UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Certified Mail

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

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January, 16, 2009

Re: Sinapu et al. Petition to the Environmental Protection Agency for Suspension and Cancellation of M-44 Sodium Cyanide Capsules & Sodium Fluroroacetate (Compound 1080) Livestock Protection Collars dated January 24, 2007, 1st Addendum dated March 20, 2007, 2nd Addendum dated July 27, 2007 and 3rd Addendum dated January 7, 2008

Dear Ms. Keefover-Ring:

This letter constitutes the Environmental Protection Agency's (EPA) response to the petition and addenda filed January 24, 2007, March 20, 2007, July 27, 2007, and January 7, 2008, by Sinapu on behalf of itself and 10 other groups requesting that EPA suspend and cancel the registrations of the predator control uses of sodium cyanide and sodium fluoroacetate (Compound 1080). Specifically, Petitioners ask EPA to:

(1) Determine that sodium cyanide and Compound 1080 when used for registered lethal predator control cause unreasonable adverse effects on public health, the environment, and to species' populations (including those that are threatened or endangered);
(2) Determine that sodium cyanide and Compound 1080 when used for registered lethal predator control present an imminent hazard to public health and the environment because the unreasonable adverse effects resulting from their continued use cannot be avoided within the time necessary for cancellation hearings;
(3) Issue a Notice of Intent to Cancel the registrations of all registered pesticide products used for predator control that contain sodium cyanide and Compound 1080;
(4) Immediately suspend the registrations of all registered pesticide products used for predator control that contain sodium cyanide and Compound 1080;
(5) Move as expeditiously as possible to complete the cancellation of all registered pesticide products used for predator control that contain sodium cyanide and Compound 1080; and

(6) Pursuant to the Endangered Species Act (ESA), reinitiate consultation with the U.S. Fish and Wildlife Services (FWS) on sodium cyanide and Compound 1080 when used for registered lethal predator control so that more threatened and endangered species are not harmed.

For the reasons set forth in the attached response, EPA is denying the first five elements of the petition. In regards to the sixth element, EPA is granting the petition insomuch as the Agency plans to reinitiate consultation with FWS on these pesticides.

I. LEGAL FRAMEWORK

A. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Standard for Registration, Reregistation and Registration Review

EPA regulates pesticides used to control predators under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The principal purpose of FIFRA is to regulate the sale, distribution and use of pesticides (through the registration process) while protecting human health and the environment from unreasonable adverse effects associated with pesticides. *See generally* FIFRA section 3. Under FIFRA section 3, EPA registers a pesticide only after conducting an extensive scientific review of the risks, and when appropriate, benefits of the proposed use of that pesticide to determine whether the use of the pesticide causes "unreasonable adverse effects" to human health or the environment. FIFRA §§ 2(bb) and 3(c)(5). To meet this standard, the pesticide must not pose "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide." *Id.*

In order to remain registered, a pesticide must be found to continue to meet the "risk-benefit" standard throughout its regulatory history. The risk-benefit balance may be assessed at any time or during a scheduled reassessment such as the reregistration or registration review of the pesticide's active ingredient. EPA is authorized to cancel pesticide registrations that do not comply with this standard and, in certain circumstances, to suspend those registrations pending the completion of cancellation proceedings. *See* FIFRA §§ 3(c)(5), 4(g), 6(b)(c), 2(bb).

Review of a pesticide under this risk-benefit standard is not simply a matter of determining whether there are risks of concern, but rather whether those risks are reasonable in light of the benefits. First, EPA typically determines whether a particular use of a pesticide poses a meaningful risk (often referred to as a "risk of concern"). If the use does pose a risk of concern, EPA takes steps to determine whether that risk may be reduced below the level of concern, for example, through changes to the terms and conditions of the registration. If the Agency determines that cost-effective changes to the terms and conditions of registration are appropriate, or if the risks associated with the use are not justified by the benefits associated with that use, the Agency will initiate appropriate regulatory action (cancellation) under FIFRA section 6 unless the necessary changes (if any are possible) are made by the registrant. If, on the other hand, the Agency determines that

the risks associated with a use are outweighed by its benefits, and no cost-effective changes to the terms and conditions of registration can be identified to mitigate those risks, the use would meet the FIFRA standard for registration.

B. FIFRA Cancellation, Suspension and Subpart D Hearings

In the absence of voluntary action from a registrant to cancel a pesticide, under FIFRA section 6, if EPA determines cancellation is warranted, it must do so through the issuance of a Cancellation Order after an opportunity for a hearing. The basic standard for cancellation is similar to the standard for registration: section 6(b) of FIFRA allows EPA to initiate action to cancel pesticide registrations if the Administrator determines that use of the pesticide may generally cause unreasonable adverse effects on the environment (a term defined in section 2(bb) of FIFRA). Any adversely affected person can request a hearing on whether the standard for cancellation is met; registrations generally remain in effect until the conclusion of any cancellation proceeding.

Section 6(c) of FIFRA allows the Administrator to suspend a pesticide registration if the Administrator determines that action is necessary to prevent an "imminent hazard" (a term defined in section 2(l) of FIFRA) during the time required to complete a cancellation proceeding. Suspension under FIFRA is an interim remedy that can remain in effect only for the duration of a cancellation proceeding; if the Administrator determines that cancellation is not appropriate, suspension is no longer an available option under FIFRA section 6.

Cancellation Orders issued after an opportunity for a hearing can only be modified through what is termed a "subpart D proceeding".[1] The subpart D proceeding is for the purpose of determining whether an earlier cancellation order (where there was an opportunity for a hearing) should be modified or reversed to "allow use of a pesticide at a site or on a pest for which registration has been finally cancelled or suspended." *See* 40 C.F.R. subpart D, § 164.130.

C. Endangered Species Act

Under the Endangered Species Act (ESA) of 1973, as amended, all federal agencies have responsibility to ensure that any action authorized, funded or carried out by that agency is not likely to jeopardize the continued existence of any federally listed endangered or threatened species or result in the destruction or adverse modification of critical habitat. EPA is the federal agency authorized to regulate pesticide use through administration of FIFRA. Under ESA, EPA must ensure that its activities in administering FIFRA are not likely to jeopardize the continued existence of any federally listed, threatened or endangered species.

