with the state health officer, who shall provide the licensee or registrant with a copy of the statement by certified mail, excluding, at the request of the complainant, name of the complainant. The licensee or registrant may submit an opposing written statement of position with the state health officer, who shall provide the complainant with a copy of the statement by certified mail. Upon request of the complainant, the state health officer may hold an informal conference, pursuant to subsection 2 of NAC 459.136, in which the complainant and licensee or registrant, may orally present their views. An informal conference may also be held at the request of the licensee or registrant, but disclosure of the identity of the complainant may be made only following receipt of his written authorization. After considering all written or oral views presented, the state health officer shall affirm, modify or reverse the determination of the division and furnish the complainant and the licensee or registrant a written notification of the decision and the reason therefore.

3. The informal conference cannot be appealed and is the final remedy available to the complainant or the licensee or registrant pursuant to subsection 3 of NAC 459.136.

4. If the division determines that an inspection is not warranted because the requirements of subsection 1 of NAC 459.792 have not been met, the division shall notify the complainant in writing of that determination. Such a determination is without prejudice to the filing of a new complaint meeting the requirements of that subsection.

[Bd. of Health, Radiation Control Reg. §§ 10.8-10.8.4, eff. 2-28-80]—(NAC A 10-30-97)

## **DISPOSAL OF RADIOACTIVE MATERIAL**

### **General Provisions**

**NAC 459.800 Definitions. (NRS 459.030)** As used in NAC 459.800 to 459.950, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.8005 to 459.8055, inclusive, have the meanings ascribed to them in those sections.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 4-24-86; 6-23-86; 2-18-88; R084-98, 1-26-99)

**NAC 459.8005 "Active maintenance" defined.** "Active maintenance" means any significant activity needed during the period of control after closure of the disposal area to ensure reasonable protection against inadvertent intruders and the migration of radionuclides, including activities such as the pumping and treatment of water from a disposal unit or replacement of the

cover of a disposal unit. The term does not include continuing custodial activities such as the repair of fencing, repair or replacement of equipment for detecting radiation, revegetation, minor additions to the depth of soil covering a disposal unit and general upkeep such as mowing grass.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.801 "Buffer zone" defined.** "Buffer zone" means a portion of the disposal area which is controlled by the licensee and lies under the disposal units or between the disposal units and the boundary of the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8015 "Chelating agent" defined.** "Chelating agent" means amine polycarboxylic acids, hydroxycarboxylic acids and polycarboxylic acids.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.802 "Disposal" defined.** "Disposal" means the isolation of radioactive wastes from the biospheres inhabited by man and the plants and animals on which he feeds, directly or indirectly, by emplacement in a disposal area on land.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8025 "Disposal area" defined.** "Disposal area" means the land which is used for the disposal of waste, consisting of disposal units and a buffer zone.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.803 "Disposal unit" defined.** "Disposal unit" means a discrete portion of a disposal area into which waste is placed for disposal. For disposal near the surface, the unit is usually a trench.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8035 "Explosive material" defined.** "Explosive material" means any chemical compound, mixture or device which produces a substantial instantaneous release of gas and heat spontaneously or by contact with sparks or flame.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.804 "Hydrogeological unit" defined.** "Hydrogeological unit" means a unit or zone of soil or rock which by virtue of its porosity or permeability, or lack thereof, has a distinct influence on the storage or movement of ground water.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8045 "Inadvertent intruder" defined.** "Inadvertent intruder" means a person who occupies a disposal area after its closure and engages in normal activities, such as agriculture or the construction of a dwelling, in which he may unknowingly be exposed to radiation from the waste.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.805 "Near the surface" defined.** "Near the surface" means within the upper 100 feet (approximately 30 meters) of the earth's surface.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8055 "Waste" defined.** "Waste" has the meaning ascribed to it in subsection G of Article 2 of the Rocky Mountain Low-level Radioactive Waste Compact in NRS 459.007.

(Added to NAC by Bd. of Health, eff. 4-27-84)

## Licenses for Disposal in Soil of Radioactive Wastes

**NAC 459.806 Scope.** NAC 459.806 to 459.8225, inclusive:

1. Establish the procedures, criteria, terms and conditions upon which the division will issue licenses for the disposal in soil of radioactive wastes received from other persons.
2. Do not apply to the disposal of licensed material as provided in NAC 459.3355 and 459.359 to 459.3615, inclusive.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 1-18-94)

**NAC 459.8065 General requirements for license.** A person who desires to apply for a license to locate, design, construct and operate in this state an area for the disposal in soil of wastes that are received from others and contain or are contaminated with radioactive material must:

1. Comply with the requirements for a specific license set forth in NAC 459.236; and
2. Submit to the division the necessary general, technical, analytical, organizational and financial information.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.807 Collection of environmental data.** At the time a person applies for a license, he must have conducted a program to collect basic environmental data on the characteristics of the proposed disposal area, including data about the ecology, meteorology, climate, hydrology, geology, geochemistry and seismology of the area. For those characteristics that are subject to seasonal variation, the data must cover at least a 12-month period.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8075 Application for license: General information.** An applicant for a license to operate a disposal area must submit to the division the following general information:

1. The identity of the applicant, including the full name, address, telephone number and a description of the business or occupation of the applicant, and if the applicant is:

(a) A partnership, the name and address of each partner and the principal location where the partnership does business;

(b) A corporation or an unincorporated association, the state where it is incorporated or organized, the principal location where it does business and the names and addresses of its directors and principal officers; and

(c) Acting as an agent or representative for another person in filing the application, all information required under this subsection which applies to the other person.

2. The qualifications of the applicant, including:

(a) The organizational structure of the applicant, together with a description of lines of authority and assignments of responsibilities, whether in the form of administrative directives, contractual provisions or otherwise;

(b) The technical qualifications, training and experience of the applicant and members of the applicant's staff to engage in the proposed activities, as well as the minimum training and experience required of personnel in the organizational structure described in paragraph (a);

(c) A description of the applicant's training program for personnel; and

(d) The plan to maintain an adequate complement of trained personnel to carry out the receipt, handling and disposal of waste in a safe manner.

3. A description of:

(a) The location of the proposed disposal area;

(b) The general character of the proposed activities;

(c) The types and quantities of waste to be received, possessed and disposed of;

(d) Plans for use of the disposal area for any purposes other than for the disposal of radioactive wastes; and

(e) The proposed facilities and equipment for the disposal area.

4. Proposed schedules for construction, the receipt of waste and the first emplacement of waste at the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.808 Application for license: Technical information.** An applicant for a license to operate a disposal area must submit to the division the following technical information to demonstrate that the applicant is capable of meeting the objectives and technical requirements of disposal:

1. A description of the natural and demographic characteristics of the disposal area, including geologic, geotechnical, hydrologic, meteorologic, climatologic and biotic features of the disposal area and its vicinity.

2. A description of the design of the disposal area and proposed disposal units. For disposal near the surface, the description must include those features of the design related to:

- (a) The infiltration of water;
- (b) Integrity of covers for disposal units;
- (c) Structural stability of backfill, wastes and covers;
- (d) Contact of wastes with standing water;
- (e) Drainage;
- (f) Closure and stabilization;
- (g) Elimination, to the extent practicable, of long-term maintenance;
- (h) Prevention of inadvertent intrusion;
- (i) Exposure of employees to radiation;
- (j) Detection of radiation in the disposal area; and
- (k) Adequacy of the size of the buffer zone for detection and prevention of the migration of radionuclides.

3. A description of the principal criteria of the design and their relationship to the objectives of disposal.

4. A description of the natural events or phenomena on which the design is based and their relationship to the principal criteria of the design.

5. A description of codes and standards of construction which the applicant has applied to the design and which will apply to construction of the disposal area.

6. A description of the construction and operation of the disposal area. The description must include, at a minimum the:

- (a) Methods of construction of disposal units;
- (b) Methods for emplacement of waste;
- (c) Procedures and areas for the segregation of waste;
- (d) Types of barriers against intruders;
- (e) Systems for vehicular traffic and drainage on the site;
- (f) Program for control of emplacement by surveying;
- (g) Methods and areas of waste storage;
- (h) Methods to control the access of surface water and ground water to the wastes; and
- (i) Methods to be employed in the handling and disposal of wastes containing chelating agents or other nonradiological substances which may affect compliance with the objectives of disposal.

7. A description of the plan for closure of the disposal area, including those features of the design which are intended to facilitate closure of the disposal area and to eliminate the need for active maintenance.

8. An identification of those known natural resources at the disposal area whose future exploitation may result in inadvertent intrusion into the wastes after the removal of governmental control of the area.

9. A description of the kind, amount, classification and specifications of the radioactive material proposed to be received, possessed and disposed of at the disposal area.

10. A description of the programs for ensuring reliability:

- (a) In the determination of natural characteristics of the disposal area;

- (b) During the design, construction, operation and closure of the disposal area; and
- (c) For the receipt, handling and emplacement of waste, including audits and managerial controls.

11. A description of the program for:

(a) Control and detection of radioactive effluents to ensure compliance with the requirements of NAC 459.8155;

(b) Control and measurement of exposure of employees to radiation to ensure compliance with the requirements of NAC 459.320 to 459.374, inclusive; and

(c) Control of contamination of personnel, vehicles, equipment, buildings and the disposal area. The programs must govern both routine operations and accidents and the descriptions must include applicable procedures, instrumentation, facilities and equipment.

12. A description of the program for detection and measurement of radionuclides migrating from the disposal area to provide data to evaluate potential effects on health and the environment and the plan for taking corrective measures if a migration of radionuclides is discovered.

13. A description of the administrative procedures that the applicant will apply to control activities at the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 1-18-94)

**NAC 459.8085 Application for license: Analyses.** An applicant for a license to operate a disposal area must submit to the division the following analyses to demonstrate that the objectives of disposal will be met:

1. Pathways of migration of radionuclides which are analyzed in demonstrating protection of the general population from releases of radioactivity must include air, soil, ground water, surface water, vegetative growth and exhumation by burrowing animals. The analyses must clearly identify and differentiate between the roles performed by the natural characteristics of the disposal area and features of design to isolate and segregate the wastes. The analyses must clearly demonstrate that there is a reasonable assurance that the exposures of persons to the release of radioactivity will not exceed the limits set forth in NAC 459.8155.

2. Analyses of the protection of persons who inadvertently intrude must include a demonstration that there is a reasonable assurance that the requirement of segregation of wastes will be met and that adequate barriers to inadvertent intrusion will be provided.

3. Analyses of the protection of persons during operations must include assessments of expected exposures resulting from routine operations and likely accidents during the handling, storage and disposal of waste. The analyses must provide a reasonable assurance that exposure will be controlled to meet the requirements of NAC 459.320 to 459.374, inclusive.

4. Analyses of the long-term stability of the disposal area and the need for active maintenance after closure must be based upon analyses of active natural processes such as erosion, mass wasting, slope failure, settlement of wastes and backfill, infiltration through covers over disposal areas and adjacent soils and the surface drainage of the disposal area. The analyses must provide a reasonable assurance that active maintenance of the disposal area will not be needed following closure.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 1-18-94)

**NAC 459.809 Application for license: Information concerning ownership.** An applicant for a license to operate a disposal area must submit to the division the following information concerning ownership of the area:

1. If the disposal area is proposed to be located on land already owned by the Federal Government or this state, a certification by the federal or state agency which owns the land that the agency will:

(a) Accept transfer of the license when the provisions of NAC 459.8215 are met; and

(b) Assume responsibility for custodial care upon closure of the disposal area and observation and maintenance after closure.

2. If the disposal area is proposed to be located on land not owned by the Federal Government or this state, the applicant must submit evidence that arrangements have been made for assumption of ownership in fee by a federal or state agency before the division issues a license.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8095 Application for license: Financial information.** An applicant for a license to operate a disposal area must submit to the division financial information which is sufficient to demonstrate that the finances of the applicant are adequate to carry out the activities for which the license is sought and meet the financial requirements in NAC 459.8115 to 459.813, inclusive.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.810 General requirements of disposal area.** A disposal area must be so located, designed, operated, closed and controlled after closure as reasonable to ensure that:

1. Any exposures of persons to radiation are within the limits established in this section and NAC 459.815 and 459.8155;
2. A person is protected who inadvertently intrudes into and occupies the disposal area or comes into contact with the waste at any time after active governmental control over the disposal area is removed; and
3. Long-term stability of the disposal area is achieved and the need for active maintenance of the area following closure is eliminated to the extent practicable, so that only surveillance, detection of radiation and minor custodial care are required.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8105 Location and minimum characteristics of disposal area.**

1. The primary objectives in assessing the location of a disposal area are to determine that the characteristics of the proposed area will ensure the isolation of wastes and the attainment of other long-term requirements.

2. A proposed disposal area must have the following minimum characteristics to be approved for disposal near the surface of low-level radioactive waste:

(a) The disposal area must be capable of being characterized, modeled, analyzed and observed.

(b) A site must be selected so that projected growth of the population and other future developments within the region where the disposal area is to be located are not likely to affect the capability of the disposal area to meet the objectives of disposal.

(c) Geographical areas must be avoided which contain valuable natural resources which are known to exist and which, if exploited, would result in the eventual failure of the disposal area to meet the objectives of disposal.

(d) The disposal area must be generally well drained and free of areas of flooding or frequent accumulations of water in ponds. The disposal of wastes will not be allowed in a 100-year flood plain, coastal area with a high risk of flooding or wetland, as those terms are defined in Executive Order No. 11,988, Floodplain Management Guidelines in 43 FR 6030 (1978).

(e) Drainage areas which are upstream from the site must be minimized to decrease the amount of runoff which could erode or inundate disposal units.

(f) Wastes, when buried, must be sufficiently above the water table so that the intrusion of ground water, perennial or otherwise, into the waste will not occur. The disposal of waste will not be allowed in the zone of fluctuation of the water table.

(g) The hydrogeological unit in which the site is located must not discharge ground water to the surface within the disposal area.

(h) The disposal of wastes will not be allowed in geographic areas where tectonic processes such as faulting, folding, seismic activity or vulcanism may occur with a frequency and to an extent that significantly affects the capability of the disposal area to meet the objectives of disposal, or may preclude defensible modeling and the prediction of long-term effects.

(i) The disposal of wastes will not be allowed in geographical areas where surface geologic processes such as mass wasting, erosion, slumping, landsliding or weathering occur with a frequency and to an extent that significantly affects the capability of the disposal area to meet the objectives of disposal, or may preclude defensible modeling and prediction of long-term effects.

(j) The disposal area must not be located where nearby facilities or activities could adversely affect the capability of the area to meet the objectives of disposal or significantly interfere with the detection of radionuclides migrating from the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.811 Design of disposal area.** The design of the disposal area must be directed toward the long-term isolation of wastes and avoidance of the need for active maintenance after closure of the area, and must meet the following criteria:

1. The design and operation of the disposal area must be compatible with the plan for closure and stabilization and lead to closure which reasonably ensures that the objectives of disposal will be met.

2. The disposal area must be designed to complement and improve, where appropriate, the capability of the disposal area's natural characteristics to ensure that the objectives of disposal will be met.

3. Covers must be designed to:

(a) Minimize the infiltration of water to the extent practicable;

(b) Direct percolating or surface water away from the waste; and

(c) Resist degradation by surface geologic processes and biotic activity.

4. Surface features must direct the drainage of surface water away from disposal units at velocities and gradients that will not cause erosion and result in active maintenance of the units in the future.

5. The disposal area must be designed to minimize, to the extent practicable, the contact of:

(a) Water with waste during storage;

(b) Standing water with waste during disposal; and

(c) Percolating or standing water with waste after disposal.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.815 Financial requirements: Demonstration of ability to obtain necessary money.** Each applicant must demonstrate to the satisfaction of the division that it possesses or has a reasonable likelihood of obtaining the necessary money, to cover the estimated costs of conducting all licensed activities over the planned operating life of the disposal area, including costs of construction and disposal.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.812 Financial requirements: Assurances of sufficient money for closure and stabilization.**

1. The applicant must provide assurances before the commencement of operations that sufficient money will be available to carry out closure and stabilization of the disposal area, including the decontamination or dismantling of structures in the disposal area, so that after transfer of control over the disposal area to its governmental owner, the need for active maintenance is eliminated to the extent practicable and only minor custodial care, surveillance and detection of radiation are required. These assurances must be based on cost estimates approved by the division for carrying out the plan for closure and stabilization. The applicant's estimates of cost must take into account the total costs that would be incurred if an independent contractor were hired to perform the work of closure and stabilization.

2. In order to avoid duplication and unnecessary expense, the division will accept sureties or undertakings that have been consolidated with other undertakings established to meet the requirements of other federal, state or local governmental agencies for decontamination closure and stabilization. The division will accept these consolidated undertakings only if:

(a) They are considered adequate to satisfy the requirements of this section; and

(b) The portion of the undertaking which covers the closure of the disposal area is clearly identified and committed for use in accomplishing those activities.

3. The licensee must annually submit his sureties or other arrangements to the division for its review to ensure that sufficient money is available for completion of the plan for closure, assuming that the work will be performed by an independent contractor.

4. The amount of the undertaking must be changed in accordance with the predicted cost of final closure and stabilization. Factors affecting the estimated costs of closure and stabilization include monetary inflation, increases in the amount of disturbed land, changes in engineering plans, any closure and stabilization that has already been accomplished and any other conditions affecting costs. The undertaking must also be sufficient at all times to cover the costs of closure of the disposal units that are expected to be used before the next renewal of the license for the disposal area.

5. The term of any undertaking must be unlimited unless the applicant or licensee can demonstrate that another arrangement, such as the one described in NAC 459.8125, will provide an equivalent level of assurance.

6. Financial arrangements which are generally acceptable to the division include surety bonds, cash deposits, certificates of deposit, deposits of government securities, escrow accounts, irrevocable letters or lines of credit, trust funds or any combination of them. Other types of arrangements may be approved by the division. Self-insurance or any other arrangement which essentially constitutes pledging the assets of the licensee will not satisfy the requirement for an applicant that is not a governmental agency, because it provides no additional assurance other than that which already exists through licensing.

7. Liability of a surety or upon another undertaking must remain in effect until the program for closure and stabilization has been completed and approved by the division and the license has been transferred to the governmental agency which owns the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8125 Financial requirements: Alternative form of assurance.**

1. An alternative form of assurance may be provided by an undertaking which covers a specific period, for example, 5 years, but which is automatically renewed unless the party who issues the surety notifies the division, the beneficiary (the owner of the disposal area) and the principal (the licensee), not less than 90 days before the date for renewal, of its intention not to renew. If the undertaking is not renewed the licensee must submit another surety undertaking within 30 days after notification of this intent. If the licensee fails to provide such a replacement which is acceptable to the division, the owner of the disposal area may demand payment from the original surety or upon the original undertaking. Proof of forfeiture must not be required to collect this payment, so that, if the licensee does not provide an acceptable replacement within the required time, the amount of the undertaking must be automatically collected prior to its expiration.

2. The conditions described in subsection 1 must be clearly stated in any undertaking whose term is limited and must be agreed to by all parties.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.813 Financial requirements: Contract with governmental agency which owns disposal area.**

1. Before the division issues a license, the applicant must provide for review and approval by the division of a copy of a periodically modifiable contract between the applicant and the governmental agency which owns the disposal area that ensures sufficient money will be available to cover the costs of inspecting the disposal area, detecting radiation and any required maintenance during the period of governmental control after closure. The division will review the contract periodically to ensure that changes in the value of money or in technology and operations in the disposal area are reflected in the costs to be covered.

2. Modifications to the contract described in subsection 1 must be agreed to by the division.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8135 Variances.** The division may, upon application by an interested person or upon its own initiative, grant a variance from any of the requirements of NAC 459.806 to 459.8225, inclusive, which it finds:

1. Is not contrary to law;
2. Will not endanger life or property; and
3. Is in the public interest.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.814 Licenses: Necessary findings.** The division will issue a license to receive, possess and dispose of waste containing or contaminated with radioactive material upon finding that:

1. The issuance of the license will not constitute an unreasonable risk to the health and safety of the public;
2. The applicant is qualified by reason of training and experience to carry out the disposal of waste in a manner that protects health and minimizes danger to life and property;
3. The applicant's proposed disposal area, its design and operations, including equipment, facilities and procedures, and the plans for closure and care and control after closure are adequate to protect the public health and safety in that they provide reasonable assurance that:
  - (a) The standards for protection from radiation as provided in NAC 459.320 to 459.374, inclusive, will be met;
  - (b) The general population will be protected from releases of radioactivity as provided in NAC 459.8155;
  - (c) Any inadvertent intruder into the area will be protected as provided in subsection 2 of NAC 459.810; and
  - (d) The long-term stability of the buried waste and the disposal area will be achieved and will eliminate to the extent practicable the need for active maintenance of the disposal area after closure;
4. The applicant's demonstration provides a reasonable assurance that the applicable technical requirements for disposal will be met;
5. The applicant's proposal for governmental control after closure provides a reasonable assurance that care will be furnished for the length of time necessary to carry out the requirements of subsection 3 and meets the requirements provided in NAC 459.822; and
6. The financial assurances meet the requirements provided in NAC 459.813.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 1-18-94)

**NAC 459.8145 Licenses: Conditions.**

1. The division shall attach the following conditions to each license to operate a disposal area which it issues:

(a) No license or any right thereunder may be transferred, assigned or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person unless the division finds, after obtaining full information, that the transfer is in accordance with the provisions of NAC 459.198 and gives its consent in writing in the form of an amendment to the license.

(b) The licensee shall submit written statements under oath upon request of the division at any time before termination of the license to enable the division to determine whether or not the license should be modified, suspended or revoked.

(c) The license will be transferred to the state agency which owns the land only after the plan for closure approved by the division is fully carried out, including observation and maintenance after closure.

(d) The licensee and its license are subject to the provisions of chapter 459 of NRS and all rules, regulations and orders of the division and any subsequent amendments to them, adopted or issued in accordance with the terms of chapter 459 of NRS.

(e) The licensee shall confine its possession and use of radioactive materials to the locations and purposes authorized in its license.

(f) The licensee shall not dispose of radioactive waste until the division has inspected the disposal area and has found it to be in conformance with the description, design and construction described in the application for a license.

2. The division may add to any license at the time of its issuance or thereafter, by appropriate regulation or order, additional requirements and conditions with respect to the licensee's receipt, possession and disposal of source material, special nuclear material, by-product material or other radioactive material as it deems appropriate or necessary, in order to:

(a) Protect health or to minimize danger to life or property; or

(b) Require reports and the keeping of records and provide for inspections of activities under the license that may be necessary or appropriate to effectuate the purposes of chapter 459 of NRS and the division's regulations.

3. The authority to dispose of wastes expires on the date stated in the license except as provided in subsection 1 of NAC 459.820.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.815 Conduct of operations: Standards for protection from radiation.** The licensee must conduct operations at the disposal area in compliance with the standards for protection from radiation set forth in NAC 459.320 to 459.374, inclusive, except for releases of radioactivity in effluents from the disposal area which are governed by the provisions of NAC 459.8155. The licensee must make reasonable efforts to keep exposures to radiation as low as is reasonably achievable.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 1-18-94)

**NAC 459.8155 Limitations on annual release of radioactive material to general environment.**

1. Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants or animals must not result in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid and 25 millirems to any other organ of any person.

2. The licensee must make reasonable efforts to keep releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.816 Segregation and disposal of waste.**

1. The licensee shall:

(a) Segregate wastes designated as Class A pursuant to NAC 459.8265 to 459.8305, inclusive, from other wastes by placing them in disposal units which are sufficiently separated from disposal units for the other classes of waste so that any interaction between Class A wastes and other wastes will not result in a failure to meet the objectives of disposal. This type of segregation is not necessary for Class A wastes if they meet the requirements for stability in NAC 459.8305.

(b) Dispose of wastes designated as Class C:

(1) So that the top of the waste is at least 16 feet below the top surface of the cover; or

(2) With barriers against intruders that are designed to protect against an inadvertent intrusion for at least 500 years.

(c) Dispose of all wastes in accordance with the requirements of subsections 2 to 8, inclusive.

2. Wastes must be emplaced in a manner that:

(a) Maintains the integrity of packages during emplacement;

(b) Minimizes the spaces between packages; and

(c) Permits the remaining spaces between packages to be filled.

3. Spaces between packages of waste must be filled with earth or other materials to reduce future subsidence within the fill.

4. Waste must be placed and covered in a manner that limits the rate of radiation at the surface of the cover to levels that, at a minimum, will permit the licensee to comply with all the provisions of NAC 459.335 at the time the license is transferred pursuant to NAC 459.8215.

5. The boundaries and location of each disposal unit must be accurately located and mapped by means of a survey. Disposal units near the surface must be marked in such a way that the boundaries of each unit can be easily identified. Three permanent control points, consisting of survey markers whose location can be found from control stations of surveys of the United States Geological Survey or National Geodetic Survey, must be established on the site to facilitate surveys. The control stations must provide horizontal and vertical controls.

6. A buffer zone must be maintained between any buried waste and the boundary of the disposal area and beneath the disposed waste. The buffer zone must be of adequate dimensions to enable the licensee or other custodian of the disposal area to carry out the provisions of subsection 3 of NAC 459.817 and take mitigative measures if needed.

7. The licensee shall carry out the measures for closure and stabilization set forth in the approved plan for closure of the site after each disposal unit is filled and covered.

8. Current operations of disposal must not adversely affect completed measures for closure and stabilization.

9. Only wastes containing or contaminated with radioactive materials may be disposed of at the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 1-18-94)

**NAC 459.8165 Records of shipments. (NRS 459.030)**

1. After receipt and acceptance of a shipment of radioactive waste, the licensee shall record:

(a) The date of receipt and the condition of the packages of waste as received at the disposal facility;

(b) Any discrepancies between the materials listed on the manifest and those received;

(c) Any evidence of leaking or damaged packages or radiation, or levels of contamination in excess of the limits specified in the regulations of the United States Department of Transportation and the division;

(d) The traceable shipment manifest number;

(e) A description of any engineered barrier or structural overpack provided for disposal of the waste;

(f) The volume of any pallets, bracing or other shipping or on-site generated materials that are contaminated and are disposed of as contaminated or suspect materials;

(g) The date of disposal of the waste and its location in the disposal area; and

(h) Any other information that may be required by the division as a condition of the license.

2. The licensee shall retain the records described in subsection 1 until the division transfers or terminates the license that authorizes the activities described in this section.

3. The licensee shall briefly describe any repackaging performed on the waste included in the shipment and any other information required to be kept by the division.

4. The licensee shall store, or have stored, the manifest and any other information relating to the receipt and disposal of radioactive waste in a medium that is computer readable, including, without limitation, the information described in:

(a) Paragraphs (a) to (d), inclusive, of subsection 1;

(b) Subsection 3; and

(c) NAC 459.8231, except for:

(1) The telephone numbers of the persons shipping and carrying the waste; and

(2) The certifications of the consignee and the shipper of the waste.

5. As used in this section:

(a) "Engineered barrier" means a man-made structure or device that is used to improve the ability of the disposal facility to meet the requirements set forth in NAC 459.810.

(b) "Medium that is computer readable" means a medium from which information can be transferred into the memory of the computer of the division.

(c) "Structural overpack" means an enclosure that is used by a single consignor to protect a package of waste, for convenience in the handling of such a package or to consolidate two or more such packages. The term does not include a vehicle used for transportation or a freight container.

(Added to NAC by Bd. of Health, eff. 4-27-84; A by R084-98, 1-26-99)

**NAC 459.817 Program of environmental observation.**

1. During construction and operation of the disposal area, the licensee shall establish and maintain a program of environmental observation to detect radiation. Observations and measurements must be made and recorded to provide data to evaluate potential effects on health and the environment during both the construction and the operation of the disposal area and long-term effects and the need for mitigative measures. The program for detection of radiation must be capable of providing an early warning of releases of radionuclides from the disposal area, before they leave the boundaries of the disposal area.

2. The licensee must have plans for taking corrective measures if the program for detection of radiation detects a migration of radionuclides which indicates that radionuclides may leave the disposal area.

3. After the disposal area is closed, the licensee who is responsible for surveillance of the disposal area shall maintain a program for detection of radiation based on the operating history and the closure and stabilization of the disposal area. The program must be capable of providing an early warning of releases of radionuclides from the disposal area, before they leave the boundaries of the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8175 Authorization of specific alternatives to requirements.** The division may, upon request or on its own initiative, authorize specific provisions other than those set forth in NAC 459.807, 459.811, 459.816 and 459.817 for the segregation and disposal of waste and for the design and operation of a disposal area if it finds those specific provisions ensure reasonable compliance with the requirements concerning disposal.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.818 Inspection by division. (NRS 459.030)**

1. Each licensee shall permit the division at all reasonable times to inspect radioactive waste not yet disposed of and the premises, equipment, operations and facilities in which radioactive wastes are received, possessed, handled, treated, stored and disposed of, unless the licensee has a record of satisfactory compliance with the regulations of the United States Department of Transportation, as determined by the division.

2. Each licensee shall make available to the division for inspection, upon reasonable notice, records kept by it pursuant to the provisions of NAC 459.3665 and 459.800 to 459.8225, inclusive. An authorized representative of the division may copy for the division's use any record required to be kept pursuant to the provisions of NAC 459.010 to 459.950, inclusive.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 6-23-86; 1-18-94; R084-98, 1-26-99)

**NAC 459.8185 Tests by licensee or division.** Each licensee shall perform, or permit the division to perform, any tests the division deems appropriate or necessary for the administration of NAC 459.800 to 459.8225, inclusive, including tests of:

1. Radioactive wastes and facilities used for the receipt, storage, treatment, handling and disposal of radioactive wastes;

2. Instruments for the detection and measurement of radiation; and

3. Other equipment and devices used in connection with the receipt, possession, handling, treatment, storage and disposal of radioactive waste.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.819 Annual reports.** Each licensee shall submit to the division the following annual reports:

1. A report of activities at the disposal area during the preceding year which includes:
  - (a) A specification of the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in airborne effluents;
  - (b) The results of the program for detecting radiation;
  - (c) A summary of the surveys and maintenance of disposal units;
  - (d) A summary, by class of waste, of activities and quantities of radionuclides disposed of;
  - (e) Any instance in which observed characteristics of the disposal area or its vicinity were significantly different from those described in the application for a license; and
  - (f) Any other information the division may require.

This report must be submitted by the end of the first calendar quarter of each year for the preceding year. If the quantities of radioactive materials which have been released during the reporting period, while disposing of wastes, performing maintenance, measuring the area to detect radiation or during other activities are significantly different from the quantities anticipated in the plans and other documents which were a part of the licensee's application for a license, the report must specifically describe those differences.

