Course Evaluation Criteria

Course submissions will be assessed for continuing education credits based on the following competencies:

Non-Private Core Competency Standards 4.10.204(1)

(a) **Label and labeling comprehension**:

- the general format and terminology of pesticide labels and labeling;
- the understanding of instructions, warnings, terms, symbols, and other information commonly appearing on pesticide labels;
- classification of the product, general or restricted;
- understanding that it is a violation of federal law to use any registered pesticide in a manner inconsistent with its labeling;
- understanding labeling requirements that a certified applicator must be physically present at the site of the application;
- understanding labeling requirements for supervising operators working under the direct supervision of a certified applicator;
- understanding that applicators must comply with all use restrictions and directions for use contained in pesticide labels and labeling, including being certified in the certification category appropriate to the type and site of the application;
- understanding and complying with product-specific notification requirements;
- recognizing and understanding the difference between mandatory and advisory labeling language.

(b) **Safety factors including**:

- pesticide toxicity and hazard to individuals and common exposure routes;
- common types and causes of pesticide accidents;
- precautions necessary to guard against injury to applicators and other individuals in or near treated areas;
- need for and use of protective clothing and equipment;
- symptoms of pesticide poisonings;
- first aid and other procedures to be followed in case of a pesticide accident;
- proper identification, storage, transport, handling, mixing procedures, and disposal methods for pesticides and pesticide containers, including precautions to be taken to prevent children from having access to pesticides and pesticide containers;
- understanding the different natures of the risks of acute toxicity and chronic toxicity, as well as the long-term effects of pesticides;
- understanding that a pesticide's risk is a function of exposure and the pesticide's toxicity.

(c) **Environmental consequences of the use and misuse of pesticides may be influenced by such factors as**:

- weather and other climatic conditions;
- types of terrain, soil, or other substrate;

- presence of fish, wildlife, and other non-target organisms;
- drainage patterns.

(d) **Pest factors such as**:

- common features of pest organisms and characteristics of damage needed for pest recognition;
- recognition of relevant pests;
- pest development and biology as it may be relevant to problem identification and control;
- verifying that the labeling does not prohibit the use of the product to control the target pest(s).

(e) **Pesticide factors such as**:

- types of pesticides;
- types of formulations;
- compatibility, synergism, persistence, and animal and plant toxicity of the formulations;
- hazards and residues associated with use;
- factors which influenced effectiveness or lead to such problems as resistance to pesticides;
- dilution procedures.

(f) **Equipment factors (relevant to applicator's operation) including**:

- types of equipment and advantages and limitations of each type;
- uses, maintenance, and calibration.

(g) **Application technique factors including**:

- methods and procedures used to apply various formulations of pesticides, solutions, and gases together with a knowledge of which technique of application to use in a given situation;
- relationship of discharge and placement of pesticides to proper use, unnecessary use, and misuse;
- prevention of drift and pesticide loss into the environment.

(h) **State and federal laws, regulations, and rules**.

(i) **Responsibilities of supervisors of operators including**:

- understanding and complying with requirements in 40 CFR 171.201 for certified commercial applicators who supervise operators using restricted use pesticides;
- the recordkeeping requirements of pesticide safety training for operators who use restricted use pesticides under the direct supervision of a certified applicator;
- providing use-specific instructions to operators using restricted use pesticides under the direct supervision of a certified applicator;
- explaining pertinent state, tribal, and federal laws and regulations to operators who use restricted use pesticides under the direct supervision of a certified applicator.

(j) **Professionalism factors including**:

- maintaining chemical security for restricted use pesticides;
- how to communicate information about pesticide exposures and risks with customers and the public;
- appropriate product stewardship for certified applicator

Category Specific Standards 4.10.205

(a) **Agricultural plant pest control** applicators must demonstrate practical knowledge of crops grown and the specific pests of those crops on which they may be using pesticides. The importance of such competency is amplified by the extensive areas involved, the quantities of pesticides needed, and the ultimate use of the quantities of pesticides needed, and the ultimate use of many commodities as food and feed. Practical knowledge is required concerning soil and water problems, preharvest intervals, reentry intervals, phytotoxicity, and potential for environmental contamination, nontarget injury, and community problems resulting from the use of pesticides in agricultural areas.