[1] "Subpart D" refers to the regulations that can be found at 40 C.F.R. Part 164, Subpart D

Service regulations implementing Section 7of the ESA require that federal "action" agencies initiate "consultation" with the appropriate Service (in this particular case, FWS) on certain actions that "may affect" listed species or designated critical habitat. For its part, the FWS concludes the consultation by issuing a Biological Opinion (BO) that addresses the agency action. In the BO, FWS determines whether the proposed action is likely to jeopardize the continued existence of the listed species in question. If the FWS determines that a proposed action is likely to jeopardize the continued existence of the species, it must provide the federal agency with any available reasonable and prudent alternatives that the Service determines will preclude likely jeopardy yet still allow the proposed action to continue.

FWS must also provide to the federal agency an "incidental take statement" which specifies the legal terms and conditions (known as reasonable and prudent measures or RPMs) under which any incidental take of individual members of a species is permitted.

II. BACKGROUND

Sodium cyanide and Compound 1080 are both acute toxicants used for predator control. Sodium cyanide is registered for use to control coyotes, red foxes, gray foxes and wild dogs that are suspected of preying on livestock, that are suspected of preying on threatened or endangered species, or that are vectors of communicable diseases. Compound 1080 is registered for use in livestock protection collars (hereinafter 1080 LPC) to control coyotes that prey upon sheep or goats.

When used to control coyotes and certain other canids, sodium cyanide is offered for sale or distribution in capsules, which are only to be applied by use of M-44 spring-loaded ejector units. Each capsule is loaded into a capsule holder, which is screwed onto the ejector mechanism of an M-44. The capsule holder is treated with a scent formulated to attract canids. When an animal tugs at the capsule holder, a spring-driven plunger ejects the dyed sodium cyanide powder into the animal's mouth causing the death of the animal.

The only Compound 1080 end use product is the 1080 LPC, which consists of two rubber bladders and two sets of Velcro or elastic straps. Prior to distribution of the collar, each of the bladders is injected with 15 ml of a 1% Compound 1080 solution. For proper use, LPCs are strapped to a sheep or goat such that the bladders straddle the throat area. Coyotes attempting to kill a collared animal are likely to puncture the reservoir and be fatally poisoned by Compound 1080.

Sodium cyanide capsules and Compound 1080 are classified as restricted use pesticides (RUPs).

A. EPA 1972 Cancellation

All predator control uses of sodium cyanide and Compound 1080 were originally cancelled by Order in 1972. 37 Fed. Reg. 5718. The decision to cancel predator control uses of sodium cyanide and Compound 1080 was based in large part on a study on the use of predacides commissioned by the U.S. Department of Interior (DOI) and the Council on Environmental Quality. *See* Ref. 29. In his cancellation Order, Administrator Ruckelshaus noted the extreme toxicity of sodium cyanide and Compound 1080, and reports of secondary and accidental poisonings as factors supporting his decision. *See* 40 Fed. Reg. 44726, 44734 – 35 (discussing Original Cancellation Order). The Order was not contested, and became final after 30 days.[2]

B. Sodium Cyanide – Modifications of 1972 Cancellation Order

1. 1975 Reconsideration

In 1975, FWS[3] applied for registration of M-44 Sodium Cyanide Capsules (M-44) to control coyotes and certain other types of wild canids. The M-44 ejector was different than the previously used product, the "humane coyote getter", which was the delivery mechanism considered when predator control uses of sodium cyanide were banned in 1972. The "humane coyote getter" used exploding gunpowder as the propellant, and in 1972, the Administrator concluded that it posed significant risk to humans. EPA treated FWS' application as a petition for reconsideration of the earlier order issued by EPA in 1972 cancelling the registrations of all predator control uses of sodium cyanide. 40 Fed. Reg. 29755. As in other proceedings under FIFRA, the proponent of use bears the burden of proof in a reconsideration hearing. 40 CFR 164.132(a). Following the presentation of evidence and an "Initial Decision" by the presiding officer, the Administrator makes a Final Decision on whether to modify the previous cancellation order. *Id.*

After holding a subpart D hearing on the application, Administrative Law Judge (ALJ) Frederick W. Denniston, rendered an "Initial Decision" on August 29, 1975. In his decision, Judge Denniston found that the M-44 method for application of sodium cyanide is "more selective than … some other chemical and non-chemical predator control methods" and in light of the data on reduced hazards to humans and greater selectivity, "it is likely that proposed restrictions that might be developed could be adopted and followed as a matter of practice by trained personnel subject to the supervision or control of the applicant." 40 Fed. Reg. 44726, 44736.

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[2] Preceding the 1972 cancellation order, President Nixon issued Executive Order 11643, which originally banned use of these pesticides on federal lands (2/8/72). Executive Order 11643 was revoked completely in 1982 by President Reagan through issuance of Executive Order 12342.

[3] FWS was the former registrant for the product (EPA Reg. No. 6704-75) that now is EPA Reg. No. 56228-15. The Animal Damage Control Program within DOI was transferred to the Department of Agriculture in 1985.

Judge Denniston thereafter determined that the original cancellation order should be modified to allow registrations of sodium cyanide using the M-44 ejector unit under 26 specified conditions. 40 Fed. Reg. 44739.

Parties appealed the Initial Decision to EPA Administrator Russell Train. Parties in support of the applications included the States of Wyoming and Montana as well as the National Wool Growers' Association, the American National Cattlemen's Association, the National Turkey Federation, and the Navajo Nation. 40 Fed. Reg. 44726. Parties in opposition to the applications included Environmental Defense Fund, Defenders of Wildlife, Friends of the Earth, National Audubon Society, Natural Resources Defense Council, National Wildlife Federation, Sierra Club, Oregon Environmental Council, Animal Protection Institute, Wildlife Management Institute, and the Humane Society of the United States. *Id.* Administrator Train rendered a "Final Decision" on September 23, 1975, agreeing that the earlier cancellation should be modified to allow registrations of sodium cyanide using the M-44 ejector units under specified conditions. *Id*. Administrator Train addressed the specific issues raised by opponents of the original use conditions recommended by Judge Denniston and authorized modification of the earlier cancellation order with certain revisions to the use conditions recommended in the initial decision. *Id.*

2. 1986 Reconsideration

In 1985, FWS petitioned EPA to modify the M-44 registration to permit control of wild predators on federally designated threatened or endangered species at sites where use of M-44 was prohibited by the 1975 order (wildlife refuges and similar areas). Additionally, FWS requested modification of 10 other restrictions contained in the 1975 order to allow for more efficient use of sodium cyanide in predator control. 51 Fed. Reg. 9515.