2. A copy of its financial report or a certified financial statement in order to update the information for determining financial qualifications.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8195 Records and reports: Preparation; retention; reproduced copy.**

1. Each licensee shall prepare and keep such records and submit such reports in connection with its licensed activities as may be required by the conditions of the license or the regulations or orders of the division.

2. Each licensee shall keep copies of required records and reports for the period specified in NAC 459.3665 or in the license. If a period of retention is not otherwise specified, these records must be kept and transferred to the persons specified by the division upon termination of its license unless the division authorizes their disposition at an earlier date.

3. A record which is required to be kept may be maintained in the form of the original, or a reproduced copy or on microfilm if the reproduced copy or microfilm is capable of producing a copy that is clear and legible at the end of the required period of retention.

4. If different periods of retention are specified for the same type of record in this regulation, a condition of the license or an order of the division, the longest period specified takes precedence.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 1-18-94)

**NAC 459.820 Renewal of license.**

1. An application for the renewal of a license must be filed at least 90 days before the date of its expiration and be in accordance with the provisions of NAC 459.8065 and 459.8075 to 459.8095, inclusive.

2. Information contained in applications, reports or other documents previously filed with the division under the license may be incorporated by reference if the reference is clear and specific.

3. If a licensee has filed a complete application for renewal of a license, the license does not expire until the division has taken final action on the application for renewal.

4. In determining whether a license will be renewed, the division will apply the criteria set forth in NAC 459.814.

5. The date of expiration on a license or the denial of an application to renew a license applies only to the licensee's activities above the ground at the disposal area and authority to dispose of waste. Failure to renew a license does not relieve the licensee of responsibility for carrying out the plan for closure of the disposal area including inspection of the area and detection of radiation after closure, and transfer of the license to the governmental agency which owns the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8205 Application to amend license for closure.**

1. A licensee who desires to close a disposal area or is directed to do so by the division shall submit an application to amend the license for closure. An application for closure must be filed at least 90 days before the date proposed for closure.

2. The application for closure must include a final revision and specific details of the plan for closure of the disposal area which was a part of the application for a license. The final revision of the plan for closure must include:

(a) Any additional geologic, hydrologic or other data concerning the disposal area which is pertinent to the long-term containment of wastes emplaced during the operation of the disposal area;

(b) The results of tests or any other analyses relating to back-filling of excavated areas, closure and sealing, migration of waste and interaction with emplaced media, and any other tests or analysis pertinent to the long-term containment of emplaced waste within the disposal area;

(c) Any proposed revision of plans for:

(1) Decontamination or dismantling of facilities above the ground;

(2) Backfilling of excavated areas; or

(3) Stabilization of the disposal area for care after closure; and

(d) Any significant new information regarding the environmental effect of the activities of closure and the long-term performance of the disposal area.

3. Upon review and consideration of an application to amend the license for closure, the division will amend the license to authorize closure if there is a reasonable assurance that the long-term objectives after closure will be met.

4. Information contained in applications, reports or other documents previously filed with the division may be incorporated by reference in the application for closure if the reference is clear and specific.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.821 Responsibility of licensee after authorization to close disposal area.**

After receiving authorization from the division to close the disposal area, the licensee shall continue the program for detection of radiation and inspect and carry out necessary maintenance and repairs at the disposal area until closure of the disposal area is complete and the license is transferred by the division to the governmental agency which owns the disposal area. Responsibility for the disposal area must remain with the licensee for at least 5 years before the transfer of the license, unless a shorter or longer period for observation and maintenance after closure is established and approved by the division as a part of the closure plan, based on conditions peculiar to the disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8215 Transfer of license to governmental agency after closure.** Following closure and the period of observation and maintenance after closure, the licensee may apply for an amendment to transfer the license to the governmental agency which owns the disposal area. The license will be transferred when the division finds that:

1. The closure of the disposal area has been completed in conformance with the licensee's plan for closure as revised and approved by the division;

2. Reasonable assurance has been provided by the licensee that the requirements for control of radiation have been met;

3. Any money and records necessary for care have been transferred to the owner of the disposal area;

4. The program for detecting radiation after closure is operational and may be carried out by the owner of the disposal area; and

5. The federal or state agency which will assume responsibility for control of the disposal area is prepared to do so and will meet the requirements for control in subsection 5 of NAC 459.814.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.822 Program to control access to area after transfer of control.** The governmental agency to whom the land is transferred by the licensee shall carry out a program to control physical access to the disposal area following transfer of control of the disposal area. The program of control must also include carrying out a program for detecting radiation at the disposal area, periodic inspections, minor custodial care, other requirements determined by the division and administration of the money to cover the costs for these activities. The period of control will be determined by the division, but controls may not be relied upon for more than 100 years after transfer of control of the disposal area to the owner.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8225 Amendment to terminate license.**

1. After any period of control by a governmental agency which is necessary to meet the requirements under NAC 459.814, the agency which holds the license may apply for an amendment to terminate the license. The license will be terminated if the division finds that:

(a) The requirements for control under subsection 5 of NAC 459.814 have been met; and

(b) Any additional requirements resulting from new information developed during the period of control have been met and permanent monuments or markers warning against intrusion have been installed.

2. At the time of termination of the license, the agency must transfer copies of records of the location and the quantity of radioactive wastes contained in the disposal area to the governor, governing body of the county in which the disposal area is located, governing body of the nearest municipality, their respective planning commissions, if any, and other state, local and federal governmental agencies designated by the division at the time of termination of the license.

(Added to NAC by Bd. of Health, eff. 4-27-84)

### **Transportation of Radioactive Waste**

**NAC 459.8231 Requirements for shipping manifest; exceptions. (NRS 459.030)**

1. A waste generator, waste collector or waste processor who transports or offers for transportation low-level radioactive waste intended for ultimate disposal at a licensed land disposal facility for low-level radioactive waste must, except as otherwise provided in subsection 2, prepare a manifest that includes the information requested on NRC Forms 540, 540A, 541 and 542, as applicable. NRC Forms 540 and 540A must be completed by the waste generator, waste collector or waste processor and must accompany the shipment. Upon agreement between the waste generator, waste collector or waste processor and the consignee, NRC Forms 541, 541A, 542 and 542A may be completed, transmitted and stored in electronic media with the capability of producing legible, accurate and complete records of the forms in the format of a uniform manifest.

2. A licensee is not required to comply with subsection 1 if the licensee ships:

(a) Low-level waste for processing and expects return of the waste before it is disposed of at a licensed land disposal facility;

(b) Low-level waste that is being returned to the licensee who is the waste generator or waste processor; or

(c) Material that is contaminated with radioactivity to a waste processor and the waste becomes the residual waste of the waste processor.

3. A licensee who ships the radioactive waste shall provide the following information on the uniform manifest for each disposal container in the shipment:

- (a) The name, address and telephone number of the licensee shipping the waste;
- (b) A declaration of whether the licensee is acting as a waste generator, waste collector, waste processor or any combination thereof for the shipment;
- (c) The name, address, telephone number and Environmental Protection Agency identification number of the carrier transporting the waste;
- (d) The date of the shipment;
- (e) The total number of packages and containers;
- (f) The total volume and weight of the shipment;
- (g) The total radionuclide activity in the shipment;
- (h) The activity of each of the radionuclides contained in the shipment, including, without limitation, the activity of any H-3, C-14, Tc-99 and I-129 contained in the shipment;
- (i) The total masses of U-233, U-235 and plutonium in the material shipped;
- (j) The total mass of uranium and thorium in the material shipped;
- (k) The alphabetic or numeric identification that uniquely identifies each disposal container in the shipment;
- (l) A physical description of the disposal container, including, without limitation, the name of the manufacturer and model of any high integrity container;
- (m) The volume displaced by the disposal container;
- (n) The gross weight of the disposal container and the waste contained therein;
- (o) For waste consigned to a disposal facility, the maximum radiation level at the surface of each disposal container;
- (p) A physical and chemical description of the waste;
- (q) The total percentage by weight of the chelating agent for any waste containing more than 0.1 percent by weight of a chelating agent and the name of the principal chelating agent;
- (r) The approximate volume of waste within the container;
- (s) The sorbing media or solidification media, if any, and the identity of the vendor and name of the brand of any solidification media;
- (t) For discrete waste, including, without limitation, activated materials, contaminated equipment, mechanical filters, sealed sources and devices and wastes in solidification media or stabilization media, the identities and activities of individual radionuclides associated with or contained in the waste;
- (u) The total radioactivity within each container;
- (v) For waste that is consigned to a disposal facility, the classification of the waste as set forth in NAC 459.8265; and
- (w) The name of any waste that does not meet the structural stability requirements as set forth in NAC 459.8305.

4. A licensee who ships radioactive waste that is delivered without a disposal container must provide the following information on the manifest:

- (a) The approximate volume and weight of the waste;
- (b) A physical and chemical description of the waste;
- (c) The total percentage by weight of the chelating agent for any waste containing more than 0.1 percent by weight of a chelating agent and the name of the principal chelating agent;
- (d) For waste that is consigned to a disposal facility:
  - (1) The classification of the waste as set forth in NAC 459.8265; and
  - (2) The maximum radiation levels at the surface of the waste;
- (e) The name of any waste that does not meet the structural stability requirements as set forth in NAC 459.8305; and
- (f) The identities and activities of individual radionuclides contained in the waste, the masses of U-233, U-235 and plutonium in the special nuclear material and the masses of uranium and thorium in the source material.

5. A licensee who ships disposal containers of mixtures of waste originating from different waste generators or mixtures of waste shipped without a container for which portions of the mixture within the shipment originate from different waste generators shall provide the following information on the manifest:

(a) For homogeneous mixtures of waste, including, without limitation, ash from an incinerator, the waste description applicable to the mixture and the volume of the waste attributed to each waste generator.

(b) For heterogeneous mixtures of waste, including, without limitation, the combined products from a large compactor, the identification of each waste generator contributing waste to the disposal container.

(c) For discrete waste, including, without limitation, activated materials, contaminated equipment, mechanical filters, sealed sources and devices, and wastes in solidification media or stabilization media, the identities and activities of individual radionuclides contained in the waste.

(d) For each waste generator:

(1) The volume of waste within the disposal container;

(2) A physical and chemical description of the waste, including, without limitation, the solidification media, if any;

(3) The total percentage by weight of the chelating agent for any disposal container containing more than 0.1 percent by weight of a chelating agent and the name of the principal chelating agent;

(4) The sorbing media or solidification media, if any, and the identity of the vendor and name of the brand of any solidification media if the media is claimed to meet stability requirements as set forth in NAC 459.8305; and

(5) The identities and activities of any radionuclides contained in the waste, the masses of U-233, U-235 and plutonium in special nuclear material and the masses of uranium and thorium in source material in the waste.

6. A licensee who ships radioactive waste shall ensure that an authorized representative certifies, by signing and dating the shipment manifest, that the materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the United States Department of Transportation and the division. By signing the certification, a waste collector certifies that the collected waste has not been tampered with in any manner that would invalidate the certification of the authorized representative of the licensee.

7. A licensee who ships radioactive waste shall provide on the required Environmental Protection Agency forms any information regarding hazardous, medical or other waste that is required to comply with Environmental Protection Agency regulations, as codified in 40 C.F.R. Parts 259, 260 and 261, inclusive, as those provisions existed on January 26, 1999. The required Environmental Protection Agency forms must accompany the uniform manifest required by this section.

8. Copies of the manifests required by this section may be legible carbon copies, photocopies or computer printouts that reproduce the data in the format of the uniform manifest. NRC Forms 540, 540A, 541, 541A, 542 and 542A and their instructions may be obtained at no charge from the Information and Records Management Branch, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (301) 415-7232.

9. As used in this section:

(a) "EPA identification number" means the number received pursuant to 40 C.F.R. Part 263, as those provisions existed on January 26, 1999.

(b) "High integrity container" means a container used to meet the structural stability requirements of NAC 459.830 and the United States Department of Transportation requirements for shipping a package that contains a type A quantity of radioactive waste.

(c) "Waste description" means the physical, chemical and radiological description of the waste that is required on NRC Form 541.

(Added to NAC by Bd. of Health by R084-98, eff. 1-26-99)

**NAC 459.8235 Procedure for transfer to land disposal facility, licensed waste collector or licensed waste processor. (NRS 459.030)**

1. Any licensee who transfers radioactive waste to a land disposal facility or to a licensed waste collector shall comply with all the requirements of this section. Any licensee who transfers waste to a licensed waste processor for processing, treatment or repackaging shall comply with the requirements of paragraphs (d) to (h), inclusive, of subsection 2.

2. A licensee shall:

(a) Prepare all wastes so that they are in compliance with the permitted classes of waste set forth in NAC 459.8265 and 459.830 and meet the requirements for stability set forth in NAC 459.8305;

(b) Label each disposal container or transport package to identify whether it contains Class A, Class B or Class C waste, as set forth in NAC 459.8265 and 459.827;

(c) Conduct a program of inspection, including managerial evaluation of audits, to ensure that the wastes conform to permitted classes and the requirements for physical form and packaging;

(d) Prepare the NRC uniform low-level radioactive waste manifest that contains the required information and certifications;

(e) Forward or electronically transfer a copy of the NRC uniform low-level radioactive waste manifest to the intended consignee so that the receipt of the manifest precedes the shipment or so that the manifest is delivered to the consignee with the waste at the time the waste is transferred to the consignee and obtain acknowledgment of receipt of the shipment by the consignee in the form of a signed copy of NRC Form 540;

(f) Include NRC Form 540 or NRC Form 540A, as applicable, with the shipment;

(g) Retain or electronically store a copy of the uniform low-level radioactive waste manifest and documentation of the acknowledgment of receipt as the required record of transfer of the licensed material; and

(h) For a shipment or part of a shipment for which an acknowledgment of its receipt has not been received within 20 days after the shipping date, conduct the investigation required pursuant to NAC 459.8255.

(Added to NAC by Bd. of Health, eff. 4-27-84; A by R084-98, 1-26-99)

**NAC 459.824 Duties of waste collector who collects and handles only prepackaged waste. (NRS 459.030)** A waste collector who collects and handles only prepackaged waste shall:

1. Acknowledge receipt of the waste from the shipper by returning a signed copy of NRC Form 540 within 1 week after receiving the waste.

2. Prepare a new shipping manifest to reflect consolidated shipments that meets the requirements of NAC 459.8231. The waste collector shall ensure that for each container of waste in the shipment NRC Form 540 identifies the generator of that container of waste.

3. Comply with the provisions of paragraphs (e) to (h), inclusive, of subsection 2 of NAC 459.8235.

4. Notify the shipper when any shipment or part of a shipment has not arrived within 60 days after receipt of an advanced manifest unless the waste collector is notified by the shipper that the shipment has been canceled.

(Added to NAC by Bd. of Health, eff. 4-27-84; A by R084-98, 1-26-99)

**NAC 459.8245 Duties of waste processor who processes, treats or repackages waste. (NRS 459.030)** A waste processor who processes, treats or repackages wastes shall:

1. Acknowledge receipt of the waste from the shipper by returning a signed copy of NRC Form 540 within 1 week after receipt of the waste.

2. Prepare a new shipping manifest which contains the required information and certificate, the preparation of which is acknowledgment that the waste processor is responsible for the waste. For each container of waste in the shipment, the manifest must set forth the waste generator, the volume of preprocessed waste and any other information required pursuant to NAC 459.8231.

3. Prepare all wastes so that the waste is classified according to NAC 459.8265 and meets the requirements of NAC 459.830 and 459.8305.

4. Label each package of waste to identify whether it is Class A, Class B or Class C waste in accordance with NAC 459.8265.

5. Conduct a program of inspection, including a managerial evaluation of audits, to ensure that the waste conforms to permitted classes and the requirements for physical form and packaging.

6. Forward or electronically transfer a copy of the uniform low-level radioactive waste manifest to the consignee so that the manifest is received before or at the same time the shipment is delivered to the consignee. The waste processor shall obtain acknowledgment of receipt in the form of a copy of NRC Form 540 signed by the consignee.

7. Include NRC Form 540 or Form 540A, as applicable, with the shipment.

8. Retain or electronically store a copy of the uniform low-level radioactive waste manifest and documentation of acknowledgment of receipt as the required record of transfer of licensed material.

9. For any shipment or part of a shipment for which an acknowledgment of its receipt has not been received within 20 days after the shipping date, conduct the investigation required by NAC 459.8255.

10. Notify the shipper when any shipment or part of a shipment has not arrived within 60 days after receipt of an advanced manifest, unless the waste processor is notified by the shipper that the shipment has been canceled.

(Added to NAC by Bd. of Health, eff. 4-27-84; A by R084-98, 1-26-99)

**NAC 459.825 Labels identifying classification of waste.** A generator of waste or broker who processes, treats or repackages waste must affix a label to each package of waste before shipment to identify it as containing Class A, Class B or Class C waste.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8255 Investigation and report if receipt not acknowledged.** Any shipment or part of a shipment of waste which is delivered by a shipper to an authorized recipient and for which acknowledgment of its receipt is not returned within 20 days after the shipping date must be:

1. Investigated by the shipper, including tracing of the shipment; and
2. Reported by the shipper to the division when the investigation is begun, and reported in writing to the division within 2 weeks after completion of the investigation.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.826 Duties of operator of land disposal facility. (NRS 459.030)** An operator of a land disposal facility shall:

1. Acknowledge receipt of the waste within 1 week after its receipt by returning a signed copy of NRC Form 540 to the shipper. The shipper to be notified is the licensee who last possessed the waste and transferred the waste to the operator. The returned copy or electronic copy of NRC Form 540 must indicate any discrepancies between materials listed on NRC Form 540 and materials received.

2. Maintain copies of all completed manifests and electronically store the information required pursuant to NAC 459.8165 until the division authorizes their disposition.

3. Notify the shipper and the division when any shipment or part of a shipment has not arrived within 60 days after receipt of an advance manifest, unless the operator of the land disposal facility is notified by the shipper that the shipment has been canceled.

4. Notify the division within 5 days after receipt of a shipment of any discrepancies between the materials listed on NRC Form 540 and the materials received.  
(Added to NAC by Bd. of Health, eff. 4-27-84; A by R084-98, 1-26-99)

### Classification of Radioactive Waste

**NAC 459.8265 Characteristics of each class.** Radioactive waste is classified according to its concentration of radionuclides and the following characteristics:

1. Class A waste is waste that meets the minimum requirements for packaging. Class A waste must be segregated from other classes of waste unless it meets the requirements for stability, in which case it does not have to be segregated.
2. Class B waste is waste that meets more rigorous requirements on form to ensure stability after disposal. Class B waste must meet the minimum requirements for physical form and packaging and for stability.
3. Class C waste is waste that not only meets more rigorous requirements on form to ensure stability but also requires additional measures at the disposal area to protect against inadvertent intrusion. Class C waste must meet the minimum requirements for physical form and packaging and for stability.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.827 Waste containing long-lived radionuclides.** If the radioactive waste contains only the long-lived radionuclides listed in Table 1, classification must be determined as follows:

TABLE 1

Radionuclide	Concentration in curies/cubic meter
C-14	8
C-14 in activated metal	80
Ni-59 in activated metal	220
Nb-94 in activated metal	0.2
Tc-99	3
I-129	0.08
Alpha emitting transuranic radionuclides with half-life greater than 5 years	100*
Pu-241	3,500*
Cm-242	20,000*

\* Units are nanocuries per gram

1. If the concentration does not exceed 0.1 times the value in Table 1, the waste is Class A;
2. If the concentration exceeds 0.1 times the value in Table 1, the waste is Class C; and
3. If the concentration exceeds the value in Table 1, the waste is not acceptable for burial at any state-owned disposal area.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8275 Waste containing short-lived radionuclides.**

1. If the radioactive waste does not contain any of the long-lived radionuclides listed in Table 1, classification must be determined based on the concentrations of short-lived radionuclides listed in Table 2. If a radionuclide is not listed in Table 2, it does not need to be considered in determining the class of the waste.

TABLE 2

Radionuclide	Concentration in curies/cubic meter		
	Column 1	Column 2	Column 3
Total of all radionuclides with less than 5-year half-life	700	**	**
H-3	40	**	**
Co-60	700	**	**
Ni-63	3.5	70	700
Ni-63 in activated metal	35	700	7000
Sr-90	0.04	150	7000
Cs-137	1	44	4600

\*\* There are no limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and the internal generation of heat on the transportation, handling and disposal of the waste will limit the concentrations for these wastes. These wastes are Class B unless the concentrations of other radionuclides in Table 2 result in the waste being Class C independently of these radionuclides.

2. If the concentration does not exceed the value in Column 1, the waste is Class A.
  3. If the concentration exceeds the value in Column 1, but does not exceed the value in Column 2, the waste is Class B.
  4. If the concentration exceeds the value in Column 2, but does not exceed the value in Column 3, the waste is Class C.
  5. If the concentration exceeds the value in Column 3, the waste is not acceptable for burial at a state-owned disposal area.
- (Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.828 Waste containing mixture of long-lived and short-lived radionuclides.** If the radioactive waste contains a mixture of long-lived and short-lived radionuclides, some of which are listed in Table 1 and some of which are listed in Table 2, classification must be determined as follows:

1. If the concentration of a radionuclide listed in Table 1 is less than 0.1 times the value listed in Table 1, the class must be determined by the concentration of radionuclides listed in Table 2; and
  2. If the concentration of a radionuclide listed in Table 1 exceeds 0.1 times the value listed in Table 1, the waste is Class C if the concentration of radionuclides listed in Table 2 does not exceed the value shown in Column 3 of Table 2.
- (Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8285 Absence of listed radionuclides.** If the radioactive waste does not contain any of the radionuclides listed in Tables 1 and 2, it is Class A.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.829 Waste containing mixture of radionuclides: Computation of classification.** If the waste contains a mixture of radionuclides, the classification must be determined by dividing each nuclide's concentration by its limit in the appropriate table and adding the resulting quotients. In computing this sum, all limits must all be taken from the same column of the same table. The sum of the fractions for the column must be less than 1.0 if the class of the waste is to be determined by that column. For example, a package of waste contains Sr-90 in a concentration of 50 Ci/m<sup>3</sup> and Cs-137 in a concentration of 22 Ci/m<sup>3</sup>. Since the

concentration of one of the nuclides exceeds the value in Column 1 of Table 2, they must be compared to the values in Column 2. The computations of the fractions are: for Sr-90,  $50/150 = 0.33$ ; for Cs-137,  $22/44 = 0.5$ . The sum of the fractions is:  $0.33 + 0.5 = 0.83$ . Since the sum is less than 1.0, the waste is Class B.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.8295 Determination of concentration of radionuclide.**

1. The concentration of a radionuclide may be determined by an indirect method such as the use of a scaling factor which relates the inferred concentration of one radionuclide to the concentration of another that is measured, or by radionuclide material accountability, if there is a reasonable assurance that the indirect method can be correlated with actual measurements.

2. The concentration of a radionuclide may be averaged over the volume of the waste, or over the weight of the waste if the concentration is expressed as nanocuries per gram.

(Added to NAC by Bd. of Health, eff. 4-27-84)

**NAC 459.830 Requirements for physical form and packaging for all classes. (NRS 459.030)**

1. The minimum requirements for physical form and packaging for all classes of waste are as follows:

(a) Radioactive wastes must be packaged in conformance with the conditions of the license issued to the operator of the disposal area to which the waste will be shipped, and if the conditions in the license for disposal are more restrictive than the provisions of NAC 459.8231 to 459.8305, inclusive, the conditions in the license must govern;

(b) Wastes must not be packaged for disposal in cardboard or fiberboard boxes;

(c) Liquid waste must be packaged in absorbent material sufficient to absorb twice the volume of the liquid;

(d) Solid waste containing a liquid must contain as little free standing, noncorrosive liquid as is reasonably achievable, but in no case may the amount of the liquid exceed 1 percent of the volume;

(e) Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures or capable of explosive reaction with water;

(f) Waste must not contain or be capable of generating quantities of toxic gases, vapors or fumes which are harmful to persons transporting, handling or disposing of the waste, except for radioactive gaseous waste which is packaged in accordance with the provisions of paragraph (h);

(g) Waste must not be pyrophoric unless the pyrophoric materials contained in the waste are treated, prepared and packaged to be nonflammable;

(h) Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at 20°C and an amount of activity that does not exceed 100 curies per container;

(i) Waste containing hazardous, biological, pathogenic or infectious material must be treated to reduce to the maximum extent practicable the potential hazard from the nonradiological materials; and

(j) Waste containing radium 226 must be in the form of a sealed source and packaged in a specification 2 R inside containment vessel or its equivalent before it can be accepted for disposal at the state-owned disposal area.

2. As used in this section, "pyrophoric" means capable of spontaneous ignition and includes any:

(a) Liquid that ignites spontaneously in dry or moist air at or below 130°F (54.5°C).

(b) Solid material, other than one classed as an explosive, which under normal conditions may cause a fire through friction or heat retained from manufacturing or processing, or which can be readily ignited and when ignited burns so vigorously and persistently as to create a serious hazard to persons or property while being transported, handled or disposed of. Pyrophoric solid materials include spontaneously combustible and water-reactive materials.

(Added to NAC by Bd. of Health, eff. 4-27-84; A 6-23-86; R084-98, 1-26-99)

**NAC 459.8305 Minimum requirements for stability of wastes.** The minimum requirements for the stability of wastes are as follows:

1. Waste must have structural stability and generally maintain its physical dimensions and its form under the expected conditions of disposal and its internal factors such as the effects of radiation and chemical changes. Structural stability may be provided by the form of the waste, the processing of the waste to a stable form or by placing the waste in a container for disposal or other structure that provides stability after disposal.

2. Liquid wastes or waste containing liquid must be converted into a form that contains as little free standing and noncorrosive liquid as is reasonably achievable, but in no case may the liquid exceed 1 percent of the volume of the waste if the waste is in a container for disposal which is designed to ensure stability, or 0.5 percent of the volume of the waste if the waste is processed to a stable form.

3. Any space within the waste or between the waste and its package must be reduced to the extent practicable.

(Added to NAC by Bd. of Health, eff. 4-27-84)

### **Disposal of Waste in State-Owned Area**

**NAC 459.850 Definitions.** As used in NAC 459.850 to 459.950, inclusive, unless the context otherwise requires:

1. "Authorized inspector" means the division or a third party designated by the division to inspect the program of an applicant or licensee for packaging and transporting low-level radioactive waste.

2. "Broker" means any person other than a common or contract carrier who collects or receives radioactive waste from a producer of radioactive waste and who charges for the service of disposing of the waste at the state-owned disposal area or who takes responsibility for packaging radioactive waste or labeling containers in conformance with applicable regulations as a service to the producer of the waste.

[Bd. of Health, Disposal of Radioactive Waste Reg. §§ 1.1-1.3, eff. 8-21-81]—(NAC A 4-24-86; 6-23-86)

**NAC 459.860 Severability.** If any of the provisions of NAC 459.850 to 459.950, inclusive, or any application thereof to any person, thing, or circumstance is held invalid, it is intended that such invalidity not affect the remaining provisions, or their application, that can be given effect without the invalid provision or application.

[Bd. of Health, Disposal of Radioactive Waste Reg. § 8.1, eff. 8-21-81]

### **NAC 459.865 License required; license a revocable privilege.**

1. Any shipper or producer of radioactive waste or any broker receiving such waste from another person for the purpose of disposal who desires to dispose of that waste at the state-owned disposal area near Beatty, Nevada, must obtain a license from the health division of the department of human resources before shipping the waste to the disposal area.

2. The issuance of a license pursuant to NAC 459.850 to 459.950, inclusive, is merely evidence of a revocable privilege and does not expressly or impliedly create a property right or interest in the license.

[Bd. of Health, Disposal of Radioactive Waste Reg. § 2.1, eff. 8-21-81]

### **NAC 459.870 Application for license.** To obtain a license, a person must:

1. Submit a written application to the division on a form furnished by the division, and provide the information requested on the form and any other information requested by the division.

2. Permit an audit and inspection of his program for radioactive waste to be conducted by an authorized inspector at the site where the waste is generated or a broker holds it awaiting shipment, unless the applicant has a record of satisfactory compliance with the regulations of the United States Department of Transportation, as determined by the division.

3. Agree to allow unannounced inspections of the site by an authorized inspector, unless the applicant has a record of satisfactory compliance with the regulations of the United States Department of Transportation, as determined by the division.

4. Enter into an agreement with the State of Nevada to hold it and the division harmless from any loss or expense which may arise from liability or consequential damage caused by the licensee's shipment of radioactive waste from its place of origin to the state-owned disposal area. The division may waive this requirement if the licensee is not permitted by state or federal law to enter into such an agreement.

5. Agree to comply with all federal and state regulations relating to the transportation and packaging of radioactive waste and the conditions of the license issued to the operator of the state-owned disposal area.

6. Pay in advance the fee established for the license.

[Bd. of Health, Disposal of Radioactive Waste Reg. §§ 2.2-2.2.7, eff. 8-21-81]—(NAC A 6-23-86)

**NAC 459.875 Audit and inspection prerequisite to licensing.** To obtain qualification of his program for packaging radioactive waste, an applicant for a license must submit to the authorized inspector a request to have an audit and inspection of the program. No license may be issued until an audit and inspection has been completed.

[Bd. of Health, Disposal of Radioactive Waste Reg. § 2.6, eff. 8-21-81]

**NAC 459.885 Suspension of license.**

1. If any licensee ships radioactive waste to the state-owned disposal area in violation of NAC 459.910, the health division may suspend his license for up to 1 year:

(a) After giving him prior notice; and

(b) After a representative of the division has conducted an inspection of the licensee's radioactive waste at the disposal area or an authorized inspector has conducted an inspection at the site of the licensee's program for packaging the radioactive waste.

2. During the period of such a suspension, all radioactive waste packaged for shipment by the licensee must be inspected by an authorized inspector before shipment of the waste to the state-owned disposal area. If the licensee violates any provision of NAC 459.910 while his license is suspended, an additional period of suspension may be added to the existing period of suspension for each such violation.

3. The health division may, without giving prior notice to the licensee and as an emergency measure, suspend his license for a violation of NAC 459.850 to 459.950, inclusive, if it is determined by an inspection that the violation created or may have created a potential hazard to public health or safety.

4. During a period of suspension, the licensee shall attach to the shipping document which accompanies each shipment to the state-owned disposal area, an inspection report showing that an inspection of the shipment has been completed by an authorized inspector.

5. The health division may suspend or revoke a license if the licensee fails to pay a required fee within 30 days after the date of billing.