(b) **Agricultural animal pest control** applicators applying pesticides directly to animals must demonstrate practical knowledge of such animals and their associated pests. A practical knowledge concerning specific pesticide toxicity and residue potential is also required since host animals will frequently be used for food. Further, the applicator must know the relative hazards associated with such factors as formulation, application techniques, age of animals, stress, and extent of treatment.

(c) **Agricultural vertebrate pest control** applicators must demonstrate practical knowledge of vertebrates for which they may be using pesticides. They should possess practical knowledge of the cyclic occurrence of certain pests and specific population dynamics as a basis for programming pesticide applications. The applicator must demonstrate a practical knowledge of control and application methods which will minimize the possibility of secondary problems such as unintended effects on wildlife. These applicators must demonstrate knowledge of the use of these pesticides which will minimize or prevent hazards to humans, pets, and other domestic animals.

(d) **Forest pest control** applicators shall demonstrate practical knowledge of the types of forest, forest nurseries, and seed production in their state and the pests involved. They should possess practical knowledge of the cyclic occurrence of certain pests and specific population dynamics as a basis for programming pesticide applications. A practical knowledge of the relative biotic agents and their vulnerability to the pesticides to be applied is required. Because forest stands may be large and frequently include natural aquatic habitats and harbor wildlife, the consequences of pesticide use may be difficult to assess. The applicator must therefore demonstrate practical knowledge of control methods which will minimize the possibility of secondary problems such as unintended effects on wildlife. Proper use of specialized equipment must be demonstrated, especially as it may be related to meteorological factors and adjacent land use.

(e) **Ornamental and turf pest control** applicators shall demonstrate practical knowledge of pesticide problems associated with the production and maintenance of ornamental trees, shrubs, plantings, and turf, including cognizance of potential phytotoxicity due to a wide variety of plant

material, drift, and persistence beyond the intended period of pest control. Because of the frequent proximity of human habitations to application activities, applicators in this classification must demonstrate practical knowledge of application methods which will minimize or prevent hazards to humans, pets, and other domestic animals.

(f) **Seed treatment** applicators shall demonstrate practical knowledge of the types of seeds that require pesticide protection against pests, and factors such as seed coloration, carriers, and surface active agents which influence pesticide binding and may affect germination. They must demonstrate practical knowledge of hazards associated with handling, sorting and mixing, and misuse of treated seed such as introduction of treated seed into food and feed channels as well as proper disposal of unused treated seeds.

(g) **Aquatic pest control** applicators shall demonstrate practical knowledge of the secondary effects which can be caused by improper application rates, incorrect formulations, and faulty application of pesticides used in this classification. They shall demonstrate practical knowledge of various water use situations and the potential of downstream effects. Further, they must have practical knowledge concerning potential pesticide effects on plants, fish, birds, beneficial insects, and other organisms which may be present in aquatic environments. These applicators shall demonstrate practical knowledge of the principles of limited area application.

(h) **Right-of-way, rangeland, pasture, and non-crop pest control** applicators are applicators who apply pesticides and who shall demonstrate practical knowledge of a wide variety of environments since right-of-way, rangeland, pasture, and non-crop sites can traverse many different terrains, including waterways. They shall demonstrate practical knowledge of problems on runoff, drift, excessive foliage destruction, and potential effects to livestock and nontarget organisms. Applicators must have the ability to recognize target plants and differentiate them from nontarget plants. They shall also demonstrate practical knowledge of the nature of herbicides and the need for containment of these pesticides within the target application site, and the impact of their application activities in the adjacent areas and communities.

(i) **Industrial, institutional, structural, and health related pest control** applicators must demonstrate a practical knowledge of a wide variety of pests and their life cycles, types of formulations appropriate for their control, and methods of application that avoid contamination of food, damage and contamination of habitat and exposure of people and pets. Since human exposure includes babies, children, pregnant women, and elderly people and is frequently a potential problem, applicators must demonstrate practical knowledge of the specific factors which may lead to a hazardous condition, including continuous exposure in the various situations encountered in this classification. Because health-related pest control may involve outdoor applications, applicators must also demonstrate practical knowledge of environmental conditions particularly related to this activity.

(j) **School pest control** applicators must demonstrate a practical knowledge in the principles of integrated pest management and a knowledge of pesticides registered for use in the school environment.