Consistent with 40 CFR Part 164, EPA issued a "Notice of Hearing and Notice of Intent to Modify Order" announcing the opportunity for a hearing on the issue of amending the 1972 cancellation order to allow use for the protection of threatened and endangered species. *Id*. Various concerned parties filed comments and hearing requests.

After receipt of the comments, parties to the proceeding entered into settlement discussions with EPA. Based on the settlement agreement reached by all the parties, on August 18, 1987, ALJ J.F. Greene recommended that the registration be modified to allow the proposed use of sodium cyanide using the M-44 ejector unit for the protection of threatened or endangered species. In her decision, the 26 use restrictions for M-44 were modified once more.[4]

C. 1080 – Modifications of 1972 Cancellation Order

[4] These 26 use restrictions are listed later in this document as amended by the EPA's 1994 Reregistration Eligibility Decision (RED).

In 1977, FWS petitioned EPA to modify the 1972 cancellation order to allow use of Compound 1080 in the Livestock Protection Collars (herinafter 1080 LPCs) and single-dose baits. EPA held information-gathering hearings in July 1981, and Administrator Gorsuch determined that substantial new evidence was available to warrant reconsideration of the 1972 cancellation of Compound 1080 and ordered hearings scheduled pursuant to 40 CFR Part 164 subpart D of EPA's Rule of Practice. 46 Fed. Reg. 59622. The subpart D hearings considered reinstatement of Compound 1080 use in injected-carcass bait stations and three additional types of applications: 1080 LPCs, small "single-dose baits" intended to provide enough toxicant to reliably kill one coyote, and "smear posts." *Id.* Judge Spencer Nissen's decision, published on October 22, 1982, allowed EPA to consider applications for Compound 1080 use in the single lethal dose baits and 1080 LPCs but denied the applications for use in the large bait station and "smear posts". *Id.* Single lethal dose baits containing Compound 1080 and the 1080 LPC were never registered before 1972.

Defenders of Wildlife et al., the State of Wyoming et al., the State of South Dakota, FWS, USDA, and the National Wildlife Federation filed an appeal on November 12, 1982. Administrator Ruckelshaus recused himself from considerations of the matter and designated Assistant Administrator Lee Thomas to rule on the appeal. 49 Fed. Reg. 4830. Assistant Administrator Thomas determined the 1080 LPC was excellent in terms of targeting predating coyotes. *Id.* He noted that some spillage of the Compound 1080 solution was probable but determined that most of the spillage was on the lamb or goat wearing the 1080 LPC and the coyote, and there was virtually no exposure to non-target wildlife. *Id.* With proper handling and precautions by, or under the direction of certified applicators, he determined the chance of human injury was remote. *Id.* He affirmed Nissen's "Initial Decision" with some modifications including dose limitations for the 1080 LPC and labeling to prevent accidental mishandling of the 1080 LPC. *Id.* Although Assistant Administrator Thomas ruled that the single-dose baits were also eligible for registration applications, EPA has not granted a FIFRA Section 3 registration for these baits; however, Experimental use permits for single-dose Compound 1080 baits were issued during the 1980s. *Id.* The only current registered use for Compound 1080 is the 1080 LPC.

D. Biological Opinions

On April 15, 1991, EPA initiated consultation for 16 vertebrate control agents including sodium cyanide in M-44 spring-loaded ejectors and Compound 1080 in livestock protection collars. FWS issued a Biological Opinion (BO) in March 1993. Ref. 31.

For M-44, the BO found that this registration could affect the Florida panther, gray wolf, grizzly bear, jaguarundi, Louisiana black bear, ocelot, San Joaquin kit fox, California condor, Hawaiian crow, and the Mariana crow. *Id.* at II-75 – II 78. However, FWS determined that if certain reasonable and prudent alternatives and measures[5] were adopted,

[5] Reasonable and Prudent Alternatives (RPAs) are FWS's recommendations for modifying the proposed action to avoid likely jeopardy/destruction or adverse modification of critical habitat. They are not binding orders or regulations and action agencies like EPA retain the discretion to develop their own appropriate "RPAs."

the registration would not jeopardize the continued existence of these species. *Id.* These included:

- **Florida panther:**
  - **Reasonable and prudent alternative:** Prohibit the use of the chemical device within 20 miles of the boundary of any federal and state lands (e.g., National Wildlife Refuge, National Park, National Preserve, State Park, State Preserve, State Wildlife Management areas, etc.) and Indian Reservations that provide suitable panther habitat south of Charlotte, Glades and Martin Counties, Florida.
  - **Reasonable and prudent measure:** Prohibit the use of sodium cyanide (M-44s) in the geographic range of the Florida panther until after the user has contacted the local Fish and Wildlife Service office and that office has determined that there are no known panthers in the general vicinity of where the M-44s are going to be used.
- **Ocelot and jaguarundi**:
  - **Reasonable and prudent alternative:** prohibit use within three miles of occupied habitat.
  - **Reasonable and prudent measure:** Prior to use of sodium cyanide in potential ocelot or jaguarondi habitat, conduct survey to determine if habitat is occupied. If habitat is unoccupied, no further restrictions are applicable. If habitat is occupied, prohibit use within three miles.
- **Louisiana black bear**:
  - **Reasonable and prudent alternative:** Prohibit the use of the chemical device within the known occupied habitat of the Louisiana black bear.
  - **Reasonable and prudent measure:** Prohibit the use of sodium cyanide (M-44s) in the geographic range of the Louisiana black bear until after the user has contacted local Fish and Wildlife Service Office and that office has determined that there are no known Louisiana black bears in the general vicinity of where the M-44s are going to be used.
- **San Joaquin kit fox:**
  - **Reasonable and prudent alternative:** Prohibit use of sodium cyanide M-44 devices within the range of the San Joaquin kit fox.
- **California condor:**
  - **Reasonable and prudent alternative:** The use of sodium cyanide should be prohibited in condor occupied habitat including Ventura, Kern, Santa Barbara, and Los Angeles and San Luis Obispo Counties. Alternative control of canid predators must be considered to avoid the inadvertent poisoning of California condors.