[Bd. of Health, Disposal of Radioactive Waste Reg. §§ 3.1-3.4, eff. 8-21-81]

**NAC 459.890 Reinstatement of license.**

1. The health division may reinstate a suspended license before a period of suspension has ended if:

(a) The licensee's packaging program for radioactive waste and the qualifications of the personnel engaged in that program have been reexamined by the authorized inspector;

- (b) The program and qualifications are determined by the health division to be adequate; and
- (c) The licensee has paid any penalties which have been imposed.

2. A licensee shall include with his first shipment under a reinstated license a document which states that the period of its suspension has ended.

[Bd. of Health, Disposal of Radioactive Waste Reg. §§ 5.1-5.2, eff. 8-21-81]

**NAC 459.900 Compliance with federal, state regulations.**

1. If any agency of the Federal Government is subject to a federal statute or regulation which precludes its compliance with any aspect of NAC 459.850 to 459.950, inclusive, the agency may enter into separate arrangements with the health division for disposal of radioactive waste in the state-owned disposal area if the agency gives assurances, satisfactory to the division, that its shipments of radioactive waste to the area will be in compliance with all applicable provisions of federal law and the provisions of state law concerning burial of the waste at the area.

2. Radioactive waste being shipped to the state-owned disposal area must remain packaged in compliance with applicable federal regulations and NAC 459.850 to 459.950, inclusive, until the waste is received at the disposal area for burial. The radioactive waste must be in such a physical condition and be so packaged that the operator of the disposal area is able to dispose of the waste without violating any condition of his license to operate the area.

[Bd. of Health, Disposal of Radioactive Waste Reg. §§ 2.3 & 2.4, eff. 8-21-81]

**NAC 459.910 Duties of licensee. A licensee:**

1. Shall carry out his own written program for ensuring the quality of the packaging of the radioactive waste and radioactive material.

2. Shall package the radioactive waste and radioactive material in accordance with:

(a) The regulations of the Secretary of Transportation concerning the transportation of hazardous materials, in 49 C.F.R. Parts 171 to 177, inclusive, revised as of October 1, 1987. The board hereby incorporates those regulations by reference. Those regulations are contained in one volume of the Code of Federal Regulations and may be obtained from the Government Printing Office, Washington, D.C. 20402, at a price of \$25.

(b) The regulations of the Nuclear Regulatory Commission concerning the packaging and transport of radioactive material in 10 C.F.R. Part 71 revised as of March 31, 1987. The state board of health hereby incorporates those regulations by reference. Those regulations may be obtained from the Government Printing Office, Washington, D.C. 20402, at a price of \$1.44.

3. May ship only solid radioactive waste to the state-owned disposal area. Any liquid radioactive waste must, before shipment, be solidified by a method, other than by using urea formaldehyde, which will ensure that there will not be any liquid in the shipping containers upon their arrival at the disposal area.

4. Shall not ship solid waste contaminated with radium 226 to the state-owned disposal area.

[Bd. of Health, Disposal of Radioactive Waste Reg. §§ 2.5-2.5.3.1, eff. 8-21-81]—(NAC A 4-27-84; 6-23-86; 9-6-88)

**NAC 459.920 Additional inspections.** During each year a licensee shall allow at least four unannounced inspections of the site of his program for packaging radioactive waste, in addition to any inspections which may be required as a result of his noncompliance with NAC 459.850 to 459.950, inclusive.

[Bd. of Health, Disposal of Radioactive Waste Reg. § 4.1, eff. 8-21-81]

**NAC 459.940 Fees.**

1. A person who holds a license to use the state-owned disposal area may be assessed a fee on a prorated basis for the remaining effective period of a license.

2. The health division may suspend or revoke the license of the person who operates the state-owned area for disposal of radioactive waste if he fails to pay the required fee within 30 days after the date of billing.

3. Fees collected by the health division pursuant to chapter 459 of NRS are not refundable.  
[Bd. of Health, Disposal of Radioactive Waste Reg. §§ 6.1-6.3, eff. 8-21-81]

**NAC 459.943 Burial at state-owned disposal area; restrictions.** An operator of a disposal area shall bury at the state-owned disposal area not more than 200,000 cubic feet of waste in any year and not more than a total of 1,400,000 cubic feet of waste during the 7-year period beginning January 1, 1986, and ending December 31, 1992, unless written authorization to bury additional waste has been obtained from the division.

(Added to NAC by Bd. of Health, eff. 6-23-86)

**NAC 459.945 Surcharge for waste generated in state not party to compact.**

1. Any person who ships waste generated in a state not a party to the Rocky Mountain Low-Level Radioactive Waste Compact to the state-owned disposal area shall pay to the division a surcharge as follows:

(a) From March 9, 1987, to December 31, 1987, inclusive, \$10 per cubic foot of waste.

(b) From January 1, 1988, to December 31, 1989, inclusive, \$20 per cubic foot of waste.

(c) From January 1, 1990, to December 31, 1992, inclusive, \$40 per cubic foot of waste.

2. The division may impose a surcharge in an amount not to exceed the maximum allowed by the Low-Level Radioactive Waste Policy Amendments Acts of 1985, Public Law 99-240, as it existed on March 9, 1987.

3. The surcharges imposed by this section must be received by the business office of the division in Carson City, Nevada, on or before the eighth calendar day of the month following the month in which the waste was delivered to the disposal area.

4. The division may initiate disciplinary proceedings against a person who ships waste to the disposal area if the person does not pay the surcharges required by subsections 1 and 2 in the manner required by subsection 3. The administrative penalties may include the denial of future access to the disposal area and the recovery of any attorney's fees or costs necessary to collect the surcharges.

(Added to NAC by Bd. of Health, eff. 4-24-86; A 3-9-87; 8-31-89)

**NAC 459.947 Periodic determination of whether disposal charges are reasonable.**

1. The division will, at least once every 2 years during the first calendar quarter of each even-numbered year, compare the disposal charges for the burial of waste at all existing commercial waste disposal areas in the United States.

2. If the disposal charges at the state-owned disposal area do not exceed the average of the disposal charges of the existing commercial waste disposal areas in the United States by more than 10 percent, the division will:

(a) Find that the disposal charges for the state-owned disposal site are reasonable; and

(b) Submit the results of the comparison of disposal charges to the Rocky Mountain low-level radioactive waste board for review and approval, as may be required by law.

3. If the disposal charges at the state-owned disposal area exceed the average of the disposal charges at the existing commercial waste disposal areas in the United States by more than 10 percent, the division will:

(a) Conduct a public hearing to receive evidence and testimony concerning the reasonableness of the disposal charges;

(b) Review the financial records of the operator of the state-owned disposal area concerning the operation of the disposal area and any of its related operations;

(c) Make a finding concerning the reasonableness of the disposal charges based on the record of the public hearing;

(d) If the division finds that the charges are not reasonable, order the operator of the state-owned disposal area to reduce the disposal charges so that they do not exceed by more than 10 percent the average of the disposal charges of the existing commercial waste disposal areas in the United States; and

(e) Submit a copy of the record of the public hearing, the findings of the division and any order issued by it to the Rocky Mountain low-level radioactive waste board for review and approval.

(Added to NAC by Bd. of Health, eff. 2-18-88)

**NAC 459.948 Determination of whether proposed increase in disposal charges is reasonable.**

1. The operator of the state-owned disposal area shall submit to the division, in writing, any proposed increase in disposal charges at least 45 days before the proposed increase becomes effective.

2. The division will determine whether the proposed increase in disposal charges exceeds the average disposal charges of the existing commercial waste disposal areas in the United States by more than 10 percent.

3. If the proposed increase exceeds the average disposal charges at those existing disposal areas by more than 10 percent, the division will follow the procedure prescribed in subsection 3 of NAC 459.947.

(Added to NAC by Bd. of Health, eff. 2-18-88)

**NAC 459.950 Penalties.**

1. The administrative penalties in subsection 3 of NRS 459.221 are in addition to suspension of a permit which may be imposed pursuant to that subsection.

2. The person licensed to operate the state-owned area for disposal of radioactive waste may be assessed administrative penalties by the health division of not more than \$3,000 per day for each separate failure to comply with an agreement, license, regulation or statute governing the operation of the disposal area.

[Bd. of Health, Disposal of Radioactive Waste Reg. §§ 7.1 & 7.2, eff. 8-21-81]

## **REGULATION OF HIGHLY HAZARDOUS SUBSTANCES**

### **General Requirements**

**NAC 459.952 Definitions. (NRS 459.3818, 459.3833)** As used in NAC 459.952 to 459.95528, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.95211 to 459.95314, inclusive, have the meanings ascribed to them in those sections.

(Added to NAC by Div. of Environmental Protec., eff. 7-10-92; A by Environmental Comm'n by R121-98, 5-27-99)

**NAC 459.95211 "Accidental release" defined. (NRS 459.3818, 459.3833)** "Accidental release" means:

1. An unintentional discharge from a facility of any amount of a tier A or tier B substance into the air, water or land; or

2. A fire or an explosion at a facility involving a tier A or tier B substance.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95213 "Active mitigation" defined. (NRS 459.3818, 459.3833)** "Active mitigation" means equipment, devices or technologies that work with human, mechanical or other sources of energy, and function to contain or minimize the consequences of an accidental release.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95215 "Administrative controls" defined. (NRS 459.3818, 459.3833)** "Administrative controls" means written procedural mechanisms that are used to control a hazard.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95217 "Assessment report" defined. (NRS 459.3818, 459.3833)** "Assessment report" means the document submitted to the division pursuant to NAC 459.95448 to 459.95468, inclusive.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.9522 "Assessment team" defined.** "Assessment team" means a person or persons designated by the regulated facility pursuant to NRS 459.384 and approved by the division pursuant to NRS 459.3844 to perform an assessment of risk through the analysis of hazards for the regulated facility.

(Added to NAC by Div. of Environmental Protec., eff. 7-10-92)

**NAC 459.95225 "C.A.P.P." defined. (NRS 459.3818, 459.3833)** "C.A.P.P." means the chemical accident prevention program for the State of Nevada and encompasses the provisions of NRS 459.380 to 459.3874, inclusive, and NAC 459.952 to 459.95528, inclusive.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.9523 "C.A.S." defined. (NRS 459.3818, 459.3833)** "C.A.S." means the Chemical Abstracts Service.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95235 "Catastrophic release" defined. (NRS 459.3818, 459.3833)** "Catastrophic release" means a major uncontrolled emission, fire or explosion, involving one or more regulated substances, that presents imminent and substantial endangerment to public health and the environment.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.9524 "Division" defined.** "Division" means the division of environmental protection of the state department of conservation and natural resources.

(Added to NAC by Div. of Environmental Protec., eff. 7-10-92)

**NAC 459.95242 "Emergency response program" defined. (NRS 459.3818, 459.3833)** "Emergency response program" is a plan that is developed pursuant to NAC 459.9544 and 459.95442 to respond to emergencies, including, without limitation, an accidental release of a tier A or tier B substance.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95244 "Endpoint" defined. (NRS 459.3818, 459.3833)** "Endpoint" means the toxic concentration, ambient overpressure, radiant heat level or lowest flammable gas concentration achieved at the outer geographical boundary of the off-site consequence analysis.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95246 "Environmental receptor" defined. (NRS 459.3818, 459.3833)** "Environmental receptor" means:

1. A national or state park, forest or monument;
2. An officially designated wildlife sanctuary, preserve, refuge or area; or

3. A federal wilderness area, which can be identified on a local map prepared by the United States Geological Survey and which could be exposed to toxic concentrations, radiant heat or overpressure greater than or equal to the endpoints set forth in NAC 459.95364 as a result of an accidental release.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95248 "Facility" defined. (NRS 459.3818, 459.3833)** "Facility" means:

1. A stationary source as defined in NAC 459.95293; or
2. A regulated facility as defined in NRS 459.381.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.9525 "Field gas" defined. (NRS 459.3818, 459.3833)** "Field gas" means gas that is extracted from a production well before the gas enters a natural gas processing plant.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95252 "Hazard assessment" defined. (NRS 459.3818, 459.3833)** "Hazard assessment" means an evaluation of the potential on-site and off-site consequences of an accidental release and the accident history of a facility that an owner or operator develops pursuant to NAC 459.95362 to 459.95378, inclusive.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95254 "Hazard review" defined. (NRS 459.3818, 459.3833)** "Hazard review" means the review that is conducted pursuant to NAC 459.95388.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95256 "Hot work" defined. (NRS 459.3818, 459.3833)** "Hot work" means work involving electric or gas welding, cutting, brazing, or similar flame-producing or spark-producing operations.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95258 "Injury" defined. (NRS 459.3818, 459.3833)** "Injury" means an effect on a human being that:

1. Results from:
  - (a) Direct exposure to toxic concentrations, radiant heat or overpressures from an accidental release; or
  - (b) The direct consequences of a vapor cloud explosion from an accidental release, such as flying glass, debris or other projectiles; and
2. Requires medical treatment or hospitalization.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95261 "Major change" defined. (NRS 459.3818, 459.3833)** "Major change" means the introduction of:

1. A new process, new process equipment, or a new tier A or tier B substance; or
2. An alteration of process chemistry that results in a change to safe operating limits or introduces a new hazard.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95263 "Medical treatment" defined. (NRS 459.3818, 459.3833)** "Medical treatment" means treatment, other than first aid, that is administered by a physician or other personnel pursuant to standing orders from a physician.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95265 "Mitigation" and "mitigation system" defined. (NRS 459.3818, 459.3833)** "Mitigation" or "mitigation system" means activities, technologies or equipment specifically designed or deployed to capture or control a substance upon loss of containment in order to minimize exposure of the public or the environment.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95267 "N.A.I.C.S." defined. (NRS 459.3818, 459.3833)** "N.A.I.C.S." means the North American Industry Classification System.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95269 "Natural gas processing plant" defined. (NRS 459.3818, 459.3833)** "Natural gas processing plant" means a processing site that:

1. Is engaged in:

- (a) The extraction of natural gas liquids from field gas;
- (b) The fractionation of mixed natural gas liquids to natural gas products; or
- (c) Both extraction and fractionation; and

2. Is classified as N.A.I.C.S. code 211112, which is adopted by reference pursuant to NAC 459.95528.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95271 "N.F.P.A." defined. (NRS 459.3818, 459.3833)** "N.F.P.A." means the National Fire Protection Association.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95273 "Off-site" defined. (NRS 459.3818, 459.3833)** "Off-site" means an area:

1. Beyond the property boundary of the facility; and
2. Within the property boundary to which the public has routine and unrestricted access during or outside business hours.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95275 "Owner or operator" defined. (NRS 459.3818, 459.3833)** "Owner or operator" means the person who is responsible for the implementation of C.A.P.P.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95277 "Passive mitigation" defined. (NRS 459.3818, 459.3833)** "Passive mitigation" means equipment, devices or technologies that work without human, mechanical or other sources of energy, and function to contain or minimize the consequences of an accidental release.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95279 "Prevention program" defined. (NRS 459.3818, 459.3833)** "Prevention program" means procedures and practices that are developed and implemented pursuant to NAC 459.95386 to 459.95398, inclusive, or NAC 459.95412 to 459.95435, inclusive, to:

1. Prevent the accidental release of a tier A or tier B substance;
2. Minimize the likelihood of an accidental release; or
3. Mitigate the impacts of an accidental release.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95281 "Process" defined. (NRS 459.3818, 459.3833)** "Process" means an activity that involves a tier A or tier B substance, including, without limitation, the use, storage, manufacturing, handling or on-site movement of such a substance or a combination of such activities. The term includes a group of vessels that is interconnected or a group of separate vessels that is located in such a manner that a tier A or tier B substance could be involved in a potential release.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95283 "Process hazard analysis" defined. (NRS 459.3818, 459.3833)** "Process hazard analysis" means the analysis performed pursuant to NAC 459.95414.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95285 "Produced water" defined. (NRS 459.3818, 459.3833)** "Produced water" means water that is:

1. Extracted from the earth from an oil or natural gas production well; or
2. Separated from oil or natural gas after extraction.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95287 "P.T.A.H." defined. (NRS 459.3818, 459.3833)** "P.T.A.H." means the plan to abate hazards that is submitted pursuant to subsection 3 of NRS 459.3852 and NAC 459.95452.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95289 "Public" defined. (NRS 459.3818, 459.3833)** "Public" means one or more natural persons other than employees or contractors of a facility.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95291 "Public receptor" defined. (NRS 459.3818, 459.3833)** "Public receptor" means an off-site:

1. Residence;
2. Institution such as a school or hospital;
3. Industrial, commercial or office building; or
4. Park or recreational area,

that is inhabited or occupied by the public without restriction by the facility, in which the public could be exposed as a result of an accidental release to toxic concentrations, radiant heat or overpressure.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95293 "Stationary source" defined. (NRS 459.3818, 459.3833)**

1. "Stationary source" means buildings, structures, equipment, installations or substances that participate in activities:

- (a) Which belong to the same industrial group;
- (b) Which are located on one or more contiguous properties;
- (c) Which are under the control of the same person; and
- (d) From which an accidental release may occur.

Properties are not contiguous for purposes of this subsection solely because of a railroad or gas pipeline right of way.

2. The term includes, without limitation, transportation containers that are:

- (a) No longer under active shipping papers; and
- (b) Connected to equipment described in subsection 1 for temporary storage, loading or unloading.

3. The term does not include transportation of, or storage incident to transportation of, a tier A or tier B substance or other extremely hazardous substance pursuant to the provisions of C.A.P.P., if such transportation is regulated pursuant to 49 C.F.R. Part 192, 193 or 195.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95295 "Substance" defined. (NRS 459.3818, 459.3833)** "Substance" means a chemical that is listed in the table in NAC 459.9533.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95297 "Threshold quantity" defined. (NRS 459.3818, 459.3833)** "Threshold quantity" means the quantity specified in the table in NAC 459.9533 for tier A or tier B substances.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95299 "Tier A substance" defined. (NRS 459.3818, 459.3833)** "Tier A substance" means a substance for which an accident prevention program is required pursuant to subparagraph (1) of paragraph (b) of subsection 1 of NRS 459.3813.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.9531 "Tier B substance" defined. (NRS 459.3818, 459.3833)** "Tier B substance" means a substance for which an accident prevention program is required pursuant to NRS 459.3833.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95312 "Vessel" defined. (NRS 459.3818, 459.3833)** "Vessel" means a reactor, tank, drum, barrel, cylinder, vat, kettle, boiler, pipe, hose or other container.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95314 "Worst-case release" defined. (NRS 459.3818, 459.3833)** "Worst-case release" means the release of the largest quantity of a tier A or tier B substance from a failure of a vessel or process line that results in the greatest distance to an endpoint defined in NAC 459.95364.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### Applicability

**NAC 459.95321 Determination of program tier. (NRS 459.3818, 459.3833)** The owner or operator shall, pursuant to NAC 459.95321 to 459.9533, inclusive, determine for each process within the boundary of his facility whether the process is subject to the tier A program or tier B program, or both.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

#### **NAC 459.95323 Tier A program. (NRS 459.3818)**

1. Except as otherwise provided in NAC 459.95486, a process is subject to the tier A program if the process is not exempted pursuant to NRS 459.3814 and a substance is present within the contiguous boundary of the facility in a quantity:

(a) Equal to or greater than the amount listed in the table in NAC 459.9533 under the column labeled "Tier A Threshold Quantity"; or

(b) Less than the amount listed in the table in NAC 459.9533 under the column labeled "Tier A Threshold Quantity" if there are two or more releases of one or more tier A substances from the facility during a 12-month period and the quantity for each release is in excess of the amount listed in the table in NAC 459.9533 for the substance under the column labeled "Two Release Quantity."

2. If the table in NAC 459.9533 under the column labeled "Tier A Threshold Quantity" is blank, the tier A program does not apply to that substance.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95325 Tier B program. (NRS 459.3818, 459.3833)**

1. A process is subject to the tier B program if:

(a) The process is not exempted pursuant to subsection 1 of NRS 459.3814; and

(b) A substance is present in a quantity equal to or greater than the amount listed in the table in NAC 459.9533 under the column labeled "Tier B Threshold Quantity." If the table in NAC 459.9533 under the column labeled "Tier B Threshold Quantity" is blank, the tier B program does not apply to that substance.

2. The following substances need not be considered when determining whether more than a threshold quantity is present at a facility:

(a) A tier B toxic substance, if the concentration of the substance in a mixture is less than 1 percent by weight of the mixture. Except for oleum, toluene 2, 4-diisocyanate, toluene 2, 6-diisocyanate and toluene diisocyanate (unspecified isomer), if the concentration of the toxic substance in the mixture is 1 percent or greater by weight of the mixture and the owner or operator demonstrates in writing that the partial pressure of the regulated substance in the mixture under handling or storage conditions in any portion of the process is less than 10 millimeters of mercury, the amount of the substance in the mixture in that portion of the process need not be considered when determining whether more than a threshold quantity is present at the stationary source. A toxic substance is designated "T" in the table in NAC 459.9533 under the column labeled "Tox (T), Flam (F) or Expl (E)."

(b) Except as otherwise provided in paragraphs (c) and (d), a tier B flammable substance, if the concentration of the substance in a mixture is less than 1 percent by weight of the mixture or the concentration of the tier B flammable substance in the mixture is 1 percent or greater by weight of the mixture and the owner or operator demonstrates in writing that the mixture does not have a flammability hazard rating of 4 as described in N.F.P.A. 704, the Standard System for the Identification of the Hazards of Materials for Emergency Response of the N.F.P.A., which is adopted by reference pursuant to NAC 459.95528. If the concentration of the tier B flammable substance in the mixture is 1 percent or greater by weight of the mixture and the owner or operator does not demonstrate that the mixture does not have a flammability hazard rating of 4, the entire weight of the mixture must be treated as the tier B flammable substance to determine whether a threshold quantity is present at the facility. Boiling and flash point must be defined and determined pursuant to N.F.P.A. 30, the 1996 version of the Flammable and Combustible Liquids Code of the N.F.P.A., which is adopted by reference pursuant to NAC 459.95528. A flammable substance is designated "F" in the table in NAC 459.9533 under the column labeled "Tox (T), Flam (F) or Expl (E)."

(c) Gasoline, if it is distributed or stored for use as fuel for an internal combustion engine.

(d) A naturally occurring hydrocarbon mixture before such a mixture has entered into a natural gas processing plant or a petroleum refining process unit. A naturally occurring hydrocarbon mixture includes any combination of condensate, crude oil, field gas and produced water.

(e) A tier B substance that is contained in an article.

(f) A tier B substance when it is being used:

- (1) As a structural component of the facility;
- (2) With products for routine janitorial maintenance;
- (3) By employees in foods, drugs, cosmetics or other personal items;
- (4) In process water or noncontact cooling water drawn from the environment or municipal sources; or
- (5) In air as compressed air or as part of combustion.

(g) A tier B substance that is manufactured, processed or used in a laboratory at a facility under the supervision of a technically qualified individual as defined in 40 C.F.R. § 720.3(ee). This exemption does not apply to:

- (1) Specialty chemical production;
- (2) Manufacture, processing or use of a tier B substance in pilot plant scale operations; or
- (3) Activities conducted outside of the laboratory.
- (h) Ammonia, when it is held by farmers and used as an agricultural nutrient.
- (i) Propane, if the process is subject to tier B program level 1 or 2 pursuant to NAC 459.95327.

3. As used in this section:

(a) "Article" means a manufactured item, as defined in 29 C.F.R. § 1910.1200(c), that:

- (1) Is formed to a specific shape or design during manufacture;
- (2) Has end-use functions dependent in whole or in part upon the shape or design during end use; and
- (3) Does not release or otherwise result in exposure to a tier A or tier B substance under normal conditions of processing and use.

(b) "Condensate" means hydrocarbon liquid separated from natural gas that condenses because of changes in temperature or pressure, or both, and remains liquid at standard conditions.

(c) "Crude oil" means a naturally occurring, unrefined petroleum liquid.

(d) "Petroleum refining process" means a process that:

(1) Is used in an establishment which is primarily engaged in petroleum refining as defined in N.A.I.C.S. code 32411, which is adopted by reference pursuant to NAC 459.95528; and

(2) Is used to:

(I) Produce:

- (i) A transportation fuel such as gasoline, diesel fuel or jet fuel;
- (ii) A heating fuel such as kerosene, fuel gas distillate or fuel oil; or
- (iii) A lubricant;

(II) Separate petroleum; or

(III) Separate, crack, react or reform an intermediate petroleum stream.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95327 Determination of program level for tier B program. (NRS 459.3818, 459.3833)**

1. If an owner or operator determines pursuant to NAC 459.95325 that a process is subject to the tier B program, he shall determine the program level for the process pursuant to subsections 2, 3 and 4.

2. A process is subject to program level 1 if:

(a) During the 5 years immediately preceding the submission of an assessment report, the process has not had an accidental release of a tier B substance pursuant to which exposure to:

- (1) The substance;
- (2) A reaction product of the substance;
- (3) Overpressure generated by an explosion involving the substance; or
- (4) Radiant heat generated by a fire involving the substance,

resulted in the death of or injury to a person who was located on-site or off-site or in a restoration activity to an environmental receptor;

(b) The distance to a toxic or flammable endpoint for a worst-case release assessment conducted pursuant to NAC 459.95366 is less than the distance to any public receptor;

(c) Emergency response procedures have been coordinated between the facility and local emergency planning and response organizations; and

(d) The process is not subject to the tier A program.

3. A process is subject to program level 2 if the process is subject to the tier B program and is not subject to program level 1 or 3.

4. A process is subject to program level 3 if the process is not subject to program level 1 and:

(a) The process is listed in N.A.I.C.S. code 32211, 32411, 32511, 325181, 325188, 325192, 325199, 325211, 325311 or 32532, which are adopted by reference pursuant to NAC 459.95528; or

(b) The process is subject to the process safety management standard set forth in 29 C.F.R. § 1910.119.

5. If a process that involves a tier B substance is no longer required to satisfy the requirements of a particular program level, the owner or operator shall ensure that the process satisfies the requirements of the new program level.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### **Table of Substances**

**NAC 459.9533 Tabulated values for tier A threshold quantity, tier B threshold quantity, two release quantity and toxic endpoints. (NRS 459.3818, 459.3833)**

1. Substances that are designated in the table in this section as having a tier A threshold quantity include, without limitation, the substances that are listed in NRS 459.3816.