(k) **Wood product pest control** applicators shall demonstrate practical knowledge of the specific wood preservative products used in their operation (creosote, pentachlorophenol, inorganic

arsenicals). They shall be knowledgeable about the protective clothing and equipment requirements and the requirements for proper care and disposal of work clothing and equipment. They shall demonstrate practical knowledge of application techniques which will prevent direct exposure to domestic animals and livestock, or in contamination of food, feed or drinking and irrigation water. They shall be aware of the prohibitions against eating, drinking and smoking and other potential avenues of work exposure while applying wood preservative chemicals. They must demonstrate practical knowledge of hazards of handling treated products as well as the requirements for proper disposal of pesticide waste. They must be familiar with the consumer awareness program (CAP) which will be implemented through the use of Consumer Information Sheets (CIS's) provided to the end users of the products (consuming public).

(l) **Public health pest control** applicators shall demonstrate practical knowledge of vectordisease transmission as it relates to and influences application programs. A wide variety of pests are involved. It is essential that they be known as recognized and appropriate life cycles and habitats be understood as a basis for control strategy. These applicators shall have practical knowledge of a great variety of environments ranging from streams to those conditions found in buildings. They should also have practical knowledge of the importance and employment of such nonchemical control methods as sanitation, waste disposal, and drainage.

(m) **Regulatory pest control** applicators shall demonstrate practical knowledge of regulated pests, applicable laws relating to quarantine and other regulation of pests, and the potential impact on the environment of pesticides used in suppression and eradication programs. They shall demonstrate knowledge of factors influencing introduction, spread, and population dynamics of relevant pests. In the case of some federal agency applicators, their knowledge shall extend beyond that required by their immediate duties since their services are frequently required in other areas of the country where emergency measures are invoked to control regulated pests, and where individual judgments must be made in new situations.

(n) **Demonstration and research pest control** applicators demonstrating the safe and effective use of pesticides to other applicators and the public will be expected to meet comprehensive standards reflecting a broad spectrum of pesticide use. Many different problem situations will be encountered in the course of activities associated with demonstrations. Practical knowledge of problems, pests, and population levels occurring in each demonstration situation is required. Further, they should demonstrate an understanding of pesticide organism interactions and the importance of integrating pesticide use with other control methods. In general, it would be expected that applicators doing demonstration pest control work possess a practical knowledge of all the standards detailed in ARM 4.10.204. In addition, they shall meet the specific standards required for classifications in (1)(a) through (t) applicable to their particular activity. Persons conducting field research or method improvement work with restricted use pesticides shall be expected to know the general standards required for classifications in (1)(a) through (t), applicable to their particular activity, or alternatively, to meet the more inclusive requirements listed under "Demonstration."

(o) **Special utility** applicators shall demonstrate practical knowledge of a wide variety of utility right-of-way environments. They shall demonstrate practical knowledge of problems on runoff, drift and excessive foliage destruction, and ability to recognize target organisms. They shall also

demonstrate practical knowledge of the nature of herbicides and soil sterilants, the need for containment of these pesticides within the designated areas, and the impact of their application activities in the adjacent areas. They shall demonstrate practical knowledge of the specific wood preservative products used in their operation. They shall be knowledgeable about the protective clothing and equipment requirements and the requirements for proper care and disposal of work clothing and equipment. They shall demonstrate practical knowledge of application techniques which will prevent direct exposure to domestic animals and livestock, or in contamination of food, feed or drinking and irrigation water. They shall be aware of the prohibitions against eating, drinking and smoking and other potential avenues of work exposure while applying wood preservative chemicals. They must demonstrate practical knowledge of hazards of handling treated products as well as the requirements for proper disposal of pesticide waste.

(p) **Piscicide** applicators shall demonstrate a knowledge of registered piscicides, and safety practices for use, storage and transportation. They shall demonstrate practical knowledge of the secondary effects which can be caused by improper application rates, incorrect formulations, and faulty application of pesticides used in this classification. They shall demonstrate practical knowledge of various water use situations, the potential of downstream effects and piscicide decontamination procedures. They must have practical knowledge concerning potential pesticide effects on plants, fish, birds, beneficial insects, and other organisms which may be present in aquatic environments. They must show practical knowledge of water chemistry, pest identification, and the ecology within the aquatic environment. Applicators must also have knowledge of applicable laws and regulation related to introduction of pesticides into state waters, and demonstrate practical knowledge of the principles of limited area application.