Reasonable and Prudent Measures (RPMs) are when FWS determines that an action (or the implementation of the action with the RPAs set forth in a jeopardy opinion) will likely result in the take of listed species, and such take will not violate section 7(a)(2) (i.e., result in likely jeopardy), the Service issues an Incidental Take Statement authorizing some level of take and establishes Reasonable and Prudent Measures (RPMs) to minimize the impact of such take. The RPMs are binding in the sense that take is only authorized if the person or agency responsible for the take is in compliance with the RPMs.

- **Grizzly Bear and Gray Wolf:**
  - **Reasonable and prudent measure:** Prohibit application of sodium cyanide (M-44s) in the geographic range of the gray wolf and grizzly bear until after the user has contacted the local Fish and Wildlife Service office and that office has determined that there are no known wolves or grizzly bears in the general vicinity where the M-44s are going to be applied.
- **Alala (Hawaiian crow) and Mariana crow:**
  - **Reasonable and prudent measure:** Prohibit use of sodium cyanide within occupied habitat on Guan, Rota and the island of Hawaii.

The BO issued non-quantifiable incidental take permits for the gray wolf and black bear. Incidental take was not permitted for the remaining species as listed above. *Id.* at II-77.

For the 1080 LPC, the BO found that this registration could affect the gray wolf and black bear. *Id.* at II-79. FWS identified specific state and county areas where 1080 LPCs could not be used and concluded that implementation of such a restriction would preclude jeopardy to both the gray wolf and the grizzly bear. *Id.* Incidental take was not permitted.

E. Registration Eligibility Decisions (RED)

1. Sodium Cyanide RED

In 1994, EPA issued a Reregistration Eligibility Decision (RED) pertaining to the use of sodium cyanide capsules in M-44 units. The 1994 RED can be found at http://www.epa.gov/oppsrrd1/REDs/3086.pdf. EPA concluded that the M-44 did not pose unreasonable risks to humans or the environment if this product was used in accordance with the 26 use restrictions listed below and additional restrictions specific to endangered species at risk from M-44 use outlined in FWS' 1993 Biological Opinion.

1. Use of the M-44 device shall conform to all applicable Federal, State, and local laws and regulations.

2. Applicators shall be subject to such other regulations and restrictions as may be prescribed from time-to-time by the U.S. Environmental Protection Agency (EPA).

3. Each applicator of the M-44 device shall be trained in: (1) safe handling of the capsules and device, (2) proper use of the antidote kit, (3) proper placement of the device, and (4) necessary record keeping.

4. M-44 devices and sodium cyanide capsules shall not be sold or transferred to, or entrusted to the care of any person not supervised or monitored by the Animal and Plant Health Inspection Service (APHIS), Animal Damage Control (ADC) program or any agency not working under an ADC cooperative agreement.

5. The M-44 device shall only be used to take wild canids: (1) suspected of preying on livestock or poultry; (2) suspected of preying on federally designated threatened or endangered species, or; (3) that are vectors of a communicable disease.

6. The M-44 device shall not be used solely to take animals for the value of their fur.

7. The M-44 device shall only be used on or within seven miles of a ranch unit or allotment where losses due to predation by wild canids are occurring or where losses can be reasonably expected to occur based upon recurrent prior experience of predation on the ranch unit or allotment. Full documentation of livestock depredation, including evidence that such losses were caused by wild canids, will be required before application of the M-44 is undertaken. This use restriction is not applicable when wild canids are controlled to protect federally designated threatened or endangered species or are vectors of a communicable disease.

8. The M-44 device shall not be used: (1) in areas within national forests or other Federal lands set aside for recreational use, (2) areas where exposure to the public and family and pets is probable, (3) in prairie dog towns, or, (4) except for the protection of federally designated threatened or endangered species, in National and State Parks; National or State Monuments; federally designated wilderness areas; and wildlife refuge areas.

9. The M-44 device shall not be used in areas where federally listed threatened or endangered animal species might be adversely affected. Each applicator shall be issued a map, prepared by or in consultation with the U.S. Fish and Wildlife Service, which clearly indicates such areas.

10. One person other than the individual applicator shall have knowledge of the exact placement location of all M-44 devices in the field.

11. In areas where more than one governmental agency is authorized to place M-44 devices, the Agencies shall exchange placement information and other relevant facts to ensure that the maximum number of M-44's allowed is not exceeded.

12. The M-44 device shall not be placed within 200 feet of any lake, stream, or other body of water, provided that natural depression areas which catch and hold rainfall only for short periods of time shall not be considered "bodies of water" for purposes of this restriction.

13. The M-44 device shall not be placed in areas where food crops are planted.

14. The M-44 device shall be placed at least a 50-foot distance or at such a greater distance from any public road or pathway as may be necessary to remove it from the sight of persons and domestic animals using any such public road or pathway.

15. The maximum density of M-44's placed in any 100 acre pasture land areas shall not exceed 10; and the density in any 1 square mile of open range shall not exceed 12.

16. No M-44 device shall be placed within 30 feet of a livestock carcass used as a draw station. No more than four M-44 devices shall be placed per draw station and no more than five draw stations shall be operated per square mile.

17. Supervisors or applicators shall check the records, warning signs, and M-44 devices of each applicator at least once a year to verify that all applicable laws, regulations, and restrictions are being strictly followed.

18. Each M-44 device shall be inspected at least once every week, weather permitting access, to check for interference or unusual conditions and shall be serviced as required.

19. Damaged or nonfunctional M-44 devices shall be removed from the field.

20. An M-44 device shall be removed from an area if, after 30 days, there is no sign that a target predator has visited the site.

21. All persons authorized to possess and use sodium cyanide capsules and M- 44 devices shall store such capsules and devices under lock and key.