2. Substances that are designated in the table in this section as having a tier B threshold quantity include, without limitation, the substances that are listed in 40 C.F.R. § 68.130.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Acetaldehyde			75-07-0	2,500	10,000	1,000	1	F	
Acetylene	Ethyne		74-86-2		10,000			F	
Acrolein	2-Propenol		107-02-8	150	5,000	1	1 & 2	T	0.0011
Acrylonitrile	2-Propenenitrile		107-13-1		20,000			T	0.076
Acrylyl chloride	2-Propenoyl chloride		814-68-6	250	5,000	100	2	T	0.00090
Alkylaluminums				5,000		50*	3		
Allyl alcohol	2-Propen-1-ol		107-18-6		15,000			T	0.036
Allyl chloride			107-05-1	1,000		100	3		
Allylamine	2-Propen-1-amine		107-11-9	1,500	10,000	500	2	T	0.0032
Ammonia	Anhydrous Ammonia	Anhydrous	7664-41-7	5,000	10,000	100	1 & 2	T	0.14
Ammonia	Ammonia solution	20wt% or greater	7664-41-7		20,000			T	0.14
Ammonia	Ammonia solution	44wt% or greater	7664-41-7	10,000		100	3		
Ammonium perchlorate			7790-98-9	7,500		75*	3		
Ammonium permanganate			7787-36-2	7,500		75*	3		
Arsenous trichloride			7784-34-1		15,000			T	0.010
Arsine	Arsenic Hydride		7784-42-1	100	1,000	10	3	T	0.0019
bis(Chloromethyl) Ether	Chloromethyl Ether		542-88-1	100	1,000	10	1 & 2	T	0.00025
Boron trichloride			10294-34-5	2,500	5,000	100	3	T	0.010

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Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Boron trifluoride			7637-07-2	250	5,000	25	3	T	0.028
Boron trifluoride w/Methyl Ether		1:1 ratio	353-42-4		15,000			T	0.023
Bromine			7726-95-6	1,500	10,000	500	2	T	0.0065
Bromine chloride			13863-41-7	1,500		10	3		
Bromine pentafluoride			7789-30-2	2,500		100	3		
Bromine trifluoride			7787-71-5	15,000		100	3		
Bromotrifluorethylene			598-73-2		10,000			F	
1,3-Butadiene			106-99-0		10,000			F	
Butane			106-97-8		10,000			F	
1-Butene			106-98-9		10,000			F	
2-Butene			107-01-7		10,000			F	
Butene			25167-67-3		10,000			F	
2-Butene-cis			590-18-1		10,000			F	
2-Butene-trans	[2-Butene, (E)]		624-64-6		10,000			F	
Butyl hydroperoxide (Tertiary)			75-91-2	5,000		50*	3		
Butyl perbenzoate (Tertiary)			614-45-9	7,500		75*	3		
Carbon disulfide			75-15-0		20,000			T	0.16
Carbon oxysulfide	Carbon Oxide Sulfide		463-58-1		10,000			F	

1-00

1-00

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Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Carbonyl fluoride			353-50-4	2,500		10	3		
Cellulose nitrate		12.6% nitrogen or greater	9004-70-0	2,500		25*	3		
Chlorine			7782-50-5	1,500	2,500	10	1 & 2	T	0.0087
Chlorine dioxide			10049-04-4	1,000	1,000	100	3	T	0.0028
Chlorine monoxide			7791-21-1		10,000			F	
Chlorine pentafluoride			13637-63-3	1,000		10	3		
Chlorine trifluoride			7790-91-2	1,000		100	3		
Chlorodiethylaluminum	Diethylaluminum Chloride		96-10-6	5,000		50*	3		
1-Chloro-2,4-Dinitrobenzene			97-00-7	5,000		50*	3		
Chloroform			67-66-3		20,000			T	0.49
Chloromethyl methyl ether			107-30-2	500	5,000	10	1 & 2	T	0.0018
Chloropicrin			76-06-2	500		50	3		
Chloropicrin/Methylbromide mix				1,500		500	3		
Chloropicrin/Methylchloride mix				1,500		500	3		
1-Chloropropylene			590-21-6		10,000			F	
2-Chloropropylene			557-98-2		10,000			F	
Crotonaldehyde	2-Butenal		4170-30-3		20,000			T	0.029

Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Crotonaldehyde, (E)-	2-Butenal, (E)-		123-73-9		20,000			T	0.029
Cumene Hydroperoxide			80-15-9	5,000		10	1		
Cyanogen	Ethanedinitrile		460-19-5	2,500	10,000	100	1	F	
Cyanogen chloride			506-77-4	500	10,000	10	1	T	0.030
Cyanuric fluoride			675-14-9	100		10	3		
Cyclohexylamine	Cyclohexanimine		108-91-8		15,000			T	0.16
Cyclopropane			75-19-4		10,000			F	
Diacetyl peroxide		70% or greater	110-22-5	5,000		50*	3		
Diazomethane			334-88-3	500		10	3		
Dibenzoyl peroxide			94-36-0	7,500		75*	3		
Diborane			19287-45-7	100	2,500	10	3	T	0.0011
Dibutyl peroxide (tertiary)			110-05-4	5,000		50*	3		
Dichloro acetylene			7572-29-4	250		10	3		
Dichlorosilane			4109-96-0	2,500	10,000	100	3	F	
Diethylzinc			557-20-0	10,000		100*	3		
Diffluoroethane			75-37-6		10,000			F	
Diisopropyl peroxydicarbonate			105-64-6	7,500		75*	3		
Dilauroyl peroxide			105-74-8	7,500		75*	3		
Dimethyl sulfide			75-18-3	100		10	3		

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1-00

Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Dimethylamine (anhydrous)			124-40-3	2,500	10,000	1,000	1	F	
Dimethyldichlorosilane			75-78-5	1,000	5,000	500	2	T	0.026
1,1-Dimethylhydrazine			57-14-7	1,000	15,000	10	1 & 2	T	0.012
2,2-Dimethylpropane			463-82-1		10,000			F	
Epichlorohydrin			106-89-8		20,000			T	0.076
Ethane			74-84-0		10,000			F	
Ethyl acetylene	1-Butyne		107-00-6		10,000			F	
Ethyl chloride			75-00-3		10,000			F	
Ethyl ether			60-29-7		10,000			F	
Ethyl mercaptan	Ethanethiol		75-08-1		10,000			F	
Ethyl nitrite			109-95-5	5,000	10,000	50*	3	F	
Ethylamine	Ethanamine		75-04-7	7,500	10,000	100	1	F	
Ethylene	Ethene		74-85-1		10,000			F	
Ethylene fluorohydrin			371-62-0	100		10	2		
Ethylene oxide	Oxirane		75-21-8	5,000	10,000	10	1 & 2	T	0.090
Ethylenediamine			107-15-3		20,000			T	0.49
Ethyleneimine	Aziridine		151-56-4	1,000	10,000	1	1 & 2	T	0.018
Fluorine			7782-41-4	1,000	1,000	10	1 & 2	T	0.0039
Formaldehyde		90% or greater	50-00-0	1,000	15,000	100	1 & 2	T	0.012

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Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Furan			110-00-9	500	5,000	100	1 & 2	T	0.0012
Hexafluoroacetone			684-16-2	5,000		10	3		
Hydrazine			302-01-2		15,000			T	0.011
Hydrochloric acid		37% or greater	7647-01-0		15,000	1,000	3	T	0.030
Hydrofluoric acid		50% or greater	7664-39-3		1,000	100	1	T	0.016
Hydrogen			1333-74-0		10,000			F	
Hydrogen bromide			10035-10-6	5,000		10	3		
Hydrogen chloride		Anhydrous	7647-01-0	5,000	5,000	100	3	T	0.030
Hydrogen cyanide	Hydrocyanic acid	Anhydrous	74-90-8	1,000	2,500	10	1 & 2	T	0.011
Hydrogen fluoride		Anhydrous	7664-39-3	1,000		100	1 & 2		
Hydrogen peroxide		50 wt% or greater	7722-84-1	7,500		1,000	2		
Hydrogen selenide			7783-07-5	150	500	10	2	T	0.00066
Hydrogen sulfide			7783-06-4	1,500	10,000	100	1 & 2	T	0.042
Hydroxylamine			7803-49-8	2,500		25*	3		
Iron, pentacarbonyl			13463-40-6	250	2,500	100	2	T	0.00044
Isobutane			75-28-5		10,000			F	
Isobutyronitrile			78-82-0		20,000			T	0.14
Isopentane			78-78-4		10,000			F	

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Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Isoprene			78-79-5		10,000			F	
Isopropyl chloride			75-29-6		10,000			F	
Isopropyl chloroformate			108-23-6		15,000			T	0.10
Isopropyl formate			625-55-8	500		100	3		
Isopropylamine			75-31-0	5,000	10,000	1,000	3	F	
Ketene			463-51-4	100		10	3		
Methacrylaldehyde			78-85-3	1,000		500	3		
Methacryloyl chloride			920-46-7	150		100	2		
Methacryloyloxyethyl isocyanate			30674-80-7	100		10	3		
Methane			74-82-8		10,000			F	
Methyl acrylonitrile	Methacrylonitrile		126-98-7	250	10,000	25	3	T	0.0027
Methyl bromide			74-83-9	2,500		500	3		
3-Methyl-1-butene			563-45-1		10,000			F	
2-Methyl-1-butene			563-46-2		10,000			F	
Methyl chloride			74-87-3	15,000	10,000	100	1	T	0.82
Methyl chloroformate			79-22-1	500	5,000	100	3	T	0.0019
Methyl disulfide			624-92-0	100		10	3		
Methyl ether			115-10-6		10,000			F	

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Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Methyl ethyl ketone peroxide		60% or greater	1338-23-4	5,000		10	1		
Methyl fluoroacetate			453-18-9	100		10	3		
Methyl fluorosulfate			421-20-5	100		10	3		
Methyl formate			107-31-3		10,000			F	
Methyl hydrazine			60-34-4	100	15,000	10	1 & 2	T	0.0094
Methyl iodide			74-88-4	7,500		100	1		
Methyl isocyanate			624-83-9	250	10,000	10	1 & 2	T	0.0012
Methyl mercaptan			74-93-1	5,000	10,000	100	1 & 2	T	0.049
Methyl thiocyanate			556-64-9		20,000			T	0.085
Methyl vinyl ketone			78-94-4	100		10	2		
Methylamine	Methanamine	Anhydrous	74-89-5	1,000	10,000	100	1	F	
2-Methylpropene			115-11-7		10,000			F	
Methyltrichlorosilane			75-79-6	500	5,000	50	3	T	0.018
Nickel carbonyl			13463-39-3	150	1,000	10	1 & 2	T	0.00067
Nitric acid		80% or greater	7697-37-2		15,000			T	0.026
Nitric acid		94.5 wt% or greater	7697-37-2	500		50	3		
Nitric oxide	Nitrogen oxide		10102-43-9	250	10,000	10	1 & 2	T	0.031
Nitroaniline	para Nitroaniline		100-01-6	5,000		50*	3		

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Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Nitrogen dioxide			10102-44-0	250		10	1 & 2		
Nitrogen oxides		NO; NO <sub>2</sub> ; N <sub>2</sub> O <sub>4</sub> ; N <sub>2</sub> O <sub>3</sub>	10102-44-0	250		10	3		
Nitrogen tetroxide			10544-72-6	250		10	1		
Nitrogen trifluoride			7783-54-2	5,000		1,000	3		
Nitrogen trioxide			10544-73-7	250		10	3		
Nitromethane			75-52-5	2,500		25*	3		
Oleum	Fuming sulfuric acid	65 wt% or greater of SO <sub>3</sub>	8014-95-7	1,000	10,000	500	3	T	0.010
Osmium tetroxide			20816-12-0	100		10	3		
Oxygen difluoride	Fluorine monoxide		7783-41-7	100		10	3		
Ozone			10028-15-6	100		10	3		
Pentaborane			19624-22-7	100		10	3		
1,3-Pentadinene			504-60-9		10,000			F	
Pentane			109-66-0		10,000			F	
1-Pentene			109-67-1		10,000			F	
2-Pentene, (E)-			646-04-8		10,000			F	
2-Pentene, (Z)-			627-20-3		10,000			F	
Peracetic acid	Peroxyacetic acid		79-21-0	5,000	10,000	500	2	T	0.0045
Perchloric acid		60% or greater	7601-90-3	5,000		50*	3		

Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Perchloromethyl mercaptan			594-42-3	150	10,000	100	1 & 2	T	0.0076
Perchloryl fluoride			7616-94-6	5,000		100	3		
Phosgene	Carbonyl chloride		75-44-5	100	500	10	1 & 2	T	0.00081
Phosphine	Hydrogen phosphide		7803-51-2	100	5,000	10	3	T	0.0035
Phosphorus oxychloride	Phosphoryl chloride		10025-87-3	1,000	5,000	500	3	T	0.0030
Phosphorus trichloride			7719-12-2	1,000	15,000	500	3	T	0.028
Piperidine			110-89-4		15,000			T	0.022
Propadiene	1,2 Propadiene		463-49-0		10,000			F	
Propane			74-98-6		10,000			F	
Propargyl bromide			106-96-7	7,500		10	2		
Propionitrile			107-12-0		10,000			T	0.0037
Propyl chloroformate			109-61-5		15,000			T	0.010
Propyl nitrate			627-13-4	2,500		25*	3		
Propylene	1 Propene		115-07-1		10,000			F	
Propylene oxide			75-56-9		10,000			T	0.59
Propyleneimine			75-55-8		10,000			T	0.12
Propyne	1-Propyne		74-99-7		10,000			F	
Sarin			107-44-8	100		10	2		

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Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Selenium hexafluoride			7783-79-1	1,000		1	1		
Silane			7803-62-5		10,000			F	
Stibine	Antimony hydride		7803-52-3	500		10	3		
Sulfur dioxide		Anhydrous	7446-09-5	1,000	5,000	100	3	T	0.0078
Sulfur pentafluoride			5714-22-7	250		10	3		
Sulfur tetrafluoride			7783-60-0	250	2,500	10	3	T	0.0092
Sulfur trioxide	Sulfuric Anhydride		7446-11-9	1,000	10,000	100	2	T	0.010
Tellurium hexafluoride			7783-80-4	250		10	3		
Tetrafluoroethylene			116-14-3	5,000	10,000	1,000	3	F	
Tetrafluorohydrazine			10036-47-2	5,000		500	3		
Tetramethyl Lead			75-74-1	7,500	10,000	100	1	T	0.0040
Tetramethylsilane			75-76-3		10,000			F	
Tetranitromethane			509-14-8		10,000			T	0.0040
Thionyl chloride			7719-09-7	250		100	3		
Titanium tetrachloride			7550-45-0	2,500	2,500	1,000	1 & 2	T	0.020
Toluene 2,4-diisocyanate			584-84-9		10,000			T	0.0070
Toluene 2,6-diisocyanate			91-08-7		10,000			T	0.0070
Toluene diisocyanate			26471-62-5		10,000			T	0.0070

Chemical Name	Alternate Chemical Name	Mixture Description	CAS Number	Tier A Threshold Quantity (lbs)	Tier B Threshold Quantity (lbs)	Two Release Quantity (lbs)	Two Release Source note 1	Tox(T), Flam(F) or Expl(E)	Toxic Endpoint (mg/L)
Trichloro(chloromethyl) silane			1558-25-4	100		10	3		
Trichloro(dichlorophenyl) silane			27137-85-5	2,500		500	2		
Trichlorosilane			10025-78-2	5,000	10,000	500	3	F	
Trifluorochloroethylene			79-38-9	10,000	10,000	500	3	F	
Trimethoxysilane			2487-90-3	1,500		500	3		
Trimethylamine			75-50-3		10,000			F	
Trimethylchlorosilane			75-77-4		10,000			T	0.050
Vinyl acetate monomer			108-05-4		15,000			T	0.26
Vinyl acetylene			689-97-4		10,000			F	
Vinyl chloride			75-01-4		10,000			F	
Vinyl ethyl ether			109-92-2		10,000			F	
Vinyl fluoride			75-02-5		10,000			F	
Vinyl methyl ether			107-25-5		10,000			F	
Vinylidene chloride			75-35-4		10,000			F	
Vinylidene fluoride			75-38-7		10,000			F	

Table Notes:

For Two Release Source Column: 1 = RQ as listed in 40 C.F.R. Part 302; 2 = RQ as listed in 40 C.F.R. Part 355; 3 = Two Release Quantity as determined in "Technical Basis Document for C.A.P.P. Two Release Quantities and Toxic Endpoints."

\* These substances must be involved in a fire or explosion to qualify as a release pursuant to paragraph (b) of subsection 1 of NAC 459.95323.

## General Performance and Submission Requirements

**NAC 459.95332 General requirements. (NRS 459.3818, 459.3833)** The owner or operator of a facility that has a process which is subject to the tier A program or tier B program shall:

1. Register annually with the division pursuant to NAC 459.95348 to 459.95358, inclusive;
2. Pay fees pursuant to NAC 459.95334; and
3. Develop a management system pursuant to NAC 459.95516.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### **NAC 459.95334 Annual fee. (NRS 459.3818, 459.3833)**

1. An owner or operator shall pay the fee required by subsections 1 and 2 of NRS 459.3824 before July 31 of each year.

2. The amount of this annual fee for each facility will equal the sum of:

- (a) A base fee that is established pursuant to subsection 3; and
- (b) A graduated fee that is established pursuant to subsection 4.

3. The amount of the annual base fee that is authorized pursuant to subsection 1 of NRS 459.3824 is:

(a) If the facility has a process that is subject to the tier A program or tier B program level 3, \$3,100.

(b) If the facility has a process that is subject to the tier B program level 2 and no process that is subject to the tier A program or tier B program level 3, \$2,000.

(c) If the facility has a process that is subject to the tier B program level 1 and no process that is subject to the tier A program or tier B program level 2 or 3, \$250.

4. The amount of the annual graduated fee that is authorized pursuant to subsection 2 of NRS 459.3824 is \$10.50 per unit of substance at a facility. A unit of substance is the greater of:

(a) The total amount of a tier A substance that is present at a facility divided by the tier A threshold quantity for the substance that is listed in NAC 459.9533; or

(b) The total amount of a tier B substance that is present at a facility divided by the tier B threshold quantity for the substance that is listed in NAC 459.9533.

(Added to NAC by Environmental Comm'n, eff. 7-6-92; A by R121-98, 5-27-99, eff. 6-21-99)—(Substituted in revision for NAC 459.9542)

**NAC 459.95336 Requirements specific to tier A program. (NRS 459.3818)** In addition to the requirements set forth in NAC 459.95332, the owner or operator of a facility with a process that is subject to the tier A program shall:

1. Submit assessment plans, prioritization schedules and information about the assessment team pursuant to NAC 459.95476;

2. Conduct a hazard assessment pursuant to NAC 459.95362 to 459.95378, inclusive;

3. Implement a prevention program pursuant to NAC 459.95382 and 459.95412 to 459.95435, inclusive;

4. Implement an emergency response program pursuant NAC 459.9544 and 459.95442;

5. Submit assessment reports pursuant to NAC 459.95448 to 459.95468, inclusive; and

6. Submit an annual compliance report pursuant to NAC 459.9548 and 459.95482.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95338 Requirements specific to tier B program. (NRS 459.3818, 459.3833)** In addition to the requirements set forth in NAC 459.95332, the owner or operator of a facility with a process that is subject to the tier B program, but not also subject to the tier A program, shall:

1. Determine the program level for the process pursuant to NAC 459.95327;

2. Conduct a hazard assessment pursuant to NAC 459.95362 to 459.95378, inclusive;

3. Implement a prevention program for each process subject to program level 2 pursuant to NAC 459.95382 to 459.95398, inclusive;
4. Implement a prevention program for each process subject to program level 3 pursuant to NAC 459.95382 and 459.95412 to 459.95435, inclusive;
5. Implement an emergency response program pursuant to NAC 459.9544 and 459.95442; and
6. Submit an assessment report pursuant to NAC 459.95448 to 459.95468, inclusive.  
(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95342 Requirements for both tier A and tier B programs. (NRS 459.3818, 459.3833)** The owner or operator of a facility with a process that is subject to both the tier A program and tier B program shall comply with the general requirements set forth in NAC 459.95332 and comply with the requirements for a tier A process set forth in NAC 459.95336, except that:

1. The timing for initial registration must be in accordance with paragraph (b) of subsection 3 of NAC 459.95348; and
2. The timing for submission of the assessment report must be in accordance with NAC 459.9545.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95344 Reports of regulatory agencies: Submission; form.** A governmental entity or agency of the state that is required by subsection 1 of NRS 459.382 to submit a report to the division shall do so within 10 working days after a determination is made or an action is taken related to hazards involving highly hazardous substances at a regulated facility. The report must be submitted on the following form:

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION  
PREVENTION OF CHEMICAL CATASTROPHE PROGRAM  
GOVERNMENTAL AGENCY REPORTING FORM

A facility which produces, uses, stores or handles a highly hazardous substance designated in NRS 459.3816 is subject to the provisions of NRS 459.380 to 459.3874, inclusive. Pursuant to NRS 459.382, governmental entities or agencies of the state are required to complete the following information whenever a determination is made or an action is taken related to hazards involving highly hazardous substances at a regulated facility. Please complete this form and return it to the Nevada Division of Environmental Protection, 333 W. Nye Lane, Carson City, Nevada 89710.

1. Facility Name .....

2. Facility Location .....

3. Highly Hazardous Substances Present at the Facility

Substance	Estimated Quantity (lbs.)
.....	.....
.....	.....
.....	.....

4. Describe any specific hazards related to highly hazardous substances which were noticed by regulatory or inspection staff at the facility .....

5. Describe any action your agency has taken at this facility related to highly hazardous substances. Include orders, notices, penalties, etc. ....

6. List statutes, regulations, standards or codes related to or controlling actions taken by your agency .....

7. Agency contact: ..... Phone: .....

8. Authorized signature: ..... Date: .....

Attach additional sheets if required.

(Added to NAC by Div. of Environmental Protec., eff. 7-10-92)—Substituted in revision for NAC 459.9532)

Annual Registration Form

NAC 459.95348 Submission; content; time requirements. (NRS 459.3818, 459.3833)

1. The owner or operator shall:

(a) Complete annually a single registration form covering all processes, both tier A and tier B; and

(b) Submit the registration to the division on or before June 21 of each year.

2. The registration must show the maximum quantity of all tier A and tier B substances on-site between June 1 of the previous year and May 30 of the current year.

3. Upon starting a new process, the owner or operator shall submit an initial registration:

(a) If the process is subject to tier A and not tier B, pursuant to NAC 459.95348 to 459.95358, inclusive, within 10 days after bringing the tier A substance on-site.

(b) If the process is subject to tier B, regardless of whether the process is subject to tier A:

(1) Pursuant to NAC 459.95348 to 459.95358, inclusive, within 10 days after bringing the substance on-site or before June 21, 1999; or

(2) Pursuant to NAC 459.95448 to 459.95466, inclusive, at the start of the process if the process is started after June 21, 1999.

4. If a facility is subject to the provisions of paragraph (b) of subsection 1 of NAC 459.95323, the owner or operator shall submit the registration pursuant to NAC 459.95348 to 459.95358, inclusive, not later than 90 days after the provisions of paragraph (b) of subsection 1 of NAC 459.95323 take effect.

5. If the state environmental commission adds a new substance to the table of substances set forth in NAC 459.9533 and a facility has a process that uses the new substance, the owner or operator shall, not later than 90 days after the effective date of the regulation which contains the addition, submit to the division registration for the process pursuant to NAC 459.95348 to 459.95358, inclusive.

6. Registration consists of:

- (a) Information about the facility as set forth in NAC 459.9535;
- (b) A summary of the off-site consequence analysis as set forth in NAC 459.95352;
- (c) A summary of the 5-year accident history of the facility as set forth in NAC 459.95354;
- (d) A description of the emergency response plan for the facility as set forth in NAC 459.95356; and
- (e) Certification as set forth in NAC 459.95358.

7. Annual submission of registration pursuant to NAC 459.95348 to 459.95358, inclusive, satisfies the requirements of subsection 1 of NRS 459.3828 and NRS 459.383.

(Added to NAC by Environmental Comm'n by R121-98, 5-27-99, eff. 6-21-99)

**NAC 459.9535 Information concerning facility. (NRS 459.3818, 459.3833)**  
Information about the facility on the annual registration form must include:

1. The name, street, city, county, state, zip code, latitude and longitude of the facility, the method for obtaining the latitude and longitude, and a description of the location that the latitude and longitude represent;

2. The Dun & Bradstreet number for the facility;

3. The name and Dun & Bradstreet number of any parent corporation;

4. The name, telephone number and mailing address of the owner or operator;

5. The name and title of the person with overall responsibility for the implementation of C.A.P.P.;

6. The name, title, telephone number during normal business hours and telephone number that is available 24 hours per day of an emergency contact;

7. For each process:

(a) The name and C.A.S. number of each substance;

(b) The maximum quantity of each substance on-site between June 1 of the previous year and May 30 of the current year;

(c) The N.A.I.S.C. code that is applicable to the process;

(d) The program tier to which the process is subject; and

(e) The tier B program level, if applicable, of the process;

8. The identifier that the United States Environmental Protection Agency has assigned to the facility;

9. The number of full-time employees at the facility;

10. Whether the facility is subject to 29 C.F.R. § 1910.119;

11. Whether the facility is subject to 40 C.F.R. Part 355;

12. Whether the facility has an operating permit pursuant to 40 C.F.R. Part 70 and, if applicable, the permit number; and

13. The date of the last safety inspection of the facility by a federal, state or local governmental agency and the identity of the inspecting entity.

(Added to NAC by Environmental Comm'n by R121-98, 5-27-99, eff. 6-21-99)

**NAC 459.95352 Summary of off-site consequence analysis. (NRS 459.3818, 459.3833)**  
The summary of the off-site consequence analysis on the annual registration form must include:

1. A summary of:

(a) One worst-case release scenario for each tier B program level 1 process; and

(b) For each process that is subject to either the tier A program or tier B program level 2 or 3, one worst-case release scenario for all toxic substances held above the threshold quantity and one worst-case release scenario for all flammable and explosive substances held above the threshold quantity. If an additional worst-case scenario for a toxic or flammable substance is required

pursuant to NAC 459.95366, the owner or operator shall submit the same information for the additional scenario that he sends to satisfy the requirements of this paragraph.

2. The following data for each release scenario:
  - (a) The chemical name of the substances;
  - (b) A description of the scenario, including, without limitation, whether the scenario involves an explosion, fire, toxic gas release, or liquid spill and vaporization;
  - (c) The quantity in pounds of the substance that is released;
  - (d) The rate at which the substance is released;
  - (e) The duration of the release;
  - (f) The distance to the endpoint;
  - (g) Public and environmental receptors that are located within the distance to the endpoint;
  - (h) Any passive mitigation that is considered;
  - (i) If the substance is toxic:
    - (1) The percentage weight of the substance in a mixture;
    - (2) The physical state of the substance;
    - (3) The wind speed and atmospheric stability class used in the scenario; and
    - (4) The topography of the geographical area used in the scenario; and
  - (j) The basis of the results of the scenario, including, without limitation, the name of any model that is used.

(Added to NAC by Environmental Comm'n by R121-98, 5-27-99, eff. 6-21-99)

**NAC 459.95354 Summary of 5-year accident history. (NRS 459.3818, 459.3833)** The summary of the 5-year accident history of the facility on the annual registration form must include:

1. The data for the 5-year accident history that is developed pursuant to NAC 459.95378; and
2. A description of:
  - (a) Any unanticipated or unusual event at the facility that resulted in the release of any quantity of a tier A or tier B substance; and
  - (b) The efforts undertaken by the facility to assess the reasons and develop a remedy for the release of the substance.

(Added to NAC by Environmental Comm'n by R121-98, 5-27-99, eff. 6-21-99)

**NAC 459.95356 Description of emergency response plan. (NRS 459.3818, 459.3833)** The description of the emergency response plan for the facility on the annual registration form must indicate:

1. Whether there is a written emergency response plan;
  2. Whether the plan includes specific actions to be taken in response to an accidental release of a tier A or tier B substance;
  3. Whether the plan includes procedures for informing the public and local agencies responsible for responding to accidental releases;
  4. Whether the plan includes information on emergency health care;
  5. The date of the most recent review or update of the emergency response plan;
  6. The date of the most recent emergency response training for employees;
  7. The name and telephone number of the local agency with which the plan is coordinated;
- and
8. Other federal or state requirements for the emergency plan to which the facility is subject.

(Added to NAC by Environmental Comm'n by R121-98, 5-27-99, eff. 6-21-99)

**NAC 459.95358 Certification. (NRS 459.3818, 459.3833)**

1. If a registration form submitted pursuant to NAC 459.95348 to 459.95356, inclusive, only reflects processes that are subject to the tier B program level 1, the owner or operator shall include with the registration a certification in substantially the following form:

Based on the criteria set forth in subsection 2 of NAC 459.95327, the distance to the specified endpoint for the worst-case accidental release scenario for the following process(es) is less than the distance to the nearest public receptor: [list process(es)].

Within the past 5 years, the process(es) has (have) had no accidental release that caused on-site or off-site impacts.

No additional measures are necessary to prevent off-site impacts caused by accidental releases.

In the event of a fire, explosion or release of a tier A or tier B substance from the process(es), entry within the distance to the specified endpoints may pose a danger to public emergency responders. Therefore, public emergency responders should not enter this area except as arranged with the emergency contact indicated in the assessment report.

The undersigned certifies that, to the best of my knowledge, information and belief, formed after reasonable inquiry, the information submitted is true, accurate and complete.

[Signature, title, date signed]

2. If a registration form submitted pursuant to NAC 459.95348 to 459.95356, inclusive, does not reflect only processes that are subject to tier B program level 1, the certification must substantially conform to one of the following forms:

(a) I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information.

[Signature, title, date signed]

(b) I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attached documents and that, based on my inquiry of the natural persons immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false information.

[Signature, title, date signed]

3. The certification must be signed by the sole proprietor of the facility, the highest ranking corporate officer of the facility, a partner at the facility, the manager of the facility or a person designated by one of those persons to sign the certification.

(Added to NAC by Environmental Comm'n by R121-98, 5-27-99, eff. 6-21-99)

### **Hazard Assessments**

#### **NAC 459.95362 Applicability. (NRS 459.3818, 459.3833)**

1. If all facility processes are subject to the tier A program or tier B program level 2 or 3, the owner or operator shall conduct a hazard assessment pursuant to NAC 459.95362 to 459.95378, inclusive.

2. If a process is subject to tier B program level 1, the owner or operator shall conduct a hazard assessment pursuant to NAC 459.95364, 459.95366 and 459.9537 to 459.95378, inclusive.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95364 Parameters for analysis of off-site consequences. (NRS 459.3818, 459.3833)**

1. An owner or operator shall use the following endpoints when preparing an analysis of off-site consequences:

(a) For toxic substances, the toxic endpoints provided pursuant to NAC 459.9533;

(b) For flammables and explosives:

(1) In a scenario that studies the potential effects of an explosion, an overpressure of 1 psi (0.0703 kilograms per square centimeter);

(2) In a scenario that studies radiant heat and exposure time, a radiant heat of 5 kw/m<sup>2</sup> (1586 BTU per hour per square foot) for 40 seconds; or

(3) In a scenario that studies the lower flammability limit, the lower flammability limit provided by the N.F.P.A. or other generally recognized sources; or

(c) If an endpoint is not provided pursuant to NAC 459.9533 or a substance is not designated as toxic, flammable or explosive pursuant to NAC 459.9533, the owner or operator shall define an appropriate endpoint. The owner or operator shall define a toxic endpoint in a manner that is comparable to the health impacts defined by ERPG-2 of the Emergency Response Planning Guidelines Series, which is adopted by reference pursuant to NAC 459.95528, and shall define a flammable or explosive endpoint as set forth in paragraph (b).

2. The owner or operator shall use a wind speed of 1.5 meters per second (4.9 feet per second) and an atmospheric stability class of F when preparing the worst-case release analysis, except that, if the owner or operator demonstrates that local meteorological data show a higher minimum wind speed or less stable atmosphere at all times during the previous 3 years, these minimums may be used. For an analysis of an alternative scenario, the owner or operator shall use the typical meteorological conditions.

3. Except as otherwise provided in this subsection, the owner or operator shall use the highest daily maximum temperature during the previous 3 years and the average humidity for the site based on temperature and humidity data gathered on-site or at a local meteorological station for a worst-case release analysis involving a tier A or tier B toxic substance. A facility using the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528, may use 25°C (77°F) and 50 percent humidity as values for these variables. For an analysis of an alternative scenario, the owner or operator may use typical temperature and humidity data gathered on-site or at a local meteorological station.

4. The owner or operator shall analyze:

(a) A worst-case release of a tier A or tier B toxic substance assuming a ground level (0 feet) release.

(b) An alternative scenario involving a tier A or tier B toxic substance using the release height that is determined by the release scenario.

5. The owner or operator shall use urban or rural topography for a worst-case release scenario or an alternative scenario, as appropriate. An urban topography has many obstacles, such as buildings and trees, in the immediate area. A rural topography has no buildings in the immediate area, and the terrain is generally flat and unobstructed.

6. The owner or operator shall ensure that any table or model used for a dispersion analysis of a tier A or tier B toxic substance appropriately accounts for gas density.

7. For a worst-case release analysis, the owner or operator shall assume that a liquid other than a gas which is liquefied by refrigeration only is released at the highest daily maximum temperature based on data for the previous 3 years appropriate for the facility, or at process temperature, whichever is higher. For an alternative scenario, the owner or operator may assume that the substance is released at a process or ambient temperature which is appropriate for the scenario.

8. As used in this section, "typical meteorological conditions" means the temperature, wind speed, cloud cover and atmospheric stability class that prevail at the site based on data gathered at or near the site or from a local meteorological station.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95366 Analysis of worst-case release scenario. (NRS 459.3818, 459.3833)**

1. The owner or operator shall include the data gathered from the worst-case release scenario analysis on the registration form required pursuant to NAC 459.95348 and in the assessment report.

2. The facility may use the guidelines set forth in the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528, to calculate any of the values required in this section.

3. The owner or operator shall prepare one worst-case release scenario for each tier B program level 1 process.

4. For each process that is subject to the tier A program or tier B program level 2 or 3, the owner or operator shall prepare:

(a) One worst-case release scenario that is estimated to create the greatest distance in any direction to an endpoint resulting from an accidental release of a tier A or tier B toxic substance under worst-case conditions as described in NAC 459.95364;

(b) One worst-case release scenario that is estimated to create the greatest distance in any direction to an endpoint resulting from an accidental ignition or detonation of a flammable or explosive substance under worst-case release conditions as described in NAC 459.95364; and

(c) Additional worst-case release scenarios for a facility if:

(1) A worst-case release from another process at the facility potentially affects different public receptors than those affected by the worst-case release scenario prepared pursuant to paragraphs (a) and (b); or

(2) A tier B toxic or flammable substance is present in excess of the threshold quantity and was not considered as part of the worst-case release scenarios prepared pursuant to paragraphs (a) and (b).