(q) **Non-soil fumigant** applicators shall demonstrate practical knowledge of the pest problems and pest control practices associated with performing non-soil fumigation applications of restricted use pesticides including the following: label and labeling comprehension; safety; selecting, inspecting, using, caring for, replacing, and disposing of personal protective equipment; and the importance of proper application rate, posting, and timing. Applicators must have knowledge of measures used to minimize adverse health effects due to unintended exposure.

(r) **Aerial** applicators shall demonstrate practical knowledge of pest problems and pest control practices associated with performing aerial application of pesticides and meet all the requirements of 40 CFR 171.103(d)(15). They shall demonstrate practical knowledge of labeling requirements and restrictions specific to aerial application of pesticides, how to choose and maintain aerial application equipment, factors to consider before and during an application, methods to minimize off-target pesticide movement, and demonstrate competency in performing an aerial pesticide application.

(s) **Sodium fluoroacetate (1080 Livestock collars) predator control** applicators must demonstrate practical knowledge of predator pests, including recognizing those pests and signs of the presence, their habitats, life cycles, biology, and behaviors as they may be relevant to pest identification and control. Applicators must also demonstrate practical knowledge and understanding of specific requirements for field posting, monitoring, recordkeeping, proper storage of collars, disposal of punctured or leaking collars, disposal of contaminated animal remains, vegetation, soil, and clothing, and reporting of suspected and actual poisoning, mishap, or injury to

threatened or endangered species, humans, domesticated animals, or non-target wild animals. They shall demonstrate comprehension of all laws and regulations applicable to the use of sodium fluoroacetate products, including the restrictions on the use of sodium fluoroacetate products ordered by the EPA Administrator. Applicators must also demonstrate practical knowledge and understanding of the specific use restrictions for sodium fluoroacetate in the livestock protection collar, including where and when sodium fluoroacetate products can be used, safe handling and placement of collars, and practical treatment of sodium fluoroacetate poisoning in humans and domestic animals.

(t) **Sodium cyanide (M-44) predator control** applicators must demonstrate practical knowledge of mammalian predator pests, including recognizing those pests and signs of their presence, their habitats, their life cycles, biology, and behavior as they may be relevant to pest identification and control. They must demonstrate comprehension of all laws and regulations applicable to the use of mechanical ejection devices for sodium cyanide, including the restrictions on the use of sodium cyanide products ordered by the EPA Administrator. M-44 applicators must also demonstrate practical knowledge and understanding of all of the specific use restrictions for sodium cyanide devices, including safe handling and proper placement of the capsules and device, proper use of the antidote kit, notification to medical personnel before use of the device, conditions of and restrictions on when and where devices can be used, requirements to consult U.S. Fish and Wildlife Service maps before use to avoid affecting endangered species, maximum density of devices, provisions for supervising and monitoring applicators, required information exchange in locations where more than one agency is authorized to place devices, and specific requirements for recordkeeping, monitoring, field posting, proper storage, and disposal of damaged or used sodium cyanide capsules.

* **Dealers** may obtain recertification credits associated with any of the applicable categories for the products sold in addition to training on pesticide legislation, regulations and guidelines, safety and toxicology, disposal, storage and transportation, effects on animals, plants, and environment, fish and wildlife, alternatives to chemicals, pollinating insects, selection of control methods, factors affecting pesticide applications, classification and formulations of insecticides, fungicides, herbicides, and other pesticides and their uses, definitions, and recommendations for use of pesticides (4.10.503(3)).

Private/Farm Applicator- Agricultural Competencies

(a) Private Applicator Permit:

- The definition of a pesticide.
- The definition of Restricted use pesticide.
- The definition of a private applicator.
- How to read the permit number and why it is important.
- How to recertify a private applicator permit.
- Permit fees and how they are distributed.
- Legal requirements of the permit including how it can and cannot be used.
- Outlining the use of aquatic applications, non soil fumigants, aerial application equipment, or predator control devices containing sodium cyanide or sodium fluoroacetate requires additional certification.