22. Used sodium cyanide capsules shall be disposed of by deep burial or at a proper landfill site. Incineration may be used instead of burial for disposal. Place the capsules in an incinerator or refuse hole and burn until the capsules are completely consumed. Capsules may be incinerated using either wood or diesel fuel.

23. Bilingual warning signs in English and Spanish shall be used in all areas containing M-44 devices. All such signs shall be removed when M-44 devices are removed. Main entrances or commonly used access points to areas in which M-44 devices are set shall be posted with warning signs to alert the public to the toxic nature of the cyanide and to the danger to pets. Signs shall be inspected weekly to ensure their continued presence and ensure that they are conspicuous and legible. b. An elevated sign shall be placed within 25 feet of each individual M-44 device warning persons not to handle the device.

24. Each authorized or licensed applicator shall carry an antidote kit on his person when placing and/or inspecting M-44 devices. The kit shall contain at least six pearls of amyl nitrite and instructions on their use. Each authorized or licensed applicator shall also carry on his person instructions for obtaining medical assistance in the event of accidental exposure to sodium cyanide.

25. In all areas where the use of the M-44 device is anticipated, local medical people shall be notified of the intended use. This notification may be through a poison control center, local medical society, the Public Health Service, or directly to a doctor or hospital. They shall be advised of the antidotal and first-aid measures required for

treatment of cyanide poisoning. It shall be the responsibility of the supervisor to perform this function.

26. Each authorized M-44 applicator shall keep records dealing with the placement of the device and the results of each placement. Such records shall include, but need not be limited to:

a. The number of devices placed.
b. The location of each device placed.
c. The date of each placement, as well as the date of each inspection
d. The number and location of devices which have been discharged and the apparent reason for each discharge.
e. Species of animals taken.
f. All accidents or injuries to humans or domestic animals.

2. Compound 1080 RED

In 1995, EPA issued a RED pertaining to the use of Compound 1080 in the LPC. EPA concluded that 1080 LPC use did not pose unreasonable risks to humans or the environment when used according to labeling directions. The 1995 RED can be found at http://www.epa.gov/oppsrrd1/REDs/3073.pdf. FWS's 1993 Biological Opinion regarding 1080 LPC use determined that no further measures were necessary to protect endangered species.

F. Request for Comment on the Sinapu et al. Petition

EPA published the Petition in the Federal Register on November 16, 2007, requesting comment on the Petition from interested persons. 72 Fed. Reg. 64623. APHIS WS, the registrant for the sodium cyanide and Compound 1080 products at issue in the petition, submitted comments as did a number of states, industry trade groups, concerned citizens, various non-governmental organizations, congressional representatives, and foreign governments. EPA received hundreds of submissions from private citizens in support and opposition to the claims in the Sinapu et al. Petition. Specifically, commenters provided information regarding benefits of using M-44s and 1080 LPCs, testimonials expressing their experiences and views, and incident information. Additionally, comments discussing both the usefulness and inadequacies of alternatives to these devices were provided during the comment period for EPA consideration. *See* www.regulations.gov (Docket ID: EPA-HQ-OPP-2007-0944).

III. PETITION RESPONSE

Petitioners allege both that the proper (legal) use of the sodium cyanide M-44 device and the 1080 LPC pose significant risks to the environment and that the pesticides are commonly misused, and such misuse causes additional risks to human health and/or the environment. As a result, Petitioners request that these pesticide registrations be cancelled under Section 6 of FIFRA. Petitioners also assert that continued use of these pesticides

during cancellation proceedings presents an imminent hazard, and therefore requests that EPA suspend use of the pesticides under Section 6(c) of FIFRA pending the requested cancellation proceedings.

Petitioners also claim that the legal and illegal use of these pesticides has killed threatened or endangered species requiring EPA to reinitiate consultation with FWS under Section 7 of the ESA "or in the alternative prevent the future manufacture and distribution of these toxicants for the purposes of predator control." Ref. 15 at 15.

EPA has grouped and responded to the Petitioners' allegations as follows:

A. Petitioners Assert these Devices Harm Endangered Species.
B. Petitioners Assert M-44 and 1080 LPC Use Consistent with the Label Restrictions Results in Significant Risk to the Environment.
C. Petitioners Assert Environmental Release of Compound When Used Consistent with the Label Results in Significant Risk to the Environment
D. Petitioners Assert Common Misuse of M-44.
E. Petitioners Assert Common Misuse and Likely Improper Disposal of 1080 LPC.
F. Petitioners Assert there are few Benefits of M-44 and 1080 LPC Use.
G. Petitioners Assert That Alternatives To Use of M-44 and 1080 LPC are Sufficient to Control Predation.
H. Petitioners Assert Discrepancies Between EPA and APHIS WS Records of M-44 Non-target Impacts.
I. Petitioners Assert M-44 and 1080 LPC Use Create Bioterrorism Concerns.

Use of M-44 and 1080 LPC by APHIS WS represents the largest share of use of these pesticides; therefore, in responding to this Petition, EPA is focusing on information regarding APHIS WS' use. Because state use of these registrations is very similar to APHIS WS' use, EPA believes these responses (as presented below) are applicable to state use as well.

Addressing each allegation, EPA provides:

1) a summary of the Petitioners' claims,
2) an overview of substantive comments related to the allegation received during the comment period from APHIS WS (the registrant) and other interested stakeholders, and
3) EPA's response to Petitioners' allegation and significant related comments.

A. Petitioners Assert these Devices Harm Endangered Species

1. *Petitioners' claims*

Petitioners claim that the legal and illegal use of these pesticides has killed threatened or endangered species requiring EPA to reinitiate consultation with the FWS under Section 7 of the ESA "or in the alternative prevent the future manufacture and distribution of these toxicants for the purposes of predator control." Ref. 15 at 1, 14 – 15, 39.

In support, Petitioners offer general and specific claims. One of Petitioners' claims is that the use of sodium cyanide in the M-44 device has killed "California condors, gray wolves, and at least one grizzly bear." *Id.* at 21. Petitioners also claim that:

- Use of the M-44 could impact the lynx because it is a close relative of the bobcat, and bobcats have been killed by the M-44 device. *Id.* at 31.
- Use of M-44 or Compound 1080 could kill wolves evidenced to be dispersing from Yellowstone National Park. *Id.* at 32.
- The death of one grizzly bear by an M-44, especially if female, could affect the viability of the population. *Id.* at 34.
- Although a court order prohibits M-44 use in riparian corridors along certain rivers, risks to condors still exist. *Id.* at 19.