5. When preparing a worst-case release scenario, the owner or operator shall assume that the release quantity is the greater of:

(a) For substances in a vessel, the greatest amount held in a single vessel, taking into account administrative controls that limit the maximum quantity.

(b) For substances in pipes, the greatest amount in a pipe, taking into account administrative controls that limit the maximum quantity.

6. The owner or operator shall model each tier A or tier B substance as a toxic, flammable or explosive as described in the table in NAC 459.9533. If a substance is not described as toxic, flammable or explosive in the table in NAC 459.9533, the owner or operator shall select the scenario providing the most significant impact on employees and the public.

7. For toxic substances that are normally gases at ambient temperature and handled as a gas or as a liquid under pressure, the owner or operator shall:

(a) Assume that the quantity in the vessel or pipe, as determined pursuant to subsection 5, is released as a gas over a period of 10 minutes;

(b) Assume that the release rate, in pounds per minute, is the total quantity divided by 10, unless passive mitigation systems are in place; and

(c) Calculate the impact of passive mitigation measures on the release rate using the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528.

8. For gases handled as refrigerated liquids at ambient pressure, the owner or operator:

(a) Shall assume that the substance is released as a gas in 10 minutes, if the released substance is not contained by passive mitigation systems or if the contained pool would have a depth of 1 cm (0.39 inch) or less; and

(b) May assume that the quantity of the substance in the vessel or pipe, as determined pursuant to subsection 5, is spilled instantaneously to form a liquid pool, if the released substance is contained by passive mitigation systems in a pool with a depth greater than 1 cm (0.39 inch). The owner or operator shall calculate the volatilization rate at the boiling point of the substance and at the conditions set forth in subsections 9, 10 and 11.

9. For toxic substances that are normally liquids at ambient temperature, the owner or operator shall assume that the quantity in the vessel or pipe, as determined pursuant to subsection 5, is spilled instantaneously to form a liquid pool. The owner or operator shall determine the surface area of the pool by assuming that the liquid spreads to 1 cm (0.39 inch) deep, unless passive mitigation systems are in place that serve to contain the spill and limit the surface area. If passive mitigation is in place, the owner or operator shall use the surface area of the contained liquid to calculate the volatilization rate. If the release would occur onto a surface that is not paved or smooth, the owner or operator may take into account the actual surface characteristics.

10. When determining the volatilization rate for purposes of subsection 9, the owner or operator shall account for:

- (a) The highest daily maximum temperature occurring during the past 3 years;
- (b) The temperature of the substance in the vessel; and
- (c) If the liquid spilled is a mixture or solution, the concentration of the substance.

11. For purposes of subsection 9, the owner or operator shall determine the rate of release to air from the volatilization rate of the liquid pool determined pursuant to subsection 10. The owner or operator may use the methodology set forth in the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528, or another publicly available technique that accounts for the modeling conditions and is recognized in the industry as a current practice. The owner or operator may use a proprietary model that accounts for the modeling conditions if the owner or operator allows the division access to the model and describes to local emergency planners, upon request, the features of the model and any differences from publicly available models.

12. The owner or operator shall assume that the quantity of the flammable substance determined pursuant to subsection 5 vaporizes resulting in a vapor cloud explosion. The owner or operator shall use a yield factor of 10 percent of the available energy released in the explosion to determine the distance to the explosion endpoint if the model used is based on TNT-equivalent methods.

13. For explosive substances, the owner or operator shall employ methods for calculating overpressure based upon generally accepted practices.

14. The owner or operator shall use the parameters defined in NAC 459.95364 to determine the distance to the endpoints. The owner or operator may use the methodology provided in the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528, or any commercially or publicly available technique for air dispersion modeling if the technique accounts for the modeling conditions and is recognized in the industry as a current practice. The owner or operator may use a proprietary model that accounts for the modeling conditions if the owner or operator allows the division access to the model and describes to local emergency planners upon request the features of the model and any differences in the model from publicly available models.

15. The owner or operator may consider passive mitigation systems for the worst-case release scenario analysis if the mitigation system is capable of withstanding the event that triggered the release and still function as intended.

16. Notwithstanding the provisions of subsection 5, the owner or operator shall select as the worst-case scenario for a flammable substance or the worst-case scenario for a tier A or tier B toxic substance a scenario based on proximity to the boundary of the facility and smaller quantities of the substance handled at a higher process temperature or pressure if such a scenario would result in a greater distance to an endpoint beyond the facility boundary than the scenario provided pursuant to subsection 5.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95368 Analysis of alternative release scenario. (NRS 459.3818, 459.3833)**

1. The owner or operator shall identify and analyze at least one alternative release scenario for each toxic substance that is used in a process and at least one alternative release scenario to represent all flammable or explosive substances that are used in processes.

2. The facility may use the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528, to calculate any of the values required in this section.

3. For each scenario required pursuant to subsection 1, the owner or operator shall select a scenario that:

(a) Is more likely to occur than the worst-case release scenario developed pursuant to NAC 459.95366; and

(b) Will reach an endpoint off-site. If no alternate release scenario will reach an endpoint off-site, then the owner or operator shall select the alternate release scenario with the most significant on-site impact.

4. The owner or operator shall consider, without limitation and where applicable, scenarios in which:

(a) A transfer hose releases because of splits or sudden uncoupling of the hose;

(b) Process piping releases because of a failure at a flange, joint, weld, valve and valve seal, drain or bleed;

(c) A process vessel or pump releases because of a crack or a failure of a seal, drain, bleed or plug;

(d) A vessel overfills and spills, or overpressurizes and vents through a relief valve or rupture disk; and

(e) A shipping container is mishandled and thereby breaks or is punctured leading to a spill.

5. The owner or operator:

(a) Shall use the appropriate parameters set forth in NAC 459.95364 to determine the distance to the endpoints;

(b) May use:

(1) The methodology provided in the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528; or

(2) A commercially or publicly available technique for air dispersion modeling, if the technique accounts for the specified modeling conditions and is recognized in the industry as a current practice; and

(c) May use a proprietary model that accounts for the modeling conditions if the owner or operator allows the division access to the model and describes to local emergency planners, upon request, the features of the model and any differences from publicly available models.

6. The owner or operator may consider active and passive mitigation systems for an alternative release scenario if the mitigation systems are capable of withstanding the event that triggered the release and still function as intended.

7. When selecting the alternative release scenarios, the owner or operator shall consider, without limitation:

(a) The 5-year accident history provided pursuant to NAC 459.95378; and

(b) The analyses performed pursuant to NAC 459.95388 or 459.95414.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

#### **NAC 459.9537 Defining off-site impacts on population. (NRS 459.3818, 459.3833)**

1. The owner or operator shall estimate and include on the registration form and in the assessment report the population within a circle that has its center at the point of the release and a radius that is the equivalent of the distance to the endpoint determined pursuant to NAC 459.95364. The owner or operator shall also note on the registration form and in the assessment report the presence of institutions, such as schools, hospitals, prisons, parks and recreational areas, and major commercial, office and industrial buildings within the circle.

2. The owner or operator may use the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528, to calculate the values required in this section.

3. The owner or operator may use the most recent census data or any other updated information to estimate the population potentially affected.

4. The owner or operator shall estimate the population to two significant digits.  
(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95372 Defining off-site impacts on environment. (NRS 459.3818, 459.3833)**

1. The owner or operator shall include on the registration form and in the assessment report the environmental receptors within a circle with its center at the point of the release and a radius that is the equivalent of the distance to the endpoint determined pursuant to NAC 459.95364.

2. The facility may use the R.M.P. Off-Site Consequence Analysis Guidance, which is adopted by reference pursuant to NAC 459.95528, to calculate the values required in this section.

3. The owner or operator may rely on information provided on local maps prepared by the United States Geological Survey or on any source containing United States Geological Survey data to identify environmental receptors.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95374 Review and update of off-site consequence analyses; revision of assessment report. (NRS 459.3818, 459.3833)**

1. The owner or operator shall review and update the off-site consequence analyses developed pursuant to NAC 459.95364 to 459.95372, inclusive, at least once every 5 years.

2. If there is a change at a facility in a process that involves a substance or the quantity of a substance that is stored or handled at the facility, or if any other change at the facility might reasonably be expected to increase or decrease the distance to the endpoint by a factor of two or more, the owner or operator shall prepare a revised analysis not later than 6 months after the change and prepare and submit a revised assessment report pursuant to NAC 459.95468.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95376 Documentation to be maintained concerning worst-case release scenarios and alternative release scenarios. (NRS 459.3818, 459.3833)** The owner or operator shall maintain at his facility:

1. For worst-case release scenarios:

(a) A description of the vessel or pipeline and substance that the owner or operator selected as worst-case; and

(b) A list of the assumptions and parameters that the owner or operator used, including, without limitation:

(1) A description of any administrative controls and passive mitigation that the owner or operator assumed to limit the quantity of the substance which would be released;

(2) The anticipated effect of the controls and mitigation on the release quantity and rate; and

(3) The reasons why the owner or operator selected these assumptions and parameters.

2. For alternative release scenarios:

(a) A description of the scenarios that the owner or operator identified; and

(b) A list of the assumptions and parameters that the owner or operator used, including, without limitation:

(1) A description of any administrative controls and active or passive mitigation that the owner or operator assumed to limit the quantity of the substance which would be released;

(2) The anticipated effect of the controls and mitigation on the release quantity and rate; and

(3) The reasons why the owner or operator selected these assumptions and parameters.

3. For worst-case scenarios and alternative release scenarios:

(a) Documentation of:

(1) The estimated quantity released, release rate and duration of release;

(2) The methodology that the owner or operator used to determine the distance to the endpoints; and

(3) The data that the owner or operator used to estimate the population and environmental receptors which potentially will be affected; and

(b) Verification that the active and passive mitigation systems are designed to remain functional under the conditions of the release scenarios.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95378 Five-year accident history. (NRS 459.3818, 459.3833)**

1. The owner or operator shall include in the 5-year accident history all accidental releases from processes that resulted in:

(a) A death, injury or significant property damage on-site; or

(b) A known death, injury, evacuation, sheltering, property damage or environmental damage off-site.

2. For each accidental release that the owner or operator includes in the 5-year accident history pursuant to subsection 1, the owner or operator shall report:

(a) The date, time and approximate duration of the release;

(b) The name of each chemical that was released;

(c) The estimated quantity of each chemical that was released in pounds;

(d) For a mixture of toxic substances, the percentage concentration by weight of the released substance in the mixture;

(e) The applicable N.A.I.C.S. code for the process;

(f) The type of release event and its source;

(g) The weather conditions, if known;

(h) Any on-site impacts;

(i) Any known off-site impacts;

(j) The initiating event and other contributing factors, if known;

(k) Whether off-site responders were notified, if known; and

(l) The changes in the operations or processes at the facility that resulted from investigation of the release.

3. The owner or operator shall provide any numerical estimates to at least two significant digits.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**General Requirements for Prevention Programs**

**NAC 459.95382 General requirements. (NRS 459.3818, 459.3833)**

1. The owner or operator of a facility with a process that is subject to tier B program level 1 but not subject to the tier A program is not required to implement a prevention program for that process.

2. The owner or operator of a facility with a process that is subject to the tier A program or tier B program level 3 is required to implement a prevention program pursuant to NAC 459.95412 to 459.95435, inclusive, for that process.

3. The owner or operator of a facility with a process that is subject to tier B program level 2 but not subject to the tier A program shall implement a prevention program for that process pursuant to:

(a) NAC 459.95386 to 459.95398, inclusive; or

(b) NAC 459.95412 to 459.95435, inclusive.

4. The owner or operator shall be in compliance with all applicable requirements for the prevention program at the time he submits the assessment report pursuant to NAC 459.9545.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**Requirements for Prevention Programs,  
Tier B Program Level 2**

**NAC 459.95386 Safety information; compliance with good engineering practices. (NRS 459.3818, 459.3833)** Except as otherwise provided in paragraph (b) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to tier B program level 2 shall:

1. Compile and maintain the following current safety information related to the tier B program level 2 substances, processes and equipment:
  - (a) Material safety data sheets which satisfy the requirements of 29 C.F.R. § 1910.1200(g);
  - (b) The maximum intended inventory of equipment in which the substances are stored or processed;
  - (c) The safe upper and lower temperatures, pressures, flows and compositions;
  - (d) The specifications of the equipment; and
  - (e) The codes and standards used to design, build and operate the process.
2. Ensure that the process is designed in compliance with recognized and generally accepted good engineering practices. Compliance with such engineering practices may include, without limitation, compliance with:
  - (a) Federal or state regulations which address industry-specific safe design; or
  - (b) Industry-specific design codes and standards.
3. Update the safety information if a major change occurs which makes the information inaccurate.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95388 Hazard review. (NRS 459.3818, 459.3833)** Except as otherwise provided in paragraph (b) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to tier B program level 2:

1. Shall conduct a hazard review associated with tier B program level 2 substances, processes and procedures which identifies:
  - (a) The specific hazards that are associated with the substance, process or procedure;
  - (b) Opportunities for equipment malfunctions or human errors that could cause an accidental release;
  - (c) The safeguards that are used or needed to control the hazards or prevent equipment malfunction or human error; and
  - (d) Any steps used or needed to detect or monitor releases;
2. May use checklists developed by persons or organizations which are knowledgeable about the process and equipment as a guide to conducting the review;
3. Shall consider previous incidents as described in NAC 459.95378 for the hazard review;
4. Shall, for a process that is designed to meet industry standards or federal or state rules of design, inspect all equipment to determine whether the process is designed, fabricated and operated in accordance with the applicable standards or rules;
5. Shall document the results of the hazard review and ensure that any problem which is identified is resolved in a timely manner;
6. Shall schedule the resolution of any recommendation in the P.T.A.H. pursuant to NAC 459.95452;
7. Shall update the review at least once every 5 years;
8. Shall conduct a review whenever a major change in a process occurs; and
9. Shall update and revalidate the review pursuant to NAC 459.9549 to 459.955, inclusive.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.9539 Operating procedures. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (b) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to tier B program level 2:

(a) Shall prepare written operating procedures which provide clear instructions or steps for safely conducting activities associated with a process and which are consistent with the safety information for that process.

(b) May use operating procedures or instructions which are:

(1) Provided by the manufacturers of the equipment; or

(2) Developed by a person or organization that is knowledgeable about the process and equipment.

2. The procedures must include, without limitation, a description of:

(a) Initial startup;

(b) Normal operations;

(c) Temporary operations;

(d) Emergency shutdown and operations;

(e) Normal shutdown;

(f) Startup following a normal or emergency shutdown or a major change which requires a hazard review;

(g) Consequences of deviations and steps required to correct or avoid deviations; and

(h) Equipment inspections.

3. The owner or operator shall ensure that the operating procedures are updated, if necessary, whenever a major change occurs and before the startup of the changed process.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95392 Training procedures. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in subsection 2 or paragraph (b) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to tier B program level 2 shall ensure that each employee who operates or will operate a process has been trained or tested and determined competent in the relevant operating procedures developed pursuant to NAC 459.9539.

2. The owner or operator may certify in writing that an employee who is already operating a process on June 21, 1999, has the required knowledge, skills and abilities to carry out the duties and responsibilities of operating a process set forth in the operating procedures developed pursuant to NAC 459.9539.

3. The owner or operator shall provide an employee who operates a process with refresher training at least once every 3 years, and more often if it is determined after consultation with the employees who operate the process to be necessary, to ensure that the employee understands and adheres to the current operating procedures of the process.

4. The owner or operator may satisfy the requirements of this section by using training that is conducted:

(a) Pursuant to federal or state regulations;

(b) Pursuant to industry-specific standards or codes; or

(c) By vendors of the equipment used in a process,

if the training satisfies the requirements of this section.

5. The owner or operator shall ensure that an operator is trained in any updated or new procedure before the startup of a process after a major change.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95394 Procedures for maintenance of equipment. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (b) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to tier B program level 2 shall prepare and implement procedures to maintain the ongoing mechanical integrity of the equipment used for a process.

2. The owner or operator may use as the basis for maintenance procedures instructions that are provided:

- (a) Pursuant to federal or state regulations;
- (b) Pursuant to industry-specific standards or codes; or
- (c) By vendors of the equipment used in a process.

3. The owner or operator shall train or cause to be trained each employee involved in maintaining the ongoing mechanical integrity of a process, including, without limitation, training in:

- (a) The hazards of the process;
- (b) How to avoid or correct unsafe conditions; and
- (c) The procedures applicable to the tasks related to the job of the employee.

4. A maintenance contractor shall ensure that an employee who performs a maintenance procedure on equipment which is used in a process is trained to perform the procedure using the procedures developed pursuant to subsections 1 and 2.

5. The owner or operator shall:

(a) Perform or cause to be performed inspections and tests on equipment that is used in a process at a frequency consistent with:

- (1) Recommendations from the manufacturer;
- (2) Standards or codes of the industry;
- (3) Good engineering practices; and
- (4) Previous experience.

(b) Ensure that the procedures for inspection and testing adhere to recognized and generally accepted good engineering practices.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95396 Verification of compliance; documentation. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (b) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to tier B program level 2 shall, at least once every 3 years, certify that he has verified that his facility is in compliance with the provisions of NAC 459.95386 to 459.95398, inclusive.

2. Verification must be conducted by at least one person who is knowledgeable in the process.

3. The owner or operator shall:

- (a) Prepare a report of the findings;
- (b) Promptly determine and document an appropriate response to each finding of the report;
- (c) Document that he has corrected any deficiency; and
- (d) Maintain at the facility the two most recent reports of compliance, except that the owner or operator does not need to maintain a report of compliance for more than 5 years.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95398 Investigation of incidents. (NRS 459.3818, 459.3833)** Except as otherwise provided in paragraph (b) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to tier B program level 2 shall:

1. Investigate any incident which resulted in, or could reasonably have resulted in, a catastrophic release of a substance;

2. Initiate investigation of the incident as promptly as possible, but not later than 48 hours after the incident;

3. Prepare a summary at the conclusion of the investigation which includes at a minimum:

- (a) The date of the incident;
- (b) The date the investigation of the incident began;
- (c) A description of the incident;
- (d) The factors which contributed to the incident; and
- (e) Recommendations resulting from the investigation;

4. Promptly address and resolve the findings and recommendations of the investigation;

5. Document resolutions and corrective actions;
  6. Review the findings with the personnel whose job tasks are affected by the findings; and
  7. Retain a summary of the investigation for at least 5 years.
- (Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### **Requirements for Prevention Programs, Tier A Program and Tier B Program Levels 2 and 3**

#### **NAC 459.95412 Information concerning process safety. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, pursuant to the schedule set forth in NAC 459.95414, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall compile written information concerning process safety before conducting a process hazard analysis required pursuant to NAC 459.95414.

2. The information concerning process safety must include, without limitation, information pertaining to:

(a) The hazards of the tier A or tier B substances, including, without limitation:

- (1) Toxicity information;
- (2) Permissible exposure limits;
- (3) Physical data;
- (4) Reactivity data;
- (5) Corrosivity data;
- (6) Thermal and chemical stability data; and
- (7) The foreseeable hazardous effects of inadvertent mixing of different materials.

Material safety data sheets that satisfy the requirements of 29 C.F.R. § 1910.1200(g) may be used to comply with this requirement to the extent they contain the information required by this paragraph.

(b) The technology of the process, including, without limitation:

- (1) A block flow diagram or simplified process flow diagram;
- (2) The process chemistry;
- (3) The maximum intended inventory;
- (4) The safe upper and lower limits for any applicable process variable, including, without limitation, temperature, pressure, flow and composition; and
- (5) An evaluation of the consequences of deviations.

If the original technical information no longer exists, such information may be developed in conjunction with the process hazard analysis in sufficient detail to support the analysis.

(c) The equipment in the process, including, without limitation:

- (1) The materials of construction;
- (2) Piping and instrument diagrams;
- (3) Electrical classification;
- (4) The design of the relief system and the basis for the design;
- (5) The design of the ventilation system;
- (6) Design codes and standards that were employed;
- (7) The material and energy balances for processes that were built after May 26, 1992; and
- (8) The safety systems, such as interlocks, detection or suppression systems.

3. The owner or operator shall evaluate processes and equipment for conformance to applicable codes, standards and good engineering practices and document that the processes and equipment comply with recognized and generally accepted good engineering practices.

4. For existing processes and equipment designed and constructed in accordance with codes, standards or practices that are no longer in general use, the owner or operator shall determine and document that the equipment is designed, maintained, inspected, tested and operating in a safe manner.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95414 Process hazard analysis. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator shall perform an initial process hazard analysis on a process that is subject to the tier A program or tier B program level 2 or 3.

2. The owner or operator shall conduct the initial process hazard analysis by June 21, 1999, or before submission of the assessment report pursuant to NAC 459.9545, whichever is later.

3. An owner or operator may use a process hazard analysis that was previously completed to comply with NRS 459.380 to 459.3874, inclusive, or 29 C.F.R. § 1910.119(e) to satisfy the requirement to perform an initial process hazard analysis.

4. The owner or operator shall obtain the approval of the division concerning the methodology of the process hazard analysis before conducting the analysis.

5. The owner or operator shall select one or more of the following methodologies as required by the complexity of the process:

- (a) A "what if" analysis;
- (b) A checklist;
- (c) A "what if" analysis combined with a checklist;
- (d) A hazard and operability study;
- (e) A failure mode and effects analysis;
- (f) A fault tree analysis; or
- (g) An appropriate equivalent methodology.

6. When preparing a process hazard analysis, an owner or operator shall consider:

(a) The hazards of the process;

(b) Any previous incident that had a likely potential for catastrophic consequences, including, without limitation, near misses or accidental releases as described in NAC 459.95378;

(c) The engineering and administrative controls that are applicable to the hazards and their interrelationships, including, without limitation, the appropriate application of detection methodologies such as process monitoring, control instrumentation with alarms or detection hardware;

(d) The consequences of a failure of engineering and administrative controls;

(e) The siting of the facility;

(f) The human factors; and

(g) A qualitative evaluation of a range of the possible safety and health effects of a failure of controls.

7. If not evaluated as part of the process hazard analysis pursuant to subsections 1 to 6, inclusive, a separate, dedicated hazard analysis, utilizing a checklist or other appropriate method, must be conducted to evaluate:

(a) Human factors;

(b) Facility siting; and

(c) External forces.

8. The owner or operator of a facility with a process that is subject to:

(a) The tier A program shall conduct the process hazard analysis with a team:

(1) With expertise in engineering and process operations; and

(2) That satisfies for the process in question the requirements of NAC 459.95472, 459.95474 and 459.95476;

(b) Tier B program level 2 or 3, but not the tier A program, shall conduct the process hazard analysis with a team:

(1) With expertise in engineering and process operations; and

(2) That includes at least:

(I) One member who has experience and knowledge specific to the process being evaluated; and

(II) One member who is knowledgeable in the methodology for the specific process hazard analysis being used.

9. The owner or operator shall:

(a) Promptly evaluate the findings and recommendations of the assessment team;

- (b) Determine and document a course of action based on the evaluation;
- (c) Develop a written schedule of when the actions are to be completed;
- (d) Complete the actions as soon as possible;
- (e) Communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions; and
- (f) Schedule the resolution of all recommendations in the P.T.A.H. pursuant to NAC 459.95452.

10. At least once every 5 years after the completion of the initial process hazard analysis, a team that satisfies the requirements of subsection 8 shall update and revalidate the process hazard analysis to ensure that the process hazard analysis is consistent with the current process.

11. A process hazard analysis must be updated and revalidated pursuant to the procedures set forth in NAC 459.9549 to 459.955, inclusive.

12. An owner or operator shall retain a process hazard analysis and an update or revalidation for each process subject to this section, as well as any documented resolution of recommendations described in subsection 9, for the life of the process.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95416 Operating procedures. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall develop and implement written operating procedures for that process which:

(a) Are consistent with the process safety information developed pursuant to NAC 459.95412; and

(b) Provide clear instructions for safely conducting such a process.

2. The operating procedures must include:

(a) Steps for each operating phase, including, without limitation, steps for:

(1) The initial startup;

(2) Normal operations;

(3) Temporary operations;

(4) An emergency shutdown, including, without limitation, a description of the conditions under which an emergency shutdown is required and the assignment of responsibility for a shutdown to a qualified operator;

(5) Emergency operations;

(6) A normal shutdown; and

(7) Startup following a turnaround or an emergency shutdown.

(b) Operating limits, including, without limitation:

(1) The consequences of a deviation; and

(2) The steps required to correct or avoid a deviation.

(c) Safety and health considerations, including, without limitation:

(1) The properties of, and hazards presented by, the chemicals used in the process;

(2) The precautions that are necessary to prevent exposure, including, without limitation, engineering controls, administrative controls and personal protective equipment;

(3) Control measures to be taken if physical contact or airborne exposure occurs;

(4) Quality control for raw materials;

(5) Control of hazardous chemical inventory levels; and

(6) Any special or unique hazards.

(d) A description of the safety systems and their functions.

3. The owner or operator shall:

(a) Ensure that the operating procedures are readily accessible to employees who work in or maintain an applicable process;

(b) Review the operating procedures as often as necessary to ensure that they reflect current operating practice, including, without limitation, any change to a process that may result from a change in process chemicals, technology or equipment;

- (c) Certify annually that the operating procedures are current and accurate; and
  - (d) Develop and implement safe work practices for employees and contractors to provide for the control of:
    - (1) Hazards during a lockout or tagout;
    - (2) Hazards during a confined space entry;
    - (3) Hazards while opening the equipment or piping associated with a process;
    - (4) Entrance into the facility by maintenance, contractor, laboratory or other support personnel; and
    - (5) Any other hazards that may be encountered.
- (Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95418 Training procedures. (NRS 459.3818, 459.3833)** Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3:

1. Shall, except as otherwise provided in subsection 2, ensure that each employee who is operating a process or will operate a process is trained in an overview of the process and in the operating procedures created pursuant to NAC 459.95416. Such training must include, without limitation, training in:

- (a) The layout of the plant;
- (b) The location of equipment and instruments;
- (c) The specific safety and health hazards;
- (d) Emergency operations, including, without limitation, procedures for an emergency shutdown; and
- (e) Safe work practices that are applicable to the job tasks of the employee.

2. May, in lieu of providing the training required pursuant to subsection 1, certify in writing that an employee who was operating a process on May 26, 1992, possesses the required knowledge, skills and abilities to safely carry out the duties and responsibilities as specified in the operating procedures.

3. Shall provide an employee with refresher training at least once every 3 years, and more often if it is determined after consultation with the employees who operate the process to be necessary, to ensure that the employee understands and adheres to the current operating procedures of the process.

4. May provide employees with any combination of classroom and field training, including, without limitation, on-the-job training. Training must, at a minimum, follow a predefined syllabus or checklist to ensure that each employee receives training which is essential to his job performance. On-the-job training, if it is the only method employed, does not satisfy the requirements of this subsection unless it follows a predefined syllabus or checklist.

5. Shall ascertain that each employee who operates a process has received and understood the training required pursuant to this section.

6. Shall prepare records that include, without limitation:

- (a) The identity of the employee;
- (b) The date of training;
- (c) The substance of the training provided on that date; and
- (d) The means used to verify that the employee understood the training.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95421 Procedures for maintenance of equipment. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process subject to the tier A program or tier B program level 2 or 3 shall:

(a) Establish and implement written procedures to ensure the ongoing integrity of the equipment listed in subsection 2;

(b) Provide each employee who is involved in maintaining the ongoing integrity of the equipment listed in subsection 2 with:

(1) An overview of the process that uses the equipment and the potential hazards of the process; and

(2) Training in the procedures that are applicable to the job tasks of the employee to ensure that the employee can perform the job tasks in a safe manner;

(c) Perform inspections and tests on process equipment listed in subsection 2;

(d) Ensure that the procedures for inspection and testing follow recognized and generally accepted good engineering practices;

(e) Ensure that the inspections and tests of the equipment are performed:

(1) In the frequency required by good engineering practices and consistent with any applicable recommendations from the manufacturer of the equipment; or

(2) More frequently if determined to be necessary by previous experience in operating the equipment;

(f) Document each inspection and test that has been performed on the equipment, including, without limitation, documentation of:

(1) The date of the inspection or test;

(2) The name of the person who performed the inspection or test;

(3) The serial number or other identifier of the equipment on which the inspection or test was performed;

(4) A description of the inspection or test performed; and

(5) The results of the inspection or test;

(g) Correct any deficiencies in the equipment that are outside the acceptable limits which are described by the process safety information developed pursuant to NAC 459.95412 before using the equipment again;

(h) In the construction of new processes and equipment, ensure that the equipment, as fabricated, is suitable for the process for which it will be used;

(i) Perform appropriate checks and inspections to ensure that equipment is installed properly and consistent with design specifications and instructions from the manufacturer; and

(j) Ensure that maintenance materials, spare parts and equipment are suitable for the process for which they will be used.

2. This section applies to:

(a) Pressure vessels and storage tanks;

(b) Piping systems, including, without limitation, piping components such as valves;

(c) Relief and vent systems and devices;

(d) Emergency shutdown systems;

(e) Controls, including, without limitation, monitoring devices and sensors, alarms and interlocks; and

(f) Rotating equipment.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95423 Procedures for management of change in process. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall:

(a) Establish and implement written procedures to manage changes, other than a replacement in kind, to:

(1) Chemicals, technology, equipment and procedures that are used in a process; and

(2) A process that is subject to the tier A program or tier B program level 2 or 3;

(b) Ensure that the procedures established pursuant to paragraph (a) require that the following considerations are addressed before one of the changes listed in paragraph (a) occurs:

(1) The technical basis for the proposed change;

(2) The impact of change on safety and health;

(3) Whether any modifications to operating procedures will be necessary;

(4) The time necessary to make the proposed change; and

(5) The requirements for authorization for the elements of the proposed change;  
(c) Inform and train for the change any employee who is involved in the operation of the process that is affected by the change and any maintenance or contract employee whose job tasks will be affected by the change before the startup of the process or of the affected part of the process; and

(d) Update:

(1) The process safety information required pursuant to NAC 459.95412; and

(2) The operating procedures or practices required pursuant to NAC 459.416.

2. As used in this section, "replacement in kind" means a replacement of equipment, instruments, procedures, raw material and processing conditions that satisfy the design specifications.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95425 Pre-startup safety review. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall perform a pre-startup safety review for new facilities and for modified facilities when the modification is significant enough to require a change in the process safety information.