(b) Pesticide Product Label:

- The general format and terminology of pesticide labels and labeling.
- Understanding instructions, warnings, terms, symbols, and other information commonly appearing on pesticide labels and labeling.
    - Active and inert ingredients.
    - Signal words.
    - Restricted entry intervals.
    - Pesticide product rates and what they mean.
    - Storage and disposal.
    - Importance of crop and site locations.
- Understanding that it is a violation of Federal law to use any registered pesticide in a manner inconsistent with its labeling.
- Understanding when a certified applicator must be physically present at the site of the application based on labeling requirements.
- Understanding labeling requirements for supervising non-certified applicators working under the direct supervision of a certified applicator.
- Understanding that applicators must comply with all use restrictions and directions for use contained in pesticide labels and labeling, including being certified in the appropriate category to use restricted use pesticides for fumigation or aerial application, or predator control devices containing sodium cyanide or sodium fluoroacetate, if applicable.
- Understanding the meaning of product classification as either general or restricted use, and that a product may be unclassified.
- Understanding and complying with product-specific notification requirements.
- Recognizing and understanding the difference between mandatory and advisory labeling language.
- Understanding pre-harvest and restricted entry intervals and entry-restricted periods and areas.

(c) Agricultural Pest Management

- The importance of correctly identifying target pests and selecting the proper pesticide product(s).
- Verifying that the labeling does not prohibit the use of the product to control the target pest(s).
- Specific pests of relevant agricultural commodities.
- Definition of integrated pest management (IPM).
- Benefits of IPM.
- Economic thresholds and economic injury levels.
- Monitoring techniques.
- Methods and resources to identify pests.
- Control methods (chemical, cultural, biocontrol, transgenic, and mechanical).
- Pesticide resistance and management.

(d) Pesticide Safety:

- Acute and chronic toxicity, long-term effects of pesticide exposure.
- Understanding that a pesticide's risk is a function of exposure and the pesticide's toxicity.
- Routes of exposure.
- Pesticide formulations and applicator safety: liquid vs. dry formulations.
- LD50 and signal words.
- Personal protective equipment (PPE).
- Laundering pesticide contaminated clothing.
- Proper pesticide storage: storage of pesticides in their original containers, triple rinsing, storage checklist, disposal of empty containers and excess pesticide product.
- Procedures for poisoning.
- Heat stress.
- Cleaning PPE and pesticide equipment.
- Understanding specific pesticide toxicity and residue potential when pesticides are applied to animal or animal product agricultural commodities.
- Relative hazards associated with using pesticides on animals or places in which animals are confined based on formulation, application technique, age of animal, stress, and extent of treatment.
- Interactive demonstration: demonstrating use of PPE, reading the label, and selecting PPE, fluorescent dye tracer demonstrating exposure, etc.
- Common types and causes of pesticide mishaps.
- First aid and other procedures to be followed in case of a pesticide mishap.

(e) Pesticide Laws:

- Knowledge of all applicable State, Tribal, and Federal laws and regulations.
    - Worker Protection Standard (WPS).
    - Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).
    - Montana Pesticides Act and other Montana laws and regulations.
    - Surface water discharge permit (MPDES).

- Laws pertaining to non-certified applicators:
    - Understanding and complying with requirements for private applicators who supervise noncertified applicators using restricted use pesticides.
    - Providing use-specific instructions to noncertified applicators using restricted use pesticides under the direct supervision of a certified applicator.
    - Explaining appropriate State, Tribal, and Federal laws and regulations to noncertified applicators working under the direct supervision of a certified applicator.
- Maintaining chemical security for restricted use pesticides.
- How to communicate information about pesticide exposures and risks with agricultural workers and handlers and other persons.

(f) Calibration:

- Types of pesticide equipment and advantages and limitations of each type.
- Determining output (gallons per acre – GPA) of hand, boom and broadjet sprayers.
- Determining nozzle output.
- Reading a nozzle specification sheet.
- Understanding the effects of speed and pressure.
- Acres you can spray with a given volume.
- Amount of pesticide product to add to the tank.
- Pesticide solution to add to the tank.
- Conversions (pints to ounces, gallons to ounces, etc.).
- Using calibration formulas to help keep pesticide records.
- Calibration exercises.
- Interactive demonstration: Calibrating GPA of hand sprayer, boom or boomless sprayer.
- Calibration methods, spray approach, and equipment used to apply various forms and formulations of pesticides.
- How selection of application method and use of a pesticide may result in proper use, unnecessary or ineffective use, and misuse.