More specifically, Petitioners identify a number of incidents involving the alleged death of a threatened or endangered species from use of M-44 and 1080 LPC.

M-44:

- 5 specific wolf incidents tied to M-44. *Id.* at 32.
- 1 grizzly poisoned by M-44 near Helmville, Montana. *Id.* at 34.
- A California condor killed in 1983. *Id.* at 19.

1080:

- An illegal poisoning of a wolf using Compound 1080 in 2004. *Id.* at 22
- Illegal poisonings of bald and golden eagles using Compound 1080 in the 1980s. *Id.* at 23.
- 6 specific wolf incidents tied to Compound 1080 between 1999 and 2003. Ref. 13 at 32.

2. Stakeholder Comments

According to APHIS WS, it works very closely with FWS to ensure compliance with the ESA and to develop acceptable procedures while using M-44s and 1080 LPCs according to agreements and measures established to conserve threatened and endangered species. APHIS WS notes that this partnership typically occurs through consultations, and the development of Biological Assessments, Biological Opinions (BO), conferences, and concurrence agreements. *Id.* APHIS WS comments that it operates its program activities under the reasonable and prudent measures and alternatives identified in a 1992 BO issued by the FWS and under subsequent BOs issued by FWS for state programs. *Id.* APHIS WS asserts that the ESA consultation process is constantly being conducted and updated to ensure APHIS WS' compliance with ESA (*Id.*).

APHIS WS also claims they have improved chemical accounting and tracking by working closely with USDA OIG. Ref. 20 at 52. APHIS WS reports having implemented all of OIG's audit recommendations through strengthened management controls and improvement in the program's inventory process. *Id.*. WS believes they have strengthened tracking through the implementation of their comprehensive inventory accounting system called Control Materials Inventory Tracking System (CMITS) for hazardous materials that they use in wildlife damage management. *Id.*. According to APHIS WS, CMITS allows APHIS WS to account fully for all inventories by documenting acquisition, transfer, and disposal of materials within all states. *Id.* APHIS WS claims their hazardous materials management system is rigorous and responsive to program needs and is accountable to OIG and other government wide policies and requirements *Id.*

Comments were also received from the New Mexico Federal Land Council stating that arguments related to the protection of endangered wildlife by petitioners are without merit and not germane to the issue at hand. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0418). Additionally, this commenter notes that the Aleutian Canada goose has been delisted specifically because predation by arctic foxes has been managed by APHIS WS using various predation control methods including M-44. The M-44 was also useful in the protection of the Rocky Mountain experimental flock of whooping cranes. *Id.* This commenter states that APHIS WS carefully reviews and conducts its operations to meet the requirements of the ESA. *Id.*

Comments were also received from the Wyoming Farm Bureau relating to potential impacts to several species of concern, namely wolves and swift foxes. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0843). According to this comment:

> the current recovery effort for wolves in the distinct population segment portion of the experimental population designated area has resulted in wolves far in excess of required recovery numbers. The US Fish & Wildlife Service has proposed that wolves in this area be removed from ESA protection and the very limited number of wolves which were taken through control efforts because of livestock predation has not had a significant impact. Indeed, deaths of wolves by other wolves is a far higher number than that from the application of M-44s or 1080. *Id.*

The Wyoming Farm Bureau also commented on swift foxes noting that they have thrived in areas where predator management devices are used. *Id.* The commenter concludes that the actions proposed by the Petitioners could result in more deaths to the swift fox population because of increased coyote populations. *Id.*

A private citizen, D. Peay, commented that cancelling the M-44 devices will exacerbate the decline of Sage Grouse since there is substantial evidence that predators

have a major negative impact on grouse and other species. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0788).

The Natural Resource Defense Counsel (NRDC) provided a list of endangered species incidents over the previous decade. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0799). These include:

- January 1995, Priest River, Idaho – a wolf was killed by a M-44 sodium cyanide cartridge.
- May 1997, Alder, Montana – a wolf was killed by a M-44 sodium cyanide cartridge.
- April 1998, Alder, Montana – a wolf was killed by a M-44 sodium cyanide cartridge.
- December 1998, Powell, Wyoming – a wolf was killed by a M-44 sodium cyanide cartridge.
- In Spring 2001, a wolf dispersing from Minnesota or Canada was killed in South Dakota by a M-44.
- In January 2004, a wolf was poisoned with Compound 1080 near Clayton, Idaho.
- On January 31, 2007, 2 wolves were found dead near M-44 devices that had been set to control depredating coyotes. *Id.*

NRDC also commented on the risks that face grizzly bears from the use of M-44 and 1080 LPC. *Id.* NRDC noted that grizzlies have large home ranges that include shrub cover, forested land and open areas. *Id* Home ranges are, on average, between 73 and 414 sq. km but can be as large as 2,600 sq. km. *Id.* NRDC commented that except for the population in and around Yellowstone National Park, each grizzly bear population in the lower-48 states is listed as threatened under the ESA, and distribution is primarily limited to recovery zones. *Id.* According to NRDC, grizzly bears' large spatial requirements increase the likelihood that a bear may happen upon an M-44. *Id.* NRDC also commented that the grizzly bears' low distribution numbers, low reproductive rates, disappearing and increasingly fragmented habitat as well as high human-caused mortality have put grizzly bears on the brink of extinction in the lower-48 states. *Id.* According to NRDC, some recovery zone populations have dangerously low bear numbers, meaning that, literally, every bear is extremely significant to the health of that population and genetic exchange with others. *Id.* NRDC noted that intentional or accidental poisoning, especially if it involves a breeding female, can threaten viability of a grizzly bear population. *Id.*

3. EPA Response

EPA is granting Petitioners' request to reinitiate consultation; however, at this time, EPA does not believe the risks posed to endangered species warrant cancellation of these registrations.