2. A pre-startup safety review must confirm that before a substance is introduced into a process:

(a) Construction and equipment is in accordance with design specifications;

(b) Safety, operating, maintenance and emergency procedures are in place and are adequate;

(c) For new or modified facilities, a process hazard analysis has been performed and recommendations have been resolved or implemented before startup;

(d) Modified facilities meet the requirements concerning the management of changes set forth in NAC 459.95423; and

(e) Training of each employee involved in operating the process has been completed.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95427 Verification of compliance; documentation. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall:

(a) Certify at least once every 3 years that an evaluation has been performed of whether adequate procedures and practices as required pursuant to NAC 459.95412 to 459.95435, inclusive, have been developed and implemented;

(b) Create a report of the findings of the evaluation made pursuant to paragraph (a);

(c) Promptly determine and document an appropriate response to any deficiency that is discovered during the evaluation;

(d) Document that any deficiency discovered during the evaluation has been corrected; and

(e) Retain the two most recent reports.

2. The evaluation must be conducted by at least one person who is knowledgeable in the process.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95429 Investigation of incidents. (NRS 459.3818, 459.3833)** Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall:

1. Investigate any incident that resulted in, or could reasonably have resulted in, a catastrophic release of a substance;

2. Initiate the investigation of the incident as promptly as possible, but not later than 48 hours after the incident;

3. Establish a team to investigate the incident that consists of:
  - (a) At least one person who is knowledgeable in the process involved, including, without limitation, a contract employee if his work was involved in the incident; and
  - (b) Any other person who possesses appropriate knowledge and experience to investigate and analyze the incident thoroughly;
4. Prepare an incident report at the conclusion of the investigation which must include, at a minimum:
  - (a) The date of the incident;
  - (b) The date the investigation of the incident began;
  - (c) A description of the incident;
  - (d) The factors that contributed to the incident; and
  - (e) Recommendations resulting from the investigation;
5. Establish a system to address and resolve the findings and recommendations of the incident report promptly;
6. Document any solutions and corrective actions taken;
7. Ensure that the incident report is reviewed with all affected personnel whose job tasks are relevant to the findings of the incident report, including, without limitation, contract employees where applicable; and
8. Retain the incident report for 5 years.  
(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95431 Employee participation. (NRS 459.3818, 459.3833)** Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall:

1. Develop a written plan of action regarding the implementation of the employee participation required by this section;
2. Consult with employees and their representatives about:
  - (a) Conducting and developing process hazard analyses; and
  - (b) Developing and implementing the other requirements of NAC 459.95412 to 459.95435, inclusive; and
3. Provide to employees and their representatives access to process hazard analyses and other information which is developed pursuant to NAC 459.95412 to 459.95435, inclusive.  
(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95433 Hot work permit. (NRS 459.3818, 459.3833)** Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall:

1. Issue a hot work permit for hot work conducted on or near a process;
2. Document in the permit:
  - (a) That the fire prevention and protection requirements in 29 C.F.R. § 1910.252(a) are implemented before beginning hot work;
  - (b) The dates which are authorized for hot work; and
  - (c) The object on which hot work is to be performed; and
3. Keep the permit on file until completion of the hot work.  
(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95435 Duties of owner or operator concerning contractors; duties of contractors. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in paragraph (a) of subsection 3 of NAC 459.95382, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall:
  - (a) When selecting a contractor, obtain and evaluate information regarding the safety performance and programs of the contractor;

- (b) Inform the contractor of known potential fire, explosion or toxic release hazards related to the work of the contractor and to the process on which he working;
- (c) Explain to the contractor the applicable provisions of NAC 459.9544 and 459.95442;
- (d) Develop and implement safe work practices consistent with NAC 459.95416; and
- (e) Periodically evaluate the performance of the contractor in satisfying the requirements of subsection 2.

2. The contractor shall:

- (a) Ensure that each of his employees who will work on the process is trained in the work practices necessary to perform his job safely;
- (b) Ensure that each of his employees who will work on the process is instructed in:
  - (1) The known potential fire, explosion or toxic release hazards related to his job and the process on which he is working; and
  - (2) The applicable provisions of the emergency action plan;
- (c) Document that each of his employees who will work on the process has received and understood the training required pursuant to this subsection;
- (d) Prepare a record that contains:
  - (1) The identity of the employee;
  - (2) The date of training; and
  - (3) The means used to verify that the employee understood the training;
- (e) Ensure that each of his employees who works on the process follows the safety rules of the facility, including, without limitation, the safe work practices required pursuant to NAC 459.95416; and
- (f) Advise the owner or operator of any unique hazards presented by or found during the work of an employee.

3. This section:

- (a) Applies to contractors who perform maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to a process.
- (b) Does not apply to contractors who provide incidental services that do not influence process safety, including, without limitation, janitorial work, food and drink services, laundry, delivery or other supply services.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### **Emergency Response Programs**

#### **NAC 459.9544 Applicability; compliance. (NRS 459.3818, 459.3833)**

1. Except as otherwise provided in subsection 2, the owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall comply with the requirements of NAC 459.95442.

2. The owner or operator of a facility in which the employees will not respond to an accidental release of a tier A or tier B substance is not required to comply with the provisions of NAC 459.95442 if:

- (a) For facilities subject to 29 C.F.R. § 1910, the facility has implemented an emergency action plan that contains the elements set forth in 29 C.F.R. § 1910.38(a);
- (b) Appropriate mechanisms are in place to notify emergency responders when there is a need for a response;
- (c) For facilities with a substance that is subject to 40 C.F.R. Part 355 and has quantities in excess of the threshold planning quantity, the facility is included in the comprehensive emergency response plan developed pursuant to 42 U.S.C. § 11003; and
- (d) For facilities to which paragraph (c) does not apply, the facility has coordinated response actions with the local fire department.

3. The owner or operator shall ensure that his facility is in compliance with the applicable provisions of this section or NAC 459.95442 at the time he submits the assessment report pursuant to NAC 459.9545.

4. As used in this section, "threshold planning quantity" has the meaning ascribed to it in 40 C.F.R. Part 355.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95442 Establishment and implementation; review and coordination; written plan. (NRS 459.3818, 459.3833)**

1. An owner or operator shall:

(a) Establish and implement an emergency response program to protect employees, public health and the environment, which program must include:

(1) For facilities subject to 29 C.F.R. § 1910, an emergency action plan that contains the elements set forth in 29 C.F.R. § 1910.38(a);

(2) For facilities subject to 29 C.F.R. § 1910, a hazardous materials response program that contains the elements outlined in 29 C.F.R. § 1910.120(q);

(3) Procedures for informing the public and local emergency response agencies about an accidental release;

(4) Documentation of proper first-aid and emergency medical treatment necessary to treat accidental human exposures;

(5) Procedures and measures for emergency response after an accidental release of a tier A or tier B substance;

(6) Procedures for the use, inspection, testing and maintenance of emergency response equipment;

(7) Training for all employees in relevant procedures for emergency response; and

(8) Procedures to review and update, as appropriate, the emergency response plan to reflect changes at the facility and ensure that employees are informed of changes.

(b) Coordinate the emergency response plan with the community emergency response plan developed pursuant to 42 U.S.C. § 11003. Upon request of the local emergency planning committee or emergency response officials, the owner or operator shall promptly provide to the local emergency response officials any information that is necessary for developing and implementing the community emergency response plan.

(c) Review and coordinate the emergency response plan developed pursuant to paragraphs (a) or (b) with local emergency responders.

2. A written plan satisfies the requirements of this section if it:

(a) Complies with other federal contingency plan regulations and the requirements set forth in subsection 1; or

(b) Complies with the requirements set forth in subsection 1 and is consistent with the approach of the National Response Team's Integrated Contingency Plan Guidance set forth in 61 Fed. Reg. 28,642-28,664 and 31,103-31,104 (1996).

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### **Assessment Reports**

**NAC 459.95446 Submission of draft for tier A program. (NRS 459.3818)** For a process that is subject to the tier A program, the assessment team may submit to the division a draft of the assessment report. Such a draft must be submitted at least 120 days before the final deadline for submittal of the assessment report. The division will provide the leader of the assessment team with written comments on the draft within 60 days after the division receives the draft.

(Added to NAC by Div. of Environmental Protec., eff. 7-10-92; A by Environmental Comm'n by R121-98, 5-27-99)—(Substituted in revision for NAC 459.9534)

**NAC 459.95448 Assessment report satisfies requirement for written report of assessment of risk through analysis of hazard. (NRS 459.3818, 459.3833)** An owner or operator satisfies the requirement of preparing and submitting to the division a written report of the assessment of a risk through analysis of the hazard pursuant to NRS 459.3846 if he prepares and submits to the division an assessment report pursuant to NAC 459.95448 to 459.95468, inclusive.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.9545 Submission; trade secret or confidential business information. (NRS 459.3818, 459.3833)**

1. The owner or operator of a facility in which all processes are subject to the tier A program and no process is subject to the tier B program shall submit for each process to a location that the division specifies an assessment report which contains the elements set forth in NAC 459.95452 to 459.95466, inclusive, pursuant to a schedule that is determined by the division considering the summary of the off-site consequence analysis provided with the registration.

2. The owner or operator of a facility in which all processes are subject to both the tier A program and tier B program shall submit for each process an assessment report that contains the elements set forth in NAC 459.95452 to 459.95466, inclusive. The assessment report must be submitted in a method and format to a location that the division specifies before the latest of:

(a) June 21, 1999;

(b) The date on which a substance is first present above a threshold quantity in a process; or

(c) For a substance that is newly added to NAC 459.9533, a date which the division specifies, not to exceed 3 years after the date on which the substance is added.

3. The owner or operator of a facility in which the processes are subject to a combination of the tier A program and tier B program shall submit the assessment reports as follows:

(a) For a process that is subject to the tier A program but not the tier B program, the owner or operator shall submit the assessment report pursuant to subsection 1.

(b) For a process that is subject to the tier B program, or both the tier A program and tier B program, the owner or operator shall submit the assessment report pursuant to subsection 2.

4. An owner or operator shall make subsequent submissions of an assessment report pursuant to NAC 459.95468.

5. Notwithstanding the provisions of NAC 459.95452 to 459.95468, inclusive, an owner or operator may exclude information concerning a trade secret or confidential business information from the assessment report if that information meets the conditions set forth in:

(a) NRS 459.3846, if the process is subject to the tier A program; or

(b) 40 C.F.R. § 2.301, if the process is subject to the tier B program.

6. An owner or operator shall transmit information concerning a trade secret or confidential business information to a location that the division specifies as follows:

(a) An unredacted paper copy of the assessment report must clearly identify each data element that is being claimed as information concerning a trade secret or confidential business information.

(b) A redacted copy of the assessment report must be identical to the unredacted copy of the assessment report except that the owner or operator shall replace each data element, other than the chemical identity, which the owner or operator claims is information concerning a trade secret or confidential business information with the notation "CBI" or a blank field. For chemical identities claimed as CBI, the owner or operator shall substitute a generic category or class name.

(c) The owner or operator shall submit both a redacted and unredacted version of the same document at the time of submission of the assessment report substantiating each claim of information concerning a trade secret or confidential business information.

7. An owner or operator shall not claim the following data as information concerning a trade secret or confidential business information:

(a) The registration data that is described in subsection 2 of NAC 459.95454, except the information in paragraph (h) or (j) of subsection 2 of NAC 459.95454;

- (b) The off-site consequence analysis data that is described in subparagraphs (2) and (6) to (10), inclusive, of paragraph (c) of subsection 1 of NAC 459.95456;
- (c) The accident history data that is described in NAC 459.95458;
- (d) The prevention program data that is described in:
  - (1) Subsections 1 and 3, paragraph (a) of subsection 4 and subsections 5 to 13, inclusive, of NAC 459.9546; and
  - (2) Subsections 1 and 3, paragraph (a) of subsection 4 and subsections 5 to 18, inclusive, of NAC 459.95462; and
- (e) The emergency response program data that is described in NAC 459.95464.  
(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95452 Executive summary; submission of P.T.A.H. (NRS 459.3818, 459.3833)**

1. An owner or operator shall provide, in the assessment report, an executive summary that includes, without limitation, a brief description of:

- (a) The policies for accidental release prevention and the policies for emergency response at the facility;
- (b) The substances that are handled at the facility;
- (c) Each worst-case release scenario and alternative release scenario, including, without limitation, administrative controls and mitigation measures taken to limit the distances to the endpoint for each scenario;
- (d) The accidental release prevention program and chemical-specific steps for prevention;
- (e) The 5-year accident history;
- (f) The emergency response program;
- (g) Any planned changes to improve safety; and
- (h) A P.T.A.H., if the facility has a process that is subject to the tier A program or tier B program level 2 or 3.

2. Recommendations that are made pursuant to a hazard review or process hazard analysis to minimize the likelihood of a release, fire or explosion involving a tier A or tier B substance, or to mitigate the effects of a release, fire or explosion involving a tier A or tier B substance, which has the potential for acute health impacts on employees or the public must be described in the P.T.A.H. as set forth in subsection 4.

3. Each prevention program element and emergency response element must be evaluated for compliance with NAC 459.95382 to 459.95442, inclusive. Recommendations made to enhance these elements, or to correct deficiencies, must be described in the P.T.A.H. as set forth in subsection 4.

4. For each recommendation made pursuant to subsections 2 and 3, the owner or operator shall provide:

- (a) A description of the hazard;
- (b) The cause of the hazard;
- (c) Consequences of the hazard;
- (d) A description of the recommendation; and
- (e) The implementation date for the recommendation.

5. A P.T.A.H. submitted pursuant to this section shall be deemed to satisfy the requirements of subsection 3 of NRS 459.3852 for a process that is subject to the tier A program.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95454 Registration form concerning substances. (NRS 459.3818, 459.3833)**

1. An owner or operator shall complete a registration form that addresses all substances handled in any process at his facility and submit it with the assessment report.

2. The registration must include, without limitation:

- (a) The name, street, city, county, state, zip code, latitude and longitude of the facility, and the method for obtaining the latitude and longitude;
- (b) A description of the location on which the facility sits;

- (c) The Dun & Bradstreet number of the facility;
  - (d) The name and Dun & Bradstreet number of any parent corporation;
  - (e) The name, telephone number and mailing address of the facility;
  - (f) The name and title of the person with overall responsibility for the implementation of C.A.P.P.;
  - (g) The name, title, telephone number during normal business hours and telephone number that is available 24 hours per day of an emergency contact;
  - (h) For each process:
    - (1) The name and C.A.S. number of each substance used in the process;
    - (2) The maximum quantity in pounds of each substance or mixture used in the process to two significant digits;
    - (3) The applicable N.A.I.C.S. code number; and
    - (4) The program tiers and program level to which the process is subject;
  - (i) The identifier that the United States Environmental Protection Agency has assigned to the facility;
  - (j) The number of full-time employees at the facility;
  - (k) Whether the facility is subject to 29 C.F.R. § 1910.119;
  - (l) Whether the facility is subject to 40 C.F.R. Part 355;
  - (m) Whether the facility has an operating permit as required pursuant to 40 C.F.R. Part 70 and, if applicable, the permit number; and
  - (n) The date of the last safety inspection of the facility by a federal, state or local governmental agency and the identity of the inspecting entity.
- (Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95456 Evaluation of off-site consequences. (NRS 459.3818, 459.3833)**

1. An owner or operator shall evaluate off-site consequences pursuant to NAC 459.95362 to 459.95376, inclusive, and submit in the assessment report:
  - (a) One worst-case release scenario for each process that is subject to the tier B program level 1;
  - (b) For each process that is subject to either the tier A program or tier B program level 2 or 3:
    - (1) One worst-case release scenario to represent all substances designated as toxic in NAC 459.9533, or determined to be toxic by the owner or operator, that are held above the threshold quantity;
    - (2) One worst-case release scenario to represent all substances designated as either flammable or explosive in NAC 459.9533, or determined to be flammable or explosive by the owner or operator, that are held above the threshold quantity; and
    - (3) One alternative release scenario:
      - (I) For each substance designated as toxic in NAC 459.9533 that is held above the threshold quantity; and
      - (II) To represent all substances designated as flammable or explosive that are held above the threshold quantity; and
  - (c) The following data for each release scenario:
    - (1) The chemical name of the substances;
    - (2) A description of the scenario, including, without limitation, whether the scenario involves an explosion, fire, toxic gas release, or liquid spill and vaporization;
    - (3) The quantity in pounds of the substance that is released;
    - (4) The rate at which the substance is released;
    - (5) The duration of the release;
    - (6) The distance to the endpoint;
    - (7) Public and environmental receptors that are located within the distance to the endpoint;
    - (8) Any passive mitigation that is considered;
    - (9) Any active mitigation that has been considered for an alternative release scenario;
    - (10) If the substance is toxic:
      - (I) The percentage weight of the substance in a mixture;

- (II) The physical state of the substance;
  - (III) The wind speed and atmospheric stability class used in the scenario; and
  - (IV) The topography of the geographical area used in the scenario; and
- (11) The basis of the results of the scenario, including, without limitation, the name of any model that is used.

2. If the owner or operator is required to submit additional worst-case release scenarios for toxics, flammables or explosives pursuant to NAC 459.95366, he shall provide the information required pursuant to this section.

(Added to NAC by Environmental Comm'n by R121-98, 5-27-99, eff. 6-21-99)

**NAC 459.95458 Submission of 5-year accident history. (NRS 459.3818, 459.3833)** An owner or operator shall submit in the assessment report the 5-year accident history created pursuant to NAC 459.95378.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.9546 Contents of report for tier B program level 2. (NRS 459.3818, 459.3833)** For each process that is subject to the tier B program level 2 for which a separate hazard analysis review was conducted, the owner or operator shall provide in the assessment report:

1. The applicable N.A.I.C.S. code for the process;
2. The name of any chemical that was addressed in the analysis;
3. The date of the most recent review or revision of the safety information and a list of federal or state regulations or industry-specific design codes and standards used to demonstrate compliance with the safety information requirement;
4. The date of completion of the most recent hazard review or update, including, without limitation:

- (a) The expected date of completion of changes resulting from the hazard review;
  - (b) The major hazards identified;
  - (c) The process controls in use;
  - (d) The mitigation systems in use;
  - (e) The monitoring and detection systems in use; and
  - (f) Changes since the last hazard review;
5. The date of the most recent review or revision of the operating procedures;
  6. The date of the most recent review or revision of the training programs;
  7. Whether the training occurred in a classroom, in a classroom and while on the job, or only while on the job;
  8. The type of any competency testing that was used;
  9. The date of the most recent review or revision of the maintenance procedures;
  10. The date of the most recent inspection or test of the equipment and a list of the equipment that was inspected or tested;
  11. The date of the most recent compliance audit and the expected date of completion of changes resulting from the compliance audit;
  12. The date of the most recent incident investigation and the expected date of completion of changes resulting from the investigation; and
  13. The date of the most recent change that resulted in a review or revision of safety information, the hazard review, operating or maintenance procedures, or training.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95462 Contents of report for tier A program or tier B program level 3. (NRS 459.3818, 459.3833)** For each process that is subject to the tier A program or tier B program level 3 for which a separate process hazard analysis was conducted, the owner or operator shall provide:

1. The applicable N.A.I.C.S. code for the process;
2. The name of any chemical that was addressed in the analysis;

3. The date on which the safety information was last reviewed or revised;
  4. The date of completion of the most recent process hazard analysis or update and the technique used, including, without limitation:
    - (a) The expected date of completion of changes resulting from the process hazard analysis;
    - (b) A summary of major hazards that were identified;
    - (c) A summary of process controls that are in use;
    - (d) A summary of mitigation systems that are in use;
    - (e) A summary of monitoring and detection systems that are in use; and
    - (f) A summary of changes that have been made since the last process hazard analysis;
  5. The date of the most recent review or revision of the operating procedures;
  6. The date of the most recent review or revision of the training programs;
  7. Whether the training occurred in a classroom, in a classroom and while on the job, or only while on the job;
  8. The type of competency testing that was used;
  9. The date of the most recent review or revision of the maintenance procedures;
  10. The date of the most recent inspection or test of the equipment and a list of the equipment that was inspected or tested;
  11. The date of the most recent change that resulted in management of change procedures and the date of the most recent review or revision of management of change procedures;
  12. The date of the most recent pre-startup review;
  13. The date of the most recent compliance audit, required pursuant to NAC 459.95427, and the expected date of completion of changes resulting from the compliance audit;
  14. The date of the most recent incident investigation and the expected date of completion of changes resulting from the investigation;
  15. The date of the most recent review or revision of the employee participation plans;
  16. The date of the most recent review or revision of the hot work permit procedures;
  17. The date of the most recent review or revision of the contractor safety procedures; and
  18. The date of the most recent evaluation of contractor safety performance.
- (Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95464 Emergency response plan. (NRS 459.3818, 459.3833)** An owner or operator shall:

1. Provide in the assessment report:
  - (a) Whether he has created a written emergency response plan;
  - (b) Whether the emergency response plan includes specific actions to be taken in response to an accidental release of a tier A or tier B substance;
  - (c) Whether the plan includes procedures for informing the public and local agencies responsible for responding to accidental releases;
  - (d) Whether the plan includes information concerning emergency health care;
  - (e) The date of the most recent review or update of the emergency response plan; and
  - (f) The date of the most recent emergency response training for employees;
2. Provide the name and telephone number of the local agency with which emergency response activities or the emergency response plan is coordinated; and
3. List any other federal or state emergency plan requirements to which the facility is subject.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95466 Certification. (NRS 459.3818, 459.3833)**

1. For a process that is subject to tier B program level 1, the owner or operator shall include in the assessment report a certification in substantially the following form:

Based on the criteria set forth in subsection 2 of NAC 459.95327, the distance to the specified endpoint for the worst-case accidental release scenario for the following process(es) is (are) less than the distance to the nearest public receptor: [list process(es)].

Within the past 5 years, the process(es) has (have) had no accidental release that caused on-site or off-site impacts.

No additional measures are necessary to prevent off-site impacts caused by accidental releases.

In the event of a fire, explosion or release of a tier A or tier B substance from the process(es), entry within the distance to the specified endpoints may pose a danger to public emergency responders. Therefore, public emergency responders should not enter this area except as arranged with the emergency contact indicated in the assessment report.

The undersigned certifies that, to the best of my knowledge, information and belief, formed after reasonable inquiry, the information submitted is true, accurate and complete.

[Signature, title, date signed]

2. For an assessment report submitted pursuant to NAC 459.95448 to 459.95464, inclusive, to which subsection 1 of this section does not apply, the certification must substantially conform to one of the following forms:

(a) I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information.

[Signature, title, date signed]

(b) I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attached documents and that, based on my inquiry of the natural persons immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false information.

[Signature, title, date signed]

3. The certification must be signed by the sole proprietor of the facility, the highest ranking corporate officer of the facility, a partner at the facility, the manager of the facility or a person designated by one of those persons to sign the certification.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95468 Reviews and updates. (NRS 459.3818, 459.3833)**

1. The owner or operator shall review and update the assessment report as specified in subsection 2 and submit it in a method and format to a location that the division specifies.

2. The owner or operator shall review and update the assessment report:

(a) Within 5 years after the initial submission or most recent update of the report, whichever is later;

(b) After a substance is first listed pursuant to NAC 459.9533, not later than 3 years after the substance is listed or as required by the division, whichever occurs first;

(c) Not later than the date on which a substance that is listed in NAC 459.9533 is first present above the threshold quantity in a process that is not yet subject to the tier A program or tier B program;

(d) Not later than the date on which a substance that is listed in NAC 459.9533 is first present above the threshold quantity in a process that is already subject to the tier A program or tier B program;

(e) Within 6 months after a change that requires a revised process hazard analysis or hazard review;

(f) Within 6 months after a change that requires a revised off-site consequence analysis as set forth in NAC 459.95374; and

(g) Within 6 months after a change that changes the tier or program level to which a process is subject.

3. If a facility or single process changes so that it is no longer subject to C.A.P.P., the owner or operator shall submit a revised registration to the division within 6 months after the change indicating that the facility or process is no longer subject to C.A.P.P.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### **Assessment Team**

#### **NAC 459.95472 Qualifications of members. (NRS 459.3818)**

1. The members of an assessment team must have:

(a) Completed collectively at least one previous project in:

- (1) Engineering related to chemical processes;
- (2) Engineering related to safety;
- (3) The preparation of operating procedures;
- (4) The preparation or review of procedures for maintenance;
- (5) The preparation or review of procedures for safety;
- (6) The preparation or review of programs to train operators;
- (7) The performance or review of investigations of accidents;
- (8) The performance of analysis of hazards;
- (9) The performance of risk assessments;
- (10) The preparation or review of plans for response to emergencies; or
- (11) The performance of audits of programs to manage risks; or

(b) Knowledge of the state of the art in the technology of the processes that are used.

2. At least one member of the assessment team must be a licensed professional engineer in this state.

3. At least one member of the assessment team must have experience and knowledge specific to the operations or process being evaluated.

4. The leader of the assessment team must have experience as a project or operations manager.

5. The technical leader of the assessment team must have:

- (a) Completed training specific to conducting or leading a process hazard analysis; and
- (b) Participated in at least three process hazard analyses.

6. Persons may be used interchangeably to fulfill the different roles that are described in NAC 459.95474 if the persons have been approved by the division.

(Added to NAC by Div. of Environmental Protec., eff. 7-10-92; A by Environmental Comm'n by R121-98, 5-27-99)—(Substituted in revision for NAC 459.9536)

#### **NAC 459.95474 Duties. (NRS 459.3818)**

1. The entire assessment team shall:

(a) Actively participate in the work sessions for the process hazard analysis and the review of the report of the process hazard analysis;

(b) Review and approve the content of the assessment report and P.T.A.H.; and

(c) Review the findings or recommendations that result from an audit performed pursuant to subsection 2 and may revise the findings and recommendations.

2. Individual members of the assessment team may audit select elements of the prevention program and emergency response program.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95476 Submission of information to division. (NRS 459.3818)**

1. Pursuant to the schedule set forth in subsection 2, the owner or operator shall submit to the division:

- (a) The qualifications of each member of the assessment team in any of the following areas:
  - (1) Engineering related to chemical processes;
  - (2) Engineering related to safety;
  - (3) The preparation of operating procedures;
  - (4) The preparation or review of procedures for maintenance;
  - (5) The preparation or review of procedures for safety;
  - (6) The preparation or review of programs to train operators;
  - (7) The performance or review of investigations of accidents;
  - (8) The performance of analyses of hazards;
  - (9) The performance of risk assessments;
  - (10) The preparation or review of plans for response to emergencies;
  - (11) The performance of audits of programs to manage risks; or
  - (12) The state of the art as it relates to the technology of the processes used;
- (b) The résumé for each member of the assessment team;
- (c) The qualifications and experience of any additional person who may work with the assessment team;
- (d) The expected date of when the assessment will begin and the schedule for performing the assessment;
- (e) The estimated number of hours each assessment team member is expected to work on the assessment;
- (f) The extent to which the team will use collateral items such as computers, software and outside consultants;
- (g) The name, area of expertise and registration number of at least one member of the team who is a professional engineer and is licensed as such in this state;
- (h) The name of at least one member of the team who has experience and knowledge specific to the operations or process being evaluated and documentation of such experience;
- (i) The name of the member of the team who has been designated as the team leader and documentation that the person has experience as a project or operations manager;
- (j) The name of the member of the team who has been designated as the technical leader and documentation that the person has:
  - (1) Completed training specific to the assessment of chemical hazards; and
  - (2) Participated in at least three assessments of chemical hazards;
- (k) The scope and boundaries of the process and proposed methodology for the process hazard analysis; and
- (l) A clear and concise description of how the assessment team will evaluate:
  - (1) The emergency response program;
  - (2) Process safety information;
  - (3) The process hazard analysis;
  - (4) Standard operating procedures;
  - (5) Training; and
  - (6) The maintenance program and procedures.

2. For a process that is subject to:

(a) The tier A program but not the tier B program, the owner or operator shall submit the information required pursuant to this section within 60 days after being notified by the division that the assessment report is due.

(b) The tier A program and tier B program, the owner or operator shall submit the information required pursuant to this section before conducting the assessment.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

## Annual Compliance Report

**NAC 459.9548 Submission. (NRS 459.3818)** Within 30 days after each anniversary of the date on which the P.T.A.H. was adopted, the owner or operator shall submit a report of compliance for any process that is subject to the tier A program.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95482 Content. (NRS 459.3818)** The annual report of compliance required pursuant to NAC 459.9548 must include, without limitation:

1. Each P.T.A.H. recommendation listed in the assessment report that is made for a process which is subject to the tier A program;
2. The date on which implementation of the P.T.A.H. recommendations are due;
3. The status of implementation of the P.T.A.H. recommendations;
4. Comments by the owner or operator on the status of implementation of each P.T.A.H. recommendation;
5. Any efforts that were undertaken by the owner or operator during the previous calendar year to assess and reduce risks related to tier A substances;
6. Any changes in maintenance schedules and activities and any unanticipated maintenance on critical equipment or safety controls related to tier A substances that was conducted at the facility during the previous calendar year;
7. Any efforts undertaken by the facility to assess and remedy the release of any quantity of a tier A substance;
8. Any other information requested by the division; and
9. A certification as set forth in subsection 2 of NAC 459.95466.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

## Two Release Provisions

**NAC 459.95486 Requirements for exemption from C.A.P.P. (NRS 459.3818)**

1. A process that is otherwise subject to C.A.P.P. pursuant to paragraph (b) of subsection 1 of NAC 459.95323 is not subject to C.A.P.P. if:
  - (a) Two or more years have elapsed since the division received the assessment report;
  - (b) The owner or operator has complied with all relevant requirements of C.A.P.P. in the past;
  - (c) The recommendations from the P.T.A.H. developed pursuant to NRS 459.3852 are verified by the division to be complete; and
  - (d) The state environmental commission has granted the exemption pursuant to NAC 459.95488.

2. The division shall require continued compliance with C.A.P.P. until the P.T.A.H. is completed and the state environmental commission has granted the exemption pursuant to NAC 459.95488.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95488 Request for exemption from C.A.P.P. (NRS 459.3818)**

1. In order to be granted an exemption by the state environmental commission from C.A.P.P., the owner or operator of a facility with a process that is subject to C.A.P.P. pursuant to paragraph (b) of subsection 1 of NAC 459.95323 must submit:

- (a) A written letter to the division requesting exemption from C.A.P.P.; and
  - (b) The most recent annual report of compliance, indicating that all measures of the P.T.A.H. have been completed.

2. Not later than 60 calendar days after the division receives the letter and report submitted to it pursuant to subsection 1, the division shall verify that all measures of the P.T.A.H. have been completed.

3. Not later than 90 calendar days after the division receives the letter and report submitted to it pursuant to subsection 1, the division shall:

(a) Document its findings concerning its investigation into whether all measures of the P.T.A.H. have been completed; and

(b) Notify the owner or operator in writing whether the division has found that all measures of the P.T.A.H. have been completed.