(g) Environment:

- Pesticide properties regarding environmental contamination.
- Solubility.
- Soil binding capabilities (adsorption).
- Pesticide behavior in the soil: leaching, runoff, and groundwater contamination.
- Drift.
- Volatilization.
- How nozzles and pressure contribute to drift.
- Degradation.
- Impact of pesticides on pollinators and best practices to limit impacts.
- Presence of fish, wildlife, and other non-target organisms.

(h) Pesticides

- Types of pesticides.
- Types of formulations.
- Compatibility, synergism, persistence, and animal and plant toxicity of the formulations.
- Hazards and residues associated with use.
- Factors that influence effectiveness or lead to problems such as pesticide resistance.
- Dilution procedures.
- Tank mixing.

Private Applicator Category Specific Standards

Aquatic pest control applicators shall demonstrate practical knowledge of the secondary effects which can be caused by improper application rates, incorrect formulations, and faulty application of pesticides used in this classification. They shall demonstrate practical knowledge of various water use situations and the potential of downstream effects. Further, they must have practical knowledge concerning potential pesticide effects on plants, fish, birds, beneficial insects, and other organisms which may be present in aquatic environments. These applicators shall demonstrate practical knowledge of the principles of limited area application.

Sodium fluoroacetate (1080 Livestock collars) predator control applicators must demonstrate practical knowledge of predator pests, including recognizing those pests and signs of the presence, their habitats, life cycles, biology, and behaviors as they may be relevant to pest identification and control. Applicators must also demonstrate practical knowledge and understanding of specific requirements for field posting, monitoring, recordkeeping, proper storage of collars, disposal of punctured or leaking collars, disposal of contaminated animal remains, vegetation, soil, and clothing, and reporting of suspected and actual poisoning, mishap, or injury to threatened or endangered species, humans, domesticated animals, or non-target wild animals. They shall demonstrate comprehension of all laws and regulations applicable to the use of sodium fluoroacetate products, including the restrictions on the use of sodium fluoroacetate products ordered by the EPA Administrator. Applicators must also demonstrate practical knowledge and understanding of the specific use restrictions for sodium fluoroacetate in the livestock protection collar, including where and when sodium fluoroacetate products can be used, safe handling and placement of collars, and practical treatment of sodium fluoroacetate poisoning in humans and domestic animals.

Sodium cyanide (M-44) predator control applicators must demonstrate practical knowledge of mammalian predator pests, including recognizing those pests and signs of their presence, their habitats, their life cycles, biology, and behavior as they may be relevant to pest identification and control. They must demonstrate comprehension of all laws and regulations applicable to the use of mechanical ejection devices for sodium cyanide, including the restrictions on the use of sodium cyanide products ordered by the EPA Administrator. M-44 applicators must also demonstrate practical knowledge and understanding of all of the specific use restrictions for sodium cyanide devices, including safe handling and proper placement of the capsules and device, proper use of the antidote kit, notification to medical personnel before use of the device, conditions of and restrictions on when and where devices can be used, requirements to consult U.S. Fish and Wildlife

Service maps before use to avoid affecting endangered species, maximum density of devices, provisions for supervising and monitoring applicators, required information exchange in locations where more than one agency is authorized to place devices, and specific requirements for recordkeeping, monitoring, field posting, proper storage, and disposal of damaged or used sodium cyanide capsules.

Aerial applicators shall demonstrate practical knowledge of pest problems and pest control practices associated with performing aerial application of pesticides and meet all the requirements of 40 CFR 171.103(d)(15). They shall demonstrate practical knowledge of labeling requirements and restrictions specific to aerial application of pesticides, how to choose and maintain aerial application equipment, factors to consider before and during an application, methods to minimize off-target pesticide movement, and demonstrate competency in performing an aerial pesticide application.

Non-soil fumigant applicators shall demonstrate practical knowledge of the pest problems and pest control practices associated with performing non-soil fumigation applications of restricted use pesticides including the following: label and labeling comprehension; safety; selecting, inspecting, using, caring for, replacing, and disposing of personal protective equipment; and the importance of proper application rate, posting, and timing. Applicators must have knowledge of measures used to minimize adverse health effects due to unintended exposure.