EPA last formally consulted with FWS regarding EPA's registration of M-44 and the 1080 LPC in 1991. In its Biological Opinion (BO) for M-44, FWS contemplated the high probability that M-44 use could take individual wolves or grizzly bears. Ref. 31.

However, FWS did not believe that these takes would jeopardize either species. FWS indicated, however, that individual gray wolves or grizzly bears could be adversely affected by the M-44. Specifically, FWS wrote that:

> While applicators are restricted from using the M-44 in areas where a gray wolf or grizzly bear may be adversely affected, these two species have a very wide reange and thus could be inadvertently taken in areas not mapped and/or prior to the applicator's knowledge that the species may be in the control area. [FWS], therefore, anticipates that an unquantifiable level of incidental take may occur as a result of the use of sodium cyanide. Ref. 31 at II-77.

Accordingly, FWS issued an incidental take statement that included reasonable and prudent measures to minimize the impact of such takes that EPA has adopted as a product-labeling requirement. Although FWS contemplated the possibility of unquantifiable take of individual gray wolves and grizzly bears involving the use of the M-44, there have actually been relatively few such takes. Moreover, EPA has no reason to believe, and Petitioners offer no information showing, that any of those takes were inconsistent with label directions, applicable reasonable and prudent measures identified by FWS or FWS regulations applicable to experimental nonessential populations.

The incident identified by Petitioners involving the California condor occurred well before EPA's 1994 reregistration decision adding language to the M-44 label, consistent with FWS' BO, to prohibit use of M-44 in condor-occupied habitat. EPA has no information to suggest that this language has been ineffective; there have been no reported takes since 1983 of the condor involving use of M-44. Petitioners provide no information to suggest that the label language adopted in EPA's 1994 reregistration decision is not working. Moreover, as Petitioners point out, applicators may not use M-44 in certain riparian corridors, and thus there is an additional buffer area around the condor-occupied habitat to prevent takes of the condor involving use of M-44. *See* Ref. 15 at 19.

Petitioners identify no incidents involving the lynx and use of M-44, and to EPA's knowledge, there have been no such incidents. Moreover, according to APHIS WS it monitors for lynx to ensure there are no lynx in M-44 application areas and complies with BOs and interim policies prohibiting use in lynx-occupied habitats. Ref. 20 at 33. Although APHIS WS M-44 use should not result in any adverse impact to the lynx population, EPA will address the lynx in its consultation with FWS.

For the reasons noted above, EPA does not believe the use of M-44 adversely impacts grizzly bear, gray wolf, condor or lynx populations, or is violative of FIFRA or the ESA. Therefore, EPA is denying the request to cancel the M-44 registration because of endangered species concerns.

For 1080 LPC use, in its 1993 Biological Opinion for 1080 LPCs, FWS allowed no incidental takes of the gray wolf and grizzly bear. EPA does not believe that the incidents identified by Petitioners are inconsistent with the FWS BO.

Petitioners identified a 2004 gray wolf Compound 1080 incident in the primary Petition and 6 wolf incidents from 1999-2004 in an attached letter from FWS in Petitioners' 2nd Addendum. All of these incidents reportedly took place in Idaho. EPA believes these incidents were unrelated to registered 1080 LPC use that is the subject of the Petition. Based on monitoring reports submitted to EPA from APHIS WS for years 1999 through 2004, the years involving the incidents reported, APHIS WS reported no use in Idaho of the 1080 LPC except in year 2000. Thus, EPA does not believe that the incidents in years 1999, 2003 and 2004 were the result of registered 1080 LPC use but resulted from illegally stockpiled or trafficked Compound 1080. With respect to the 1080 LPCs used in Idaho in the year 2000, there is a record of 1080 LPCs being punctured or damaged. Ref. 20 at 24, Table 7. In addition, EPA believes that the incidents in year 2000 and the 1999, 2003 and 2004 incidents were not the result of registered 1080 LPC use; specifically, the registered Compound 1080 in the LPC includes a yellow dye that allows detection of Compound 1080 specific to use of the 1080 LPC. EPA has no information indicating the presence of the dye for any of these incidents, and therefore suspects that the pesticide believed to cause the death of the wolves is not from registered 1080 LPC use, but rather the result of illegally stockpiled or trafficked Compound 1080. EPA will further investigate these incidents as part of its consultation with FWS.

Similar to the above gray wolf incidents, EPA does not believe the eagle poisonings from the 1980s involved registered 1080 LPC use. The reports supplied by Petitioners indicate that the Compound 1080 involved in the eagle poisonings was illegally stockpiled or imported. Cancelling the 1080 LPC registration will not address Compound 1080 illegally stockpiled or trafficked.

Therefore, given the significant restrictions in place to prevent exposure to threatened or endangered species from legal or illegal use of the 1080 LPC, and APHIS WS' improved tracking and storage of 1080 LPCs, EPA does not believe that the limited registration of 1080 LPC is violative of FIFRA or the ESA. EPA is denying the request to cancel the 1080 LPC registration because of endangered species concerns.

Although EPA does not believe the M-44 or 1080 LPC registrations have jeopardized or are currently jeopardizing any threatened or endangered species, the Agency does plan to reinitiate consultation to take advantage of FWS' expertise in light of changes since EPA's 1993 consultation on these pesticides. This consultation should assure that any appropriate additional steps are taken to further protect endangered species from potential risks associated with use of the M-44 or 1080 LPC.

B. Petitioners Assert M-44 and 1080 LPC Use Consistent with the Label Restrictions Results in Significant Risk to the Environment

1. Petitioners' Claims

According to Petitioners, APHIS WS' predator management programs as a whole (e.g. traps, snares, M-44, 1080 LPC, etc.) have resulted in unintended deaths of numerous

species and domestic pets, causing unreasonable adverse effects to the environment. According to Petitioners, surveys indicate that between 11 and 71% of animals killed to prevent conflicts with humans or livestock were not involved in negative interactions and those data if extrapolated to all APHIS WS activites indicate that the agency over killed 1.5 – 9.7 million animals "without cause" between 1996 and 2001. Ref. 15 at 9.