4. Once the owner or operator has received notice that the division has found that all measures of the P.T.A.H. have been completed, he may petition the state environmental commission to become exempt from C.A.P.P. by filing with the secretary of the state environmental commission:

(a) A letter requesting exemption from C.A.P.P.; and

(b) A copy of the findings of the division made pursuant to subsection 3.

5. Upon receiving the letter and findings from an owner or operator pursuant to subsection 4, the secretary of the state environmental commission shall:

(a) Schedule a review of the petition at the next meeting of the state environmental commission; and

(b) Notify the public by publication and the use of public service announcements of the petition.

6. At the hearing, the state environmental commission will consider the following to determine whether it will grant the petition:

(a) Whether the causes of any releases have been adequately mitigated to prevent future releases;

(b) Whether the facility has an adequate program in place to maintain the accident prevention program established pursuant to C.A.P.P.;

(c) Whether the division believes that the exemption should be granted; and

(d) Whether the facility has had an accidental release since becoming subject to C.A.P.P.

7. If the state environmental commission:

(a) Grants the exemption, the exemption will become effective on the day following the hearing.

(b) Does not grant the exemption, the commission will provide the owner or operator with an explanation of the reason the commission denied the exemption.

8. The owner or operator may reapply for the exemption at any time.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### **Revalidation**

#### **NAC 459.9549 Process hazard analysis. (NRS 459.3818, 459.3833)**

1. The revalidation of a process hazard analysis that is required pursuant to NAC 459.95414 must:

(a) Confirm pursuant to NAC 459.95494 to 459.955, inclusive, that the analysis or review is valid for the current process; and

(b) Satisfy the requirements of NAC 459.95414.

2. The owner or operator may perform a new process hazard analysis in lieu of revalidating a previous analysis, if:

(a) The process hazard analysis satisfies the requirements of NAC 459.95414; and

(b) All the supporting information, including, without limitation, the process safety information, operating procedures, training program, mechanical integrity program and emergency response program reflect current operations.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

#### **NAC 459.95492 Hazard review. (NRS 459.3818, 459.3833)**

1. The revalidation of a hazard review that is required pursuant to NAC 459.95388 must:

(a) Confirm pursuant to NAC 459.95496, 459.95498 and 459.955 that the analysis or review is valid for the current process; and

(b) Satisfy the requirements of NAC 459.95388.

2. The owner or operator may perform a new hazard review in lieu of revalidating a previous review, if:

(a) The hazard review satisfies the requirements of NAC 459.95388; and

(b) All the supporting information, including, without limitation, the safety information, operating procedures, training program, maintenance program and emergency response program reflect current operations.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95494 Tier A program. (NRS 459.3818, 459.3833)** Revalidation of a facility with a process that is subject to the tier A program must be conducted by an assessment team which satisfies the requirements of NAC 459.95472.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95496 Process safety information. (NRS 459.3818, 459.3833)** If process safety information or a change in process safety information was subject to a process hazard analysis or hazard review, the owner or operator is not required to revalidate the analysis or review if the analysis or review reflects the current process.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.95498 Current procedures and programs. (NRS 459.3818, 459.3833)**

1. A revalidated process hazard analysis or hazard review must reflect current operating procedures, training programs, maintenance programs and emergency response programs.

2. If a change in operating procedures, training programs, maintenance programs and emergency response programs was subject to a process hazard analysis or hazard review, the owner or operator is not required to revalidate the analysis or review if the analysis or review reflects the current procedures and programs.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

**NAC 459.955 Consideration of incidents. (NRS 459.3818, 459.3833)**

1. All incidents that had the potential for, or actually resulted in, a release, fire or explosion involving a tier A or tier B substance must be considered by the person or team conducting a revalidation of a process hazard analysis or hazard review.

2. The revalidation of the analysis or review must include, without limitation:

(a) A review of the recommendations that were made as a result of the investigation; and

(b) Confirmation that the recommendations are being implemented in a timely manner.

3. If a deficient element of a prevention program was a contributing factor to an incident, the person or team conducting the revalidation shall make recommendations to correct the deficiency.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

### **Change in Ownership**

**NAC 459.95512 Requirements. (NRS 459.3818, 459.3833)** If a facility with a process that is subject to the tier A program or tier B program changes ownership, the new owner or operator shall comply fully with the requirements of NRS 459.380 to 459.3874, inclusive, and any regulations adopted pursuant thereto and:

1. If the annual registration required pursuant to NAC 459.95348 is not due, satisfy the requirements for registration set forth in NAC 459.9535 and 459.95358 not later than 14 days after the transfer of ownership; or

2. If the annual registration required pursuant to NAC 459.95348 is due, submit the annual registration.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

## Management Systems

**NAC 459.95516 Development. (NRS 459.3818, 459.3833)** The owner or operator of a facility with a process that is subject to the tier A program or tier B program level 2 or 3 shall develop a management system to oversee the implementation of all requirements of C.A.P.P. and:

1. Assign a qualified person to have overall responsibility for the development, implementation and integration of the requirements of C.A.P.P.; or

2. Create a team with overall responsibility for the development, implementation and integration of the requirements of C.A.P.P. The owner or operator shall document:

(a) The names of the persons who are members of the team; and

(b) The relevant lines of authority for the team by means of an organization chart or similar document.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

## Inspections

**NAC 459.9552 Determination of compliance. (NRS 459.3818, 459.3833)**

1. The division:

(a) Shall conduct an annual inspection to determine compliance at each facility with a process that is subject to the tier A program pursuant to subsection 4 of NRS 459.387;

(b) May, in addition to the annual inspection to determine compliance, inspect a facility with a process that is subject to the tier A program for program compliance pursuant to subsection 1 of NRS 459.387;

(c) May inspect a facility with a process that is subject to the tier B program to determine whether the facility complies with program requirements, including, without limitation, compliance with:

(1) The prevention program developed pursuant to NAC 459.95382 to 459.95435, inclusive;

(2) The emergency response program developed pursuant to NAC 459.9544 and 459.95442; and

(3) The requirements of the hazard assessment developed pursuant to NAC 459.95362 to 459.95378, inclusive; and

(d) May audit the components of the facility's assessment report submitted pursuant to NAC 459.95448 to 459.95468, inclusive, that contain processes subject to the tier B program to verify the accuracy of the report.

2. The division shall make the records of all inspections and audits made pursuant to this section available for public review.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

## Enforcement

**NAC 459.95524 Applicability. (NRS 459.3818, 459.3833)** The division may take enforcement action at a facility with a process that is subject to:

1. The tier A program pursuant to NRS 459.3872 and 459.3874; and

2. The tier B program pursuant to paragraph (c) of subsection 2 of NRS 459.3833 and 459.3834.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

## Standards and Codes

**NAC 459.95528 Adoption by reference. (NRS 459.3818, 459.3833)** The following provisions are hereby adopted by reference:

1. Codes 211112, 32211, 32411, 32511, 325181, 325188, 325192, 325199, 325211, 325311 and 32532 of the 1997 version of the N.A.I.C.S. A copy may be obtained from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161, at a cost of \$28.50.

2. N.F.P.A. 704, the Standard System for the Identification of the Hazards of Materials for Emergency Response. A copy may be obtained from the National Fire Protection Association, 11 Tracy Drive, Avon, Massachusetts 02322-9908, at a cost of \$18.50.

3. N.F.P.A. 30, the 1996 version of the Flammable and Combustible Liquids Code. A copy may be obtained from the National Fire Protection Association, 11 Tracy Drive, Avon, Massachusetts 02322-9908, at a cost of \$24.75.

4. ERPG-2 of the Emergency Response Planning Guidelines Series. A copy may be obtained from the American Industrial Hygiene Association, 2700 Prosperity Avenue, Suite 250, Fairfax, Virginia 22031, at a cost of \$310.

5. The R.M.P. Off-Site Consequence Analysis Guidance. A copy may be obtained free of charge from the United States Environmental Protection Agency, P.O. Box 42419, Cincinnati, Ohio 45242-2419.

(Added to NAC by Environmental Comm'n by R121-98, eff. 5-27-99)

## NUCLEAR PROJECTS

**NAC 459.960 Definitions.** As used in NAC 459.960 to 459.969, inclusive, unless the context otherwise requires, the words and terms defined in NRS 459.009 have the meanings ascribed to them in that section.

(Added to NAC by Comm'n on Nuclear Projects, eff. 6-23-86)

**NAC 459.963 Clarification of regulations.**

1. An interested party may obtain clarification of any of the provisions of NAC 459.960 to 459.969, inclusive, by directing a request to the executive director of the agency at the following address:

Agency for Nuclear Projects/Nuclear  
Waste Project Office  
Capitol Complex  
1802 North Carson St., Suite 252  
Carson City, NV 89710

2. If the requester is dissatisfied with the response of the executive director, he may petition the commission for such clarification. In order to be heard at its next regularly scheduled meeting, the petition must be received by the commission in time to be included as an item on the agenda for that meeting.

(Added to NAC by Comm'n on Nuclear Projects, eff. 6-23-86)

**NAC 459.965 Meetings of commission.** Regular meetings of the commission will be scheduled at the pleasure of a majority of the members of the commission. Special meetings may be called by the chairman to consider matters which must be addressed in advance of the regular meeting. Interested parties may present items for the commission to consider for inclusion in the agenda for special or regularly scheduled meetings.

(Added to NAC by Comm'n on Nuclear Projects, eff. 6-23-86)

**NAC 459.967 Correspondence with agency.** All written communications, payments, transactions and other pertinent documents involving the business of the agency must be addressed to the executive director, who shall receive and process the documents or assign the matter to the administrator of a division of the agency for disposition. The executive director or a person on the staff delegated by him shall respond to any correspondence in the name of the agency.

(Added to NAC by Comm'n on Nuclear Projects, eff. 6-23-86)

**NAC 459.969 Notification of action of agency; fee for copies.**

1. The agency shall notify every person, who has submitted a written request to be notified, of any significant action by the agency, including the adoption of rules or regulations. Each such request expires each year on December 31. A renewal of such a request for the following year may be made on or after December 1st. Information disseminated pursuant to such a request must be sent to the last address filed by the person with the agency.

2. The agency may charge a person who is not a governmental entity a fee for providing copies of any regulations of the commission. The fee must be based on the cost of reproduction.

(Added to NAC by Comm'n on Nuclear Projects, eff. 6-23-86)

## **CERTIFICATION OF CERTAIN CONSULTANTS AND CONTRACTORS**

**NAC 459.970 Definitions.** As used in NAC 459.970 to 459.9729, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.9701 to 459.9716, inclusive, have the meanings ascribed to them in those sections.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9701 "Consultant" defined.** "Consultant" means a person who provides information, opinion or advice for a fee or in conjunction with other services for which a fee is charged.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9702 "Division" defined.** "Division" means the division of environmental protection of the state department of conservation and natural resources.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9703 "Employee" defined.** "Employee" includes:

1. Any officer of a corporation;
2. Any natural person whose activities are subject to a right of control by the person paying for his services; and
3. Any other natural person who would be considered an employee under any common law definition of employee.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9704 "Environmental manager" defined.** "Environmental manager" means a natural person who is certified by the division pursuant to NAC 459.972 or 459.9724 to act as a consultant relating to:

1. The management of hazardous waste;
2. The investigation of a site to determine the release or potential release of a hazardous substance;
3. The sampling of air, soil, surface water or ground water to determine the release of a hazardous substance;

4. The response to a release of a hazardous substance;
  5. The cleanup of a release of a hazardous substance; or
  6. The remediation of water or soil contaminated by a hazardous substance.
- (Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9705 "Handler of underground storage tanks" defined.** "Handler of underground storage tanks" means a natural person who is certified by the division pursuant to NAC 459.9722 or 459.9724 to install, repair, upgrade or close underground storage tanks pursuant to 40 C.F.R. Part 280, as that part existed on June 12, 1990.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9706 "Hazardous material" defined.** "Hazardous material" has the meaning ascribed to it in NRS 459.428.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9707 "Hazardous substance" defined.** "Hazardous substance" means:

1. Any hazardous material;
2. Any hazardous waste; or
3. Any regulated substance.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9708 "Hazardous waste" defined.** "Hazardous waste" has the meaning ascribed to it in NRS 459.430 and NAC 444.843.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9709 "Management of hazardous waste" defined.** "Management of hazardous waste" means services relating to the identification, sampling, handling, packaging, storage, labeling, treatment, reduction, recycling, permitting, recordkeeping, manifesting, transportation or disposal of hazardous waste.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.971 "Person" defined.** "Person" has the meaning ascribed to it in NRS 0.039.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9711 "Regulated substance" defined.** "Regulated substance" has the meaning ascribed to it in NRS 459.448.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9712 "Release of a hazardous substance" defined.** "Release of a hazardous substance" means the discharge, deposit, injection, dumping, spilling, emitting, leaking, escaping, leaching, pumping, pouring, emptying, disposing or placing of a hazardous substance into the air or on land or the waters of the state. The term does not include a release of a hazardous substance:

1. Specifically allowed by a permit issued pursuant to state or federal law; or
2. For which a permit is not required by state or federal law.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9713 "Response" defined.** "Response" means the provision of remedial services to protect the public health, safety, welfare or environment from a release of a hazardous substance, including, but not limited to, the digging, cleanup, removal, abatement, containment, control, absorbance, treatment or remediation of soil or water contaminated with a hazardous substance.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9714 “Specialist in the management of hazardous waste” defined.** “Specialist in the management of hazardous waste” means a natural person who is certified by the division pursuant to NAC 459.9721 or 459.9724 to act as a consultant relating to the management of hazardous waste.

(Added to NAC by Environmental Comm’n, eff. 3-6-91)

**NAC 459.9715 “Tester of underground storage tanks” defined.** “Tester of underground storage tanks” means a natural person who is certified by the division pursuant to NAC 459.9723 or 459.9724 to test the tightness of underground storage tanks pursuant to 40 C.F.R. Section 280.43(c), as that section existed on June 12, 1990.

(Added to NAC by Environmental Comm’n, eff. 3-6-91)

**NAC 459.9716 “Underground storage tank” defined.** “Underground storage tank” has the meaning ascribed to it in 40 C.F.R. Section 280.12, as that section existed on June 12, 1990.

(Added to NAC by Environmental Comm’n, eff. 3-6-91)

**NAC 459.9717 Intent of provisions.** The intent of NAC 459.970 to 459.9729, inclusive, is to carry out the provisions of NRS 459.500 to protect persons who employ consultants concerning hazardous materials and wastes.

(Added to NAC by Environmental Comm’n, eff. 3-6-91; A 5-3-96)

**NAC 459.9718 Applicability of provisions.** The provisions of NAC 459.970 to 459.9729, inclusive, do not apply to:

1. Services provided by an employee of a business or public agency relative to the hazardous waste management, release investigation or response or underground storage tank management responsibilities of his employer, exclusively, while acting in the course of that employment.

2. Services provided by an employee of a public agency with the responsibility of regulatory enforcement, emergency response, or protection of public health, welfare or the environment, while acting in the course of that employment.

3. Services provided by a person who is a transporter of hazardous waste that are:

(a) Designated as the specific responsibility of the transporter of hazardous waste under the applicable state or federal regulations; and

(b) Necessary to perform the service of transportation of hazardous waste in accordance with the applicable state or federal regulations.

4. Services provided by a person under contract at a federal facility, while acting within the scope of that contract.

5. Services provided by a person that are requested by a state agency or political subdivision of the state if fees are not charged for those services.

6. Services provided by a public utility to its customers if incidental to the services ordinarily provided by the utility.

(Added to NAC by Environmental Comm’n, eff. 3-6-91; A 10-29-93)

**NAC 459.9719 Services for which certification is required.**

1. A person shall not provide services as:

(a) An environmental manager;

(b) A specialist in the management of hazardous waste;

(c) A handler of underground storage tanks; or

(d) A tester of underground storage tanks,

for a fee or in conjunction with other services for which a fee is charged, unless those services are performed under the direction and responsible control of a natural person who has obtained certification from the division.

2. The provisions of this section do not prohibit the engagement of an apprentice or assistant if a natural person who is certified by the division pursuant to the provisions of NAC 459.970 to 459.9729, inclusive, supervises that apprentice or assistant and maintains responsibility for the work of that apprentice or assistant.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**Reviser's Note.**

The regulation of the state environmental commission filed with the secretary of state on March 6, 1991, as amended by the regulation of the state environmental commission filed with the secretary of state on January 24, 1992, is the source of NAC 459.970 to 459.9729, inclusive, and contains the following provisions not included in NAC:

"Sec. 33. After July 1, 1991, a natural person who wishes to provide services in any classification for certification set forth in section 20 of this regulation may not provide those services unless he possesses:

1. A valid temporary certificate issued by the division; or
2. A certificate issued by the division pursuant to sections 2 to 31, inclusive, of this regulation.

Sec. 32. 1. The division shall issue a temporary certificate to an applicant for certification pursuant to sections 2 to 31, inclusive, of this regulation who complies with all of the requirements for certification, but has not passed an examination for certification before January 1, 1993.

2. The temporary certificate issued by the division pursuant to this section expires on January 1, 1993."

**NAC 459.972 Certification as environmental manager.** An applicant for certification as an environmental manager must:

1. Be of good character and reputation as determined by the division upon review of the applicant's references, record of violations of environmental laws and regulations and such other considerations as the division deems necessary and proper. Certification must be denied if such a review indicates that the applicant fails to meet the applicable standards.

2. Submit to the division:

- (a) An application on a form provided by the division;
- (b) A nonrefundable fee of \$100 for the review of the application;
- (c) A color photograph of the applicant which is approximately 2 inches by 2 inches;
- (d) A statement signed by the applicant under penalty of perjury declaring the details of all pleas of guilty or nolo contendere in any criminal proceeding and all convictions of any crimes; and

- (e) Three letters of reference from natural persons with experience in the services of that classification attesting to the applicant's moral character and competence in that classification.

3. Demonstrate to the division that he meets one of the following qualifications:

- (a) A bachelor's or advanced degree from an accredited college or university in an area relating to the environment including, but not limited to, environmental science, engineering, geology, hydrology, hydrogeology, biology, toxicology, environmental health, physics, industrial hygiene or chemistry and at least 3 years of relevant environmental experience within the 5 years immediately preceding the date of the application;

- (b) A relevant professional registration or certification recognized by the division and at least 3 years of relevant environmental experience within the 5 years immediately preceding the date of the application; or

- (c) An equivalent combination of appropriate education or experience, or both, as determined by the division.

4. Pass an examination pursuant to NAC 459.9726.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9721 Certification as specialist in the management of hazardous waste.** An applicant for certification as a specialist in the management of hazardous waste must:

1. Be of good character and reputation as determined by the division upon review of the applicant's references, record of violations of environmental laws and regulations and such other considerations as the division deems necessary and proper. Certification must be denied if such a review indicates that the applicant fails to meet the applicable standards.

2. Submit to the division:

- (a) An application on a form provided by the division;
- (b) A nonrefundable fee of \$100 for the review of the application;

(c) A color photograph of the applicant which is approximately 2 inches by 2 inches;  
(d) A statement signed by the applicant under penalty of perjury declaring the details of all pleas of guilty or nolo contendere in any criminal proceeding and all convictions of any crimes; and

(e) Three letters of reference from natural persons with experience in the services of that classification attesting to the applicant's moral character and competence in that classification.

3. Demonstrate to the division that he meets one of the following qualifications:

(a) A bachelor's or advanced degree from an accredited college or university in an area relating to the environment, including, but not limited to, environmental science, engineering, geology, hydrology, hydrogeology, biology, toxicology, environmental health, physics, or industrial hygiene or chemistry and at least 2 years of relevant hazardous waste experience within the 3 years immediately preceding the date of the application;

(b) A relevant professional registration or certification recognized by the division and at least 2 years of relevant hazardous waste experience within the 3 years immediately preceding the date of the application;

(c) A high school diploma or general equivalency diploma and at least 6 years of relevant hazardous waste experience within the 8 years immediately preceding the date of the application; or

(d) An equivalent combination of appropriate education and experience as determined by the division.

4. Pass an examination pursuant to NAC 459.9726.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9722 Certification as handler of underground storage tanks.** An applicant for certification as a handler of underground storage tanks must:

1. Be of good character and reputation as determined by the division upon review of the applicant's references, record of violations of environmental laws and regulations and such other considerations as the division deems necessary and proper. Certification must be denied if such a review indicates that the applicant fails to meet the applicable standards.

2. Submit to the division:

(a) An application on a form provided by the division;

(b) A nonrefundable fee of \$100 for the review of the application;

(c) A color photograph of the applicant which is approximately 2 inches by 2 inches;

(d) A specific record of at least 2 years' experience and the direct participation in at least 10 projects relating to the handling of underground storage tanks;

(e) A copy of an appropriate license issued by the state contractor's board pursuant to chapter 624 of NRS;

(f) Proof of completion of a course approved by the division concerning the safe handling of underground storage tanks;

(g) A statement signed by the applicant under penalty of perjury declaring the details of all pleas of guilty or nolo contendere in any criminal proceeding and all convictions of any crimes; and

(h) Three letters of reference from natural persons with experience in the services of that classification attesting to the applicant's moral character and competence in that classification.

3. Pass an examination pursuant to NAC 459.9726.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9723 Certification as tester of underground storage tanks.** An applicant for certification as a tester of underground storage tanks must:

1. Be of good character and reputation as determined by the division upon review of the applicant's references, record of violations of environmental laws and regulations and such other considerations as the division deems necessary and proper. Certification must be denied if such a review indicates that the applicant fails to meet the applicable standards.

2. Submit to the division:

- (a) An application on a form provided by the division;
  - (b) A nonrefundable fee of \$100 for the review of the application;
  - (c) A color photograph of the applicant which is approximately 2 inches by 2 inches;
  - (d) A specific record of direct participation in at least 50 tests of underground storage tanks;
  - (e) A specific record of at least 1 year of experience in the testing of underground storage tanks;
  - (f) Proof of training provided by the manufacturer of the equipment which is used for testing;
  - (g) Proof of completion of a course approved by the division concerning the safe handling of underground storage tanks;
  - (h) A statement signed by the applicant under penalty of perjury declaring the details of all pleas of guilty or nolo contendere in any criminal proceeding and all convictions of any crimes; and
  - (i) Three letters of reference from natural persons with experience in the services of that classification attesting to the applicant's moral character and competence in that classification.
3. Pass an examination pursuant to NAC 459.9726.  
(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9724 Certification of person certified by another state or recognized organization.**

1. Except as otherwise provided in this section, a natural person who is certified as:
- (a) An environmental manager;
  - (b) A specialist in the management of hazardous waste;
  - (c) A handler of underground storage tanks; or
  - (d) A tester of underground storage tanks,
- by another state or an organization recognized by the division, may be certified by the division if he complies with the requirements set forth in subsection 2.
2. A natural person who applies for certification pursuant to this section must submit to the division:
- (a) An application on a form provided by the division;
  - (b) A nonrefundable fee of \$100 for the review of the application;
  - (c) A color photograph of the applicant which is approximately 2 inches by 2 inches; and
  - (d) Proof of certification by another state or an organization recognized by the division in the classification for which he is applying for certification in this state.
3. The division may not issue a certificate to a natural person who is certified by another state or organization if the requirements for certification by that state or organization are not substantially equivalent to the requirements for certification in this state.  
(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9725 Waiver of requirements for training.** The division may waive any requirements for training for a certificate if that training is not available.  
(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9726 Action on applications; examinations for certification.**

1. The division will review each application and send each applicant written notice within 6 weeks of receipt of all required materials whether his application has been approved or rejected.
2. An applicant whose application is approved by the division and who wishes to take the examination must submit to the division a nonrefundable examination fee set by the division, not to exceed \$150, at least 30 days before the examination is given.
3. The division shall determine the content of the examinations.
4. A score of 70 is a passing score on an examination for certification.
5. An examination for each classification will be given at least once each year.
6. The examinations are the property of the division and must remain confidential.
7. An applicant who fails the examination may apply for a reexamination. The nonrefundable fee for re-examination must be set by the division not to exceed \$150.

8. Each application for certification will remain on file with the division for 2 years after the date that all required materials are received by the division. If the applicant does not pass an examination for certification or request reexamination within the 2-year period, the applicant must file with the division a new application for certification.

(Added to NAC by Environmental Comm'n, eff. 3-6-91; A 1-24-92)

**NAC 459.9727 Contents and duration of certificate.**

1. Each certificate issued by the division to an applicant must bear:

- (a) The name of the applicant;
- (b) The number of the certificate;
- (c) The date of expiration of the certificate; and
- (d) The specific classification of certification.

2. Each certificate is valid for 2 years after the date the division issues the certificate.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.9728 Renewal of certificate.** A holder of a certificate who wishes to renew his certificate must:

1. Demonstrate to the division that he continues to meet all qualifications and performance requirements of NAC 459.970 to 459.9729, inclusive;

2. Submit an application for renewal of the certificate to the division on a form provided by the division;

3. Submit a nonrefundable fee set by the division not to exceed \$100; and

4. Complete an examination for renewal if the division has determined that such a renewal examination is appropriate.

(Added to NAC by Environmental Comm'n, eff. 3-6-91)

**NAC 459.97285 Contents of document relating to service for which certification is required.** A holder of a certificate who is responsible for a service requiring certification shall ensure that each document relating to the service includes:

1. The following language:

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

2. A description of the services provided.

3. The signature of the holder of the certificate and the date on which the document was signed.

4. The number of the certificate.

5. The date of expiration of the certificate.

(Added to NAC by Environmental Comm'n, eff. 5-3-96)

**NAC 459.9729 Standards of practice. (NRS 459.485)**

1. Each holder of a certificate issued by the division pursuant to the provisions of NAC 459.970 to 459.9729, inclusive:

(a) Shall provide services which are ethical, meet the current standards of the profession and which comply with federal, state and local regulations concerning hazardous substances or underground storage tanks.

(b) Is responsible for the work of other persons he employs or supervises.

(c) Shall have a copy of his certificate at the location where he is supervising work. Upon the request of the division, client or potential client, a holder of a certificate shall present his certificate for inspection.

(d) Shall make a written report to the facility owner or operator, within 24 hours, upon the discovery of a release of a hazardous substance or the existence of an unregistered underground storage tank and advise that facility owner or operator of any applicable reporting requirements.

(e) Shall report to the division the discovery of a release of a hazardous substance which presents an imminent and substantial hazard to human health, public safety or the environment as soon as possible after he has knowledge of a release.

(f) Shall secure the services of a qualified person to perform any part of his job which requires a level of service or skill which he is not qualified to provide.

(g) Shall make complete prior disclosures to his clients or potential clients of potential conflicts of interest or other circumstances which could influence his judgment or the quality of the services he provides.

(h) Shall not falsify or misrepresent his education or experience, the degree of responsibility for prior assignments or the complexity of prior employment or business, relevant factors concerning employers, employees, associates or joint ventures or past accomplishments.

(i) Shall maintain a written record of each project requiring certification for 3 years after the project is completed. The division may inspect those records during normal business hours and will establish requirements concerning the information which must be included in the records.

2. Certification may be suspended, revoked or denied for renewal if the division determines that the certificate holder has not performed in accordance with these standards.

(Added to NAC by Environmental Comm'n, eff. 3-6-91; A by R021-99, 9-27-99)

## TRANSPORTATION OF HAZARDOUS MATERIALS ON PUBLIC HIGHWAYS

**NAC 459.975 Definitions.** As used in NAC 459.975 to 459.991, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.9751 to 459.9758, inclusive, have the meanings ascribed to them in those sections.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94, eff 6-30-95; 1-4-96)

**NAC 459.9751 "Certificate of registration" defined.** "Certificate of registration" means a certificate of registration for the transportation of hazardous material issued pursuant to NAC 459.9805 or the corresponding statute or regulation of a participating state.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.97515 "Director" defined.** "Director" means the director of the department of motor vehicles and public safety.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.9752 "Division" defined.** "Division" means the Nevada highway patrol division of the department of motor vehicles and public safety.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.97525 "Hazardous material" defined.** "Hazardous material" means any substance or combination of substances, including any hazardous material, hazardous waste, hazardous substance, or marine pollutant:

1. Of a type and amount for which a vehicle transporting the substance must be placarded pursuant to 49 C.F.R. Part 172;

2. Of a type and amount for which a uniform hazardous waste manifest is required pursuant to 40 C.F.R. Part 262;

3. Which is transported in bulk packaging, as defined in 49 C.F.R. § 171.8; or

4. Identified as a hazardous material pursuant to NRS 459.710.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.9753 "Motor carrier" defined.** "Motor carrier" means a person who owns or operates one or more motor vehicles used to transport hazardous material.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.97535 "Motor vehicle" defined.** "Motor vehicle" has the meaning ascribed to it in NRS 706.096.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.9754 "Participating state" defined.** "Participating state" means a state that has entered into a reciprocal agreement with this state.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.97545 "Person" defined.** "Person" means a natural person, any agency of the Federal Government, any agency or political subdivision of this state, any form of business or social organization, and any other legal entity, including, but not limited to, a corporation, partnership, association, trust, or unincorporated organization.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.9755 "Principal place of business" defined.** "Principal place of business" means the place where a person maintains his central records relating to the transportation of hazardous material.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.97555 "Reciprocal agreement" defined.** "Reciprocal agreement" means an agreement entered into by this state and another state to:

1. Participate in a program for the reciprocal registration and permitting of persons who transport hazardous material; and
2. Appoint a governing board to assist in the administration of the agreement and the interpretation of its terms.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.9756 "Registration and permit section" defined.** "Registration and permit section" means the hazardous material registration and permit section of the division.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.97565 "Single-trip permit" defined.** "Single-trip permit" means a permit for the transportation of hazardous material which is issued pursuant to NAC 459.984 and valid only in the State of Nevada.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.9757 "Transport" and "transportation" defined.** "Transport" or "transportation" means the movement of property on any public highway.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.97575 "Triennial permit" defined.** "Triennial permit" means a permit for the transportation of hazardous material issued pursuant to NAC 459.981 or the corresponding statute or regulation of a participating state.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.9758 "Vehicle" defined.** "Vehicle" has the meaning ascribed to it in NRS 706.146.  
(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.976 Applicability.** The provisions of NAC 459.975 to 459.991, inclusive, apply to any person who transports hazardous material in this state.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94; eff. 6-30-95; 1-4-96)

**NAC 459.977 Adoption by reference of provisions of Code of Federal Regulations.**

1. The provisions of 49 C.F.R. Parts 171, 172, 177, 178, 383, 387, and 390 to 397, inclusive, are hereby adopted by reference as they existed on October 1, 1994. Each motor vehicle used for the transportation of hazardous materials in this state must, and each driver of such a vehicle shall, comply with those provisions.

2. A copy of the publications which contain these parts may be obtained from the Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402. The price is:

- (a) For Parts 171, 172, and 177 .....\$30
- (b) For Part 178 .....20
- (c) For Parts 383, 387, and 390 to 397, inclusive .....27

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 9-13-94; eff. 6-30-95; 1-4-96)

**NAC 459.978 Address for communications and payments.** Any written communication with or payment made to the registration and permit section pursuant to NAC 459.975 to 459.991, inclusive, must be mailed to the Nevada Highway Patrol, Hazardous Material Registration and Permit Section, 555 Wright Way, Carson City, Nevada 89711-0590.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94; eff. 6-30-95; 1-4-96)

**NAC 459.979 Certificate of registration and triennial permit required; sources for obtainment.** Except as otherwise provided in NAC 459.980 and 459.984, any person who transports hazardous materials in a vehicle upon a public highway in this state must obtain a certificate of registration and triennial permit from:

1. The division, if:

(a) The person's principal place of business is located in this state; or

(b) The person's principal place of business is located in a state other than this state or a participating state, and the mileage over which the person transported hazardous material during the preceding year is higher in this state than any participating state;

2. The participating state in which:

(a) The person's principal place of business is located; or

(b) The mileage over which the person transported hazardous material during the preceding year is the highest, if:

(1) The person's principal place of business is located in a state other than Nevada or a participating state; and

(2) The mileage over which the person transported hazardous material during the preceding year is higher in the participating state than in Nevada; or

3. Any state designated by a governing board appointed pursuant to a reciprocal agreement, if:

(a) The person petitions the governing board for such a designation; and

(b) The entity from whom the petitioner would otherwise be required to obtain the certificate of registration and triennial permit pursuant to this section agrees that the designation:

(1) Furthers the administration of the reciprocal agreement; and

(2) Does not allow the petitioner to evade any pending action by that entity.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94, eff. 6-30-95; 1-4-96)

**NAC 459.980 Use of vehicle under lease.**

1. A vehicle which is the subject of a lease agreement may be used to transport hazardous materials in this state if:

(a) The lessee or lessor of the vehicle has obtained a certificate of registration and triennial permit from the entity prescribed in NAC 459.979;

(b) The certificate of registration and triennial permit have not expired or been suspended; and

(c) A legible copy of the lease agreement, certificate of registration, and triennial permit are carried in the driver's compartment of the vehicle.

2. If a leased vehicle is used for the transportation of hazardous material pursuant to this section otherwise than under the authority of a certificate of registration and triennial permit issued to the lessee of the vehicle, the lessor of the vehicle is liable for the operation of the vehicle and actions of its drivers, including liability for any failure by the vehicle and its drivers to comply with:

(a) Any terms, conditions, or certifications set forth in the triennial permit of the lessor; and

(b) Any state or federal statutes or regulations regarding the transportation of hazardous material,

to the same extent as if the vehicle was owned and operated by the lessor and its drivers were employed by the lessor.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94, eff. 6-30-95; 1-4-96)

**NAC 459.9805 Certificate of registration: Application for issuance or renewal; fees; expiration.**

1. A person seeking to obtain a certificate of registration from the division, or to renew a certificate of registration issued by the division, must submit to the registration and permit section:

(a) A completed application for the issuance or renewal of a certificate of registration, on the form prescribed by the division;

(b) A general processing fee of \$125;

(c) The apportioned registration fee:

(1) For this state, as prescribed by subsection 2; and

(2) For each participating state in which the person transports hazardous material;

(d) A permit review fee of \$500 to be paid once every 3 years; and

(e) A reasonable fee to cover the administrative expenses of any costs incurred pursuant to subsection 2 of NRS 459.707 and NAC 459.98055.

A certificate of registration will not be issued or renewed pursuant to this section until the required application and fees have been received by the registration and permit section.

2. Except as otherwise provided in this subsection, the apportioned registration fee for this state is the amount obtained by multiplying \$125 by the product of:

(a) The total number of power units used by the applicant for the transportation of all his shipments during the preceding year;

(b) The applicant's total mileage for the transportation of all his shipments in this state during the preceding year divided by the applicant's total mileage for the transportation of all his shipments in all states and countries during the preceding year; and

(c) If the applicant's shipments of hazardous material are by:

(1) Full loads only, the total number of his shipments of hazardous material in this state during the preceding year divided by the total number of all his shipments in this state during the preceding year;

(2) Partial loads only, the total weight of his shipments containing hazardous material in this state during the preceding year divided by the total weight of all his shipments in this state during the preceding year, calculated exactly or to the number midway between the two deciles closest to the person's estimate of that amount; or

(3) Both full and partial loads, the sum obtained by adding:

(I) The percentage of his total shipments of hazardous material in this state during the preceding year which were by full loads times the number obtained by performing the calculation set forth in subparagraph (1) as if all his shipments of hazardous material in this state during the preceding year were by full loads; and

(II) The percentage of his total shipments of hazardous material in this state during the preceding year which were by partial loads times the number obtained by performing the calculation set forth in subparagraph (2) as if all his shipments of hazardous material in this state during the preceding year were by partial loads, calculated exactly or to the number midway between the two deciles closest to the person's estimate of that amount.

3. A certificate of registration issued pursuant to this section expires 12 months after its issuance.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.98055 Authority of division to require fingerprints from principal officers of applicant.**

1. In addition to any other information required by law, the division may require the principal officers of an applicant to submit a fingerprint card with its application. Fingerprints must be taken by a recognized law enforcement agency.

2. For the purposes of this section, principal officer means any person having responsibility, control, or influence over the environmental, waste management or transportation operations of the applicant.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, eff. 1-4-96)

**NAC 459.981 Triennial permit: Application for issuance or renewal; fee; expiration.**

1. A person seeking to obtain a triennial permit from the division, or to renew a triennial permit issued by the division, must submit to the registration and permit section:

(a) A completed application for the issuance or renewal of the triennial permit, on the form prescribed by the division;

(b) A completed application for the issuance or renewal of a certificate of registration, on the form prescribed by the division; and

(c) The fee prescribed by subsection 2.

A triennial permit will not be issued or renewed pursuant to this section until the required applications and fee have been received by the registration and permit section.

2. Except as otherwise provided in this subsection, the fee for the issuance or renewal of a triennial permit issued pursuant to this section for a motor carrier's fleet is \$125 for each power unit used by the motor carrier to transport hazardous material. The fee will not be prorated or refunded.

3. A triennial permit issued or renewed pursuant to this section expires 3 years after the date on which the issuance or renewal becomes effective.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94, eff. 6-30-95; 1-4-96)

**NAC 459.982 Certificate of registration or triennial permit: Change in information on application.** If there is any change in the information contained in an application to the division for the issuance or renewal of a certificate of registration or a triennial permit, the holder of the certificate of registration or triennial permit shall, within 1 year after the change occurs, give written notice of the change to the registration and permit section.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 9-13-94, eff. 6-30-95; 1-4-96)

**NAC 459.983 Certificate of registration and triennial permit: Maintenance at place of business; inspection; copy required in vehicle during transportation.**

1. The original of any certificate of registration and triennial permit must be:
  - (a) Maintained by the holder at his principal place of business, as listed in his application for a certificate of registration or as stated pursuant to NAC 459.982; and
  - (b) Made available for inspection upon request by any peace officer.
2. A legible copy of the certificate of registration and triennial permit must be carried in the driver's compartment of the vehicle at all times while the vehicle is being used to transport hazardous materials.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94, 6-30-95; 1-4-96)

**NAC 459.984 Single-trip permit: Obtainment; use; expiration; fee.**

1. A person may, not more than once during any period of 3 consecutive months, obtain a single-trip permit in lieu of a certificate of registration and triennial permit, from any authorized vendor before or at the time of entry into this state.

2. A single-trip permit:

(a) Is valid for only a single vehicle and shipment of hazardous material within or through this state.

(b) Must be carried in the driver's compartment of the vehicle for which it is issued, and must not be duplicated.

(c) Expires 72 hours after its issuance.

3. The fee for a single-trip permit is \$125.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94, eff. 6-30-95; 1-4-96)

**NAC 459.986 Inspection of vehicles; verification of drivers' qualifications.**

1. Any vehicle used to transport hazardous materials in this state is subject to inspection.

2. The qualifications of the driver of a vehicle used to transport hazardous materials in this state are subject to verification.

3. Any such inspection will be conducted by employees of the division, in conformity with the national uniform inspection procedure and vehicle and driver out-of-service standards adopted by the Commercial Vehicle Safety Alliance and by the division.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90)

**NAC 459.9865 Provision of notice before transportation of radioactive waste.** A person who transports radioactive waste shall notify the division not less than 4 hours nor more than 48 hours before he begins to transport the waste in this state. As used in this section, "radioactive waste" includes low-level waste as defined in NRS 459.007.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 11-16-89, eff. 1-1-90)

**NAC 459.987 Reporting certain accidents and incidents.**

1. Any accident or incident involving hazardous materials must be reported to the division in the manner provided by NRS 459.720 if, as a result of the accident or incident:

(a) A person dies or requires hospitalization;

(b) Damage to property occurs in an amount exceeding \$50,000;

(c) Any fire, breakage, spill or suspected contamination of radioactive material or etiological agents occurs; or

(d) There is, in the judgment of the person responsible for the materials, a significant threat to life or property.

2. Any such report must be submitted on a form prescribed by the division or on the form prescribed for the hazardous material incident report by the Department of Transportation (Form No. 5800.1).

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89)

**NAC 459.988 Reimbursement of expenses for response to spill or accident.** If an incident occurs involving hazardous materials, the expenses for which reimbursement may be sought pursuant to NRS 459.760 and 459.770:

1. Include any expenses incurred for immediate action taken to prevent injury to persons or property.

2. Are the obligation, jointly and severally, of:

(a) The holder of the certificate of registration and triennial permit, or of the single-trip permit, pursuant to which the hazardous materials are being transported or, if the materials are transported without a certificate of registration and triennial permit, or a single-trip permit, the person who is required to obtain the certificate of registration and triennial permit, or the single-trip permit, pursuant to the provisions of NAC 459.979 or 459.984; and

(b) Each agent or employee of the person described in paragraph (a).

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 9-13-94, eff. 6-30-95; 1-4-96)

**NAC 459.989 Disciplinary action: Grounds; imposition of sanctions.**

1. The division may deny or refuse to renew a certificate of registration or triennial permit or may take other disciplinary action as provided in this section if, in connection with the transportation of hazardous materials, the applicant or holder:

(a) Violates any out-of-service regulation of the Department of Transportation, compliance with which is his responsibility;

(b) Violates any other provision of NRS 459.700 to 459.780, inclusive, or NAC 459.975 to 459.991, inclusive;

(c) Knowingly provides false or misleading information in his application for a certificate of registration or triennial permit;

(d) Knowingly uses a forged certificate of registration or triennial permit or a certificate of registration or triennial permit which has been altered;

(e) Except as otherwise provided by NAC 459.980, allows the certificate of registration or triennial permit to be used by a person who is not his agent or employee; or

(f) Is found to be an unsatisfactory carrier as the result of a safety review or safety management audit conducted by the Department of Transportation.

2. If, within any period of 12 consecutive months, the holder of a triennial permit issued by the division accrues the designated number of violations which are grounds for disciplinary action, the division will:

(a) For three violations, mail a warning notice to the holder at his last known address.

(b) For four violations, mail a warning notice to the holder as provided in paragraph (a) and review the status of the triennial permit with the holder in person or by telephone.

(c) For five violations, suspend the triennial permit for not less than 30 days.

(d) For six violations, suspend the triennial permit for not less than 90 days.

(e) For seven or more violations, suspend the triennial permit for not less than 12 months.

In any case it deems appropriate, the division may impose a sanction greater than that otherwise prescribed by this subsection.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94, eff. 6-30-95; 1-4-96)

**NAC 459.990 Disciplinary action: Notice of intended action; request for hearing; time and place of hearing.**

1. Not less than 5 days before it denies, refuses to renew, or suspends a certificate of registration or triennial permit pursuant to NAC 459.989, the division will give notice of its intended action to the applicant or holder by certified mail sent to his principal place of business.

2. Any holder or applicant who receives a notice pursuant to subsection 1 and who is aggrieved by the intended action of the division may make a written request for a hearing on the matter before the director or his designee. Any such request must be made by certified mail and must be postmarked not later than 10 days after the date the holder or applicant receives the notice mailed pursuant to subsection 1.

3. If a request for a hearing is made pursuant to subsection 2, the division will schedule the hearing for a date not later than 30 days after the date it receives the request. Any hearing held pursuant to this section must be held in Carson City.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 9-13-94, eff. 6-30-95; 1-4-96)

**NAC 459.991 Disciplinary action: Reinstatement of triennial permit.**

1. The division may reinstate a triennial permit which has previously been suspended pursuant to NAC 459.989 if the holder corrects the violation and otherwise complies with the provisions of NRS 459.700 to 459.780, inclusive, and NAC 459.975 to 459.991, inclusive.

2. In such a case, upon the request of the holder, the division will give written notice to the holder by certified mail of the conditions of reinstatement and any deadline for compliance with those conditions.

(Added to NAC by Dep't of Motor Veh. & Pub. Safety, 9-30-88, eff. 1-1-89; A 11-16-89, eff. 1-1-90; 9-13-94; eff. 6-30-95; 1-4-96)

**FEES REGARDING EXTREMELY HAZARDOUS MATERIAL**

**NAC 459.9915 "Person" defined.** As used in this section and NAC 459.9917 and 459.9919, "person" includes any agency or political subdivision of this state.

(Added to NAC by State Emergency Response Comm'n, eff. 8-25-92)

**NAC 459.9917 Fee for storage. (NRS 459.704, 459.744)**

1. The filing fee required pursuant to subparagraph (1) of paragraph (b) of subsection 1 of NRS 459.744 is \$100 for each facility in which extremely hazardous material is stored.

2. The surcharge required pursuant to subparagraph (2) of paragraph (b) of subsection 1 of NRS 459.744 is \$100 per ton for each ton of material stored in excess of 1 ton.

3. A person may not be required to pay more than \$5,000 annually pursuant to this section.

(Added to NAC by State Emergency Response Comm'n, eff. 8-25-92; A by R077-98, 9-25-98)

**NAC 459.9919 Fee for manufacture for transport. (NRS 459.704, 459.744)**

1. The filing fee required pursuant to subparagraph (1) of paragraph (c) of subsection 1 of NRS 459.744 is \$100.

2. The surcharge required pursuant to subparagraph (2) of paragraph (c) of subsection 1 of NRS 459.744 is \$100 for each ton of material which is manufactured for transport in this state.

3. A person may not be required to pay more than \$2,000 annually pursuant to this section.

(Added to NAC by State Emergency Response Comm'n, eff. 8-25-92; A by R077-98, 9-25-98)

## STORAGE TANKS

**NAC 459.9921 Definitions.** As used in NAC 459.9921 to 459.999, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.9922 to 459.9929, inclusive, have the meanings ascribed to them in those sections.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9922 "Assessment" defined.** "Assessment" means a test for the presence of a regulated substance.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9923 "Aquifer" defined.** "Aquifer" has the meaning ascribed to it in NAC 445A.812.

(Added to NAC by Environmental Comm'n, eff. 10-9-90; A 1-23-96)

**NAC 459.9924 "Corrective action" defined.** "Corrective action" means a permanent remedy that is taken if a regulated substance is released to prevent the substance from migrating and causing danger to the present or future health of the public or to the environment.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9925 "Department" defined.** "Department" means the state department of conservation and natural resources.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9926 "Dissolved product action level" defined.** "Dissolved product action level" means the presence of a regulated substance or a constituent of such a substance in ground water or surface water in excess of the maximum level of contaminants allowed by the Federal Government.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9927 "Division" defined.** "Division" means the division of environmental protection of the department.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9928 "Ground water" defined.** "Ground water" has the meaning ascribed to it in NAC 444.579.

(Added to NAC by Environmental Comm'n, eff. 10-9-90; A 1-23-96)

**NAC 459.9929 "Storage tank" defined.** "Storage tank" has the meaning ascribed to "underground storage tank" in 40 C.F.R. § 280.12.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.993 Federal regulations: Adoption by reference of certain provisions; compliance required.**

1. The state environmental commission hereby adopts by reference the provisions of 40 C.F.R. §§ 280.10 to 280.116, inclusive, as they existed on July 1, 1995. A copy of the volume containing these provisions may be obtained at a cost of \$40 from the Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402.

2. Each owner and operator of a storage tank shall comply with the requirements of 40 C.F.R. §§ 280.10 to 280.116, inclusive.

3. For the purposes of this section, any reference to "implementing agency" in 40 C.F.R. §§ 280.10 to 280.116, inclusive, shall be deemed to mean the division.

(Added to NAC by Environmental Comm'n, eff. 6-11-90; A 1-23-96)

**NAC 459.994 Testing of tanks for tightness.**

1. Except as otherwise provided in this section, each owner or operator of a storage tank shall perform or cause to be performed a test of the tank for tightness in accordance with the schedule contained in subsection (c) of 40 C.F.R. § 280.40.

2. The test must be performed by a contractor who is certified by the division.

3. The owner or operator shall retain a certificate from the person performing the test showing that the test has been performed. The certificate must be made on a form approved by the division.

4. In lieu of a test for tightness, each owner or operator may conduct any release detection methods prescribed in 40 C.F.R. §§ 280.43 and 280.44 as an acceptable means of release detection.

5. An operator of a storage tank that is not empty but is temporarily closed in accordance with 40 C.F.R. § 280.70 shall perform or cause to be performed a test of the storage tank for tightness in accordance with 40 C.F.R. §§ 280.40 to 280.45, inclusive.

6. Except as otherwise provided in this subsection, an abandoned storage tank must be tested for tightness in accordance with subsection (c) of 40 C.F.R. § 280.43 before it is returned to service. If a test of the abandoned storage tank will cause a threat to human health or the environment, as determined by the division, the division may waive the test for tightness or require any other method of testing in accordance with the provisions of subsection (h) of 40 C.F.R. 280.43 and subsection (c) of 40 C.F.R. 280.44. The allocation of costs pursuant to NRS 590.880 or 590.890 will be applied if there is a discharge from the storage tank.

7. A test for tightness is not required before a storage tank is closed pursuant to subsection (b) of 40 C.F.R. § 280.71 if the division:

- (a) Has no record of the storage tank being installed, operated, or closed; and
- (b) Is unable to locate the owner of the storage tank.

8. As used in subsection 6, "abandoned storage tank" means a storage tank that:

(a) Is not maintained and whose owner or operator has not provided the division with a written statement of his intention to close the storage tank; or

(b) Is not in service and does not comply with 40 C.F.R. § 280.70 or 280.71.

(Added to NAC by Environmental Comm'n, eff. 6-11-90; A 3-26-92; 1-23-96)

**NAC 459.995 Financial responsibility of owners and operators.**

1. If requested by the division, each owner and operator of a registered storage tank shall submit to the division evidence of his financial responsibility. As used in this subsection, "registered storage tank" means a storage tank operated by a person who is:

(a) Required to demonstrate financial responsibility pursuant to 40 C.F.R. § 280.93; or

(b) Required to or who elects to register the storage tank pursuant to NRS 590.850 or 590.920.

2. An owner or operator may demonstrate his financial responsibility pursuant to the provisions of 40 C.F.R. §§ 280.94 to 280.103, inclusive.

3. An owner or operator:

(a) Who operates a storage tank containing fuel for jet or turbine-powered aircraft; and

(b) Who does not elect to obtain coverage pursuant to subsection 2 of NRS 590.920,

shall comply with the requirements for financial responsibility contained in 40 C.F.R. §§ 280.90 to 280.116, inclusive.

(Added to NAC by Environmental Comm'n, eff. 6-11-90; A 3-26-92; 1-23-96)

**NAC 459.996 Releases: Reporting; protection of site; inspection by division.**

1. The owner or operator of a storage tank shall report any release promptly in accordance with the requirements of NAC 445A.347 and 40 C.F.R. §§ 280.50 and 280.53.

2. As soon as possible after the release, the operator shall provide the division with a written description of how, when and where the release occurred. This report must include a description of any damage known to the operator to have been caused by the release.

3. The owner or operator shall take all steps for initial response and abatement prescribed in 40 C.F.R. §§ 280.60, 280.61, and 280.62 to protect the site of the release from further damage.

4. The owner or operator shall permit the division to inspect any property or records relating to the release or damage caused by the release.

(Added to NAC by Environmental Comm'n, eff. 6-11-90; A 1-23-96)

**NAC 459.997 Releases: Authority of administrator of division.** If a release occurs from a storage tank, the administrator of the division may, at such times as are reasonably required:

1. Question the owner or operator of the tank, under oath, about any matter relating to the release;

2. Examine the books and records of the owner or operator; and

3. Waive any of the provisions of subsections 1, 2, and 6 of NAC 459.9973 and require corrective action to be taken immediately based on:

(a) Any actual or imminent impacts to ground water; and

(b) Any hazards to human health and safety.

(Added to NAC by Environmental Comm'n, eff. 6-11-90; A 1-23-96)

**NAC 459.9971 Releases: Assessment of contaminated soil or water.**

1. If a regulated substance is released, the division may require the owner or operator to assess the soil or water contaminated by the release to determine if hazardous waste generated from that release is present.

2. As used in this section, "hazardous waste" has the meaning ascribed to it in NAC 445A.826.

(Added to NAC by Environmental Comm'n, eff. 10-9-90; A 1-23-96)

**NAC 459.9972 Assessment required before closure of tank; removal of tank from ground.**

1. The owner or operator of a storage tank shall provide an assessment to the division before a storage tank is permanently closed.

2. The assessment must be conducted:

(a) Using analytical test method 8015 of the Environmental Protection Agency that is modified for petroleum hydrocarbons and other constituents as required by the division; and

(b) On two soil samples that are obtained from native soil less than 2 feet below the bottom of the excavation, from opposite sides or ends of the excavation in an area where contamination is most likely to be present.

3. The analysis must be conducted by a laboratory that is approved by the division.

4. The owner or operator of a storage tank that is removed from the ground shall:

(a) Dispose of or reuse the tank in accordance with the provisions of NRS 459.800 to 459.856, inclusive; and

(b) Maintain a record of the disposal or reuse.

(Added to NAC by Environmental Comm'n, eff. 10-9-90; A 1-23-96)

**NAC 459.9973 Presence of excessive petroleum in soil: Evaluation; assessment of risk; corrective action.**

1. If soil exceeds the soil action level, the division shall consider, after an initial response and abatement as prescribed in 40 C.F.R. §§ 280.60, 280.61, and 280.62, an evaluation based upon the following factors before taking any corrective action:

(a) The depth of ground water;

(b) The distance to irrigation or drinking water wells;

(c) The type of soil;

(d) The annual precipitation;

(e) The type of regulated substance released;

(f) The extent of contamination;

- (g) The present and potential land use;
- (h) The preferred routes of migration;
- (i) The location of structures or impediments;
- (j) The potential for a hazard related to fire, vapor or explosion; and
- (k) Any other factor that is specific to a site as determined by the division.

2. If corrective action is required pursuant to subsection 1, the owner or operator may conduct an assessment of the site based on the risk that it poses to human health and the environment using test method E1739-95 of the American Society for Testing and Materials, or any equivalent method approved by the division, to determine the necessary corrective action or to establish that corrective action is not necessary. A reimbursement of the cost of the assessment and the corrective action taken may be sought pursuant to the provisions of NRS 590.700 to 590.920, inclusive.

3. The division shall determine whether an assessment complies with the requirements of test method E1739-95, or any equivalent method, and may reject, require revisions to, or withdraw its concurrence with the assessment at any time after the completion of the assessment because:

- (a) The assessment does not comply with those requirements; or
- (b) Conditions at the site have changed or previously unidentified or new information has become available which may have a detrimental impact on human health or the environment, unless the new condition or information would not alter the results of the assessment.

4. The division shall provide written notice of its determination and the reasons for rejecting or requiring revisions to the assessment to the owner or operator. The owner or operator may submit a revised assessment to the division or take the appropriate corrective action.

5. Unless the assessment is rejected or returned for revisions, the division shall consider the results of the assessment pursuant to the evaluation of the level of petroleum hydrocarbons in the soil and the points of compliance to be elements of the plan for corrective action.

6. If corrective action is proposed pursuant to the requirements of this section or NAC 459.9976 or 459.9977, the owner or operator of a storage tank and his environmental manager, if applicable, shall prepare and submit to the division a written certification that the corrective action selected is cost effective.

7. As used in this section, "soil action level" means the presence in soil of a petroleum substance in excess of 100 milligrams per kilogram measured by using the analytical test method 8015 modified for petroleum hydrocarbons, or any other method approved by the division.

(Added to NAC by Environmental Comm'n, eff. 10-9-90; A 1-23-96)

#### **NAC 459.9974 Disposal and evaluation of contaminated soil.**

1. Soil that is contaminated:

(a) By a petroleum hydrocarbon substance only, and is removed through a corrective action, must be disposed of:

(1) In a municipal solid waste landfill unit or a class III site, after obtaining written approval from the holder of the permit to operate the landfill unit or site, and the solid waste management authority; or

(2) At a disposal or treatment facility that is approved by the division.

(b) By a petroleum hydrocarbon substance and any other hazardous substance must be evaluated by the responsible person, who is certified pursuant to NAC 459.970 to 459.9729, inclusive, to determine if the soil is a hazardous waste.

2. As used in this section:

(a) "Hazardous substance" has the meaning ascribed to it in NRS 459.429.

(b) "Hazardous waste" has the meaning ascribed to it in NAC 445A.826.

(Added to NAC by Environmental Comm'n, eff. 10-9-90; A 1-23-96)

**NAC 459.9975 Monitoring of ground water.**

1. If a regulated substance is detected in or is suspected to have contaminated ground water, the owner or operator shall, with the approval of the division, install at least one monitoring well. The number of wells and the location, design, and installation of each well must be approved by the division of water resources of the department and the division.

2. Monitoring of ground water must be conducted for:

(a) Benzene, toluene, xylene, and ethylbenzene, by test method 624 of the Environmental Protection Agency or an equivalent method that is approved by the division;

(b) Total petroleum hydrocarbons, by analytical test method 8015 modified for petroleum hydrocarbons; and

(c) Any other pollutant that is present in the ground water as a result of the action of the owner or operator.

(Added to NAC by Environmental Comm'n, eff. 10-9-90; A 1-23-96)

**NAC 459.9976 Corrective action required when excessive petroleum floating on surface of water of aquifer.**

1. The owner or operator shall take corrective action if the free product action level is exceeded.

2. As used in this section, "free product action level" means the presence of 1/2 inch or more of a petroleum substance that is free-floating on the surface of the water of an aquifer using a measurement of accuracy of .01 feet.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9977 Corrective action required when dissolved product action level exceeded; exemptions.**

1. Except as otherwise provided in subsections 2 and 3, the owner or operator of a storage tank shall take corrective action if the dissolved product action level is exceeded.

2. The administrator of the division may exempt an owner or operator from the requirements of subsection 1 if a written request and supporting information are filed with the division. The administrator may grant an exemption if:

(a) The ground water affected by the release does not serve as a source of drinking water and is not likely to serve as a source of drinking water in the future because it is economically or technologically impractical to:

(1) Recover the water for drinking because of the depth or location of the water; or

(2) Render the water fit for human consumption.

(b) The total dissolved solids in the ground water is more than 10,000 milligrams per liter and the ground water is not reasonably expected to become a supply of drinking water; or

(c) The owner or operator demonstrates that the contamination does not and will not in the future exceed the dissolved product action level beyond the boundary of the site.

3. The division:

(a) Will not require corrective action for dissolved product action level if the owner or operator provides a study which demonstrates that it is not feasible to achieve the water quality criteria based on a review of the available technology and the cost of corrective action.

(b) May require the owner or operator to take corrective action for dissolved product that is below the dissolved product action level if the use or potential use of the ground or surface water affected by the release would be detrimental to the potential or actual beneficial use of that water.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9978 Corrective action: Determining when aquifer is clean.**

1. After corrective action, an aquifer is clean if:

(a) The results of an assessment indicate that the affected ground water is consistently below the dissolved product action level; or

(b) After treatment of ground water for not less than 1 year, the concentration of dissolved constituents versus time, measured monthly, fits a curve that is substantially linear and approaches zero slope at the final portion of the curve. The curve is defined by the following equation:

$$C = C_f + C_o e^{-kt}$$

2. For the purposes of subsection 1:

(a) "C" means the concentration of contaminant at t in micrograms per liter.

(b) "C<sub>f</sub>" means the final concentration in micrograms per liter which the curve approaches asymptotically.

(c) "C<sub>o</sub>" means the difference between the final concentration and the concentration at time zero in micrograms per liter.

(d) "e" means the base of the natural log or 2.718.

(e) "k" means the decay constant.

(f) "t" means time in days.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.9979 Corrective action: Periodic monitoring; use of alternative technology.**

1. After any corrective action has been taken, the responsible person shall monitor the ground water for not less than 1 year. The division shall determine the frequency of the monitoring, but in no case may the division require monitoring more frequent than once each month of that year.

2. The division may allow an owner or operator to use alternative technology when taking corrective action on soil or ground water.

(Added to NAC by Environmental Comm'n, eff. 10-9-90; A 1-23-96)

**NAC 459.9985 No relief of responsibility to secure approval or permit.** NAC 459.9971 to 459.9979, inclusive, does not relieve the owner or operator of the responsibility for securing an approval or permit from other governmental or regulatory entities.

(Added to NAC by Environmental Comm'n, eff. 10-9-90)

**NAC 459.999 Severability.** If any provision of NAC 459.9921 to 459.999, inclusive, or the application of any such provision to any person, thing or circumstance is held invalid, it is intended that the invalidity not affect the remaining provisions, or their application, that can be given effect without the invalid provision or application.

(Added to NAC by Environmental Comm'n, eff. 6-11-90; A 10-9-90)—(Substituted in revision for NAC 459.998)

## PRACTICE BEFORE STATE ENVIRONMENTAL COMMISSION

**NAC 459.9995 Appeal of final decision of state department of conservation and natural resources.**

1. Any person who requests a hearing before the state environmental commission concerning a final decision of the state department of conservation and natural resources pursuant to chapter 459 of NRS may do so by filing a request, within 10 days after notice of the action of the department, on form 3\* with the State Environmental Commission, 333 West Nye Lane, Capitol Complex, Carson City, Nevada 89710.

2. The provisions of NAC 445B.875 to 445B.899, inclusive, apply to a hearing of the state environmental commission requested pursuant to subsection 1.

\*(See adopting agency for form.)

(Added to NAC by Environmental Comm'n, eff. 10-29-93)