In 2004, the Petitioners report that APHIS WS killed hundreds of non-target species specifically with M-44s including 19 swift foxes, 29 kit foxes, 5 bobcats, 7 ravens, 1 marmot, 3 badgers, 96 opossums, and 117 dogs. *Id* at 18. Because APHIS WS works in rural areas, the Petitioners assert that there is little oversight to determine the accuracy of these numbers, and Petitioners suspect underreporting. *Id.* Petitioners claim that these non-target takes from M-44 use have negative impacts on the populations of black bears, mountain lions, and bobcats in many western states where these species have few protections and low fecundity and recruitment. Therefore, Petitioners assert that the survival of these species may be imperiled by a variety of threats including the lethal poisons: sodium cyanide and Compound 1080. *Id.* at 8.

2. Stakeholder Comments

According to APHIS WS, non-target take of animals with M-44s and 1080 LPCs is less than 5% and 1% of total animals taken with each of these methods, respectively, which APHIS WS argues illustrates the overall selectivity of these methods. Ref. 20 at 27. APHIS WS claims that their operating procedures and policy directives, as well as product use restrictions, reduce the effects of predation management activities on non-target species. *Id.*

APHIS WS claims use of M-44s during the ten-year period: October 1995 – September 2005 resulted in an average of 827 non-target takes annually. *Id.* at 17. APHIS WS notes that many of these non-target takes involved target species listed on the M-44 label; however, they were considered non-target only because the applicator was not focusing on these species (gray fox, feral dogs, and red fox) in the particular use situations in which they were taken. *Id.*

APHIS WS asserts that during these 10 years, four non-target animals were taken (three bobcats and one feral dog) with 1080 LPCs. *Id.* at 4. According to APHIS WS, although these species were not targeted with 1080 LPCs they were targeted with other predation management methods (e.g. traps, snares). *Id.*

In addition, APHIS WS notes that secondary poisoning risk is reduced because the 1080 LPC is selective not only for the target species, but also for target individuals while they are exhibiting a particular behavior (biting the throat of a goat or sheep). *Id.* at 22. APHIS WS notes that 1080 LPC use is restricted only to fenced pastures where coyote predation on sheep or goats has occurred. *Id.* The 1080 LPC, attached to the neck of a sheep or goat, dispenses the Compound 1080 solution when punctured by the bite of an attacking predator. *Id.* Coyotes characteristically attack sheep and goats by grabbing the

throat, whereas other predators, including dogs, typically attack the animal elsewhere on the body (e.g., dogs attack the flanks and mountain lions the back of the neck or skull). *Id.* As a result, very few dogs and non-target animals are taken to resolve livestock depredations using the 1080 LPC. *Id.*

Furthermore, APHIS WS asserts that the level of non-target takes for these two toxicants has no perceptible impact on any wildlife populations, and many of these species are harvested in larger numbers by sportsmen. *Id.* at 28.

South Dakota Department of Game, Fish and Parks commented that M-44s are very useful in removing problem animals and are target-animal specific. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0411). According to this commenter, fourteen state predator control programs took a total of 103,255 animals with M-44s from 1976 through 1986, and target species (coyote, red fox, grey fox, and wild dog) comprised 95.3% of total animals taken. Commenters also note, when compared to other capture devices such as traps and snares, the M-44 is more selective for target species and more humane.

In addition, Wyoming Department of Agriculture (WDA), provided information relating to records of WDA monthly usage: as few as 6 non-target species were taken by the M-44 in the past 4 years, including a raven, a skunk, a sheep, and three non-essential, experimental wolves traveling far from their designated range. *See,* www.regulations.gov (Docket ID: EPA-HQ-OPP-2007-0944-0111). Considering the hundreds of devices in use, they state that this non-target take is minimal.

Comments in support of the Petition provided no additional substantive information on this allegation.

3. EPA Response

EPA does not believe the number of non-target animal deaths resulting from M-44 and 1080 LPC use has been significant, especially considering the similar risks to non-targets posed by alternative predator control methods that would likely replace the use of M-44 and 1080 LPC.

From 2002 until 2006, EPA is only aware of an average of approximately 780 non-target deaths from M-44 use annually (5% of all M-44 takes). In that same time period, four non-target deaths resulted from LPC use (<1% of all LPC takes).

With respect to the M-44 registration, in EPA's 1975 decision to approve the use of sodium cyanide in M-44 for predator control, EPA recognized that species other than coyotes, red foxes, gray foxes and feral dogs are vulnerable to the M-44 device. 40 Fed. Reg. 44726, 44729. During the hearings, FWS submitted data showing that 88 - 95% of all M-44 takes were target species, and Administrator Train did not find these percentages, in light of the benefits from M-44 use, to be significant. *Id.* EPA focused on evidence indicating that the use of M-44 is more selective than other chemical and non-chemical

predator control methods. *Id.* For example, EPA reviewed testimony regarding FWS and Texas A&M studies indicating that the M-44 is more selective than steel traps and equally as selective as shooting. *Id.*

Petitioners offer no new data to suggest that the non-target impacts are greater than those presented in the 1975 hearing for M-44. In fact, the most recent data available to EPA regarding M-44's non-target impacts show approximately 5% of all M-44 takes are of non-target species. This percentage is at the lower end of the range of non-target effects contemplated by EPA in 1975 when the use was reinstated. EPA has no information to suggest that alternative lethal methods would be any more selective. Because Petitioners offer no new information suggesting greater non-target effects than those reviewed by the EPA Administrator when the use of sodium cyanide capsules was reinstated, EPA does not believe this issue warrants the requested cancellation of M-44.

While the issues are similar with respect to the 1080 LPC, the lower volume of use and its high selectivity for coyotes in the act of preying upon collared sheep or goats are additional reasons why EPA believes the 1080 LPC does not pose significant risks to non-target wildlife.

C. Petitioners Assert Environmental Release of Compound When Used Consistent with the Label Results in Significant Risk to the Environment

1. Petitioners' Claims

Petitioners appear to suggest that the proper use of the 1080 LPC results in environmental releases of, or exposures to, Compound 1080 that may pose significant risk. Ref. 15 at 22.

According to Petitioners, 1080 LPC use has inherent problems such as spills and collars going missing. *Id*. Petitioners refer to one study where 107 collars of a total of 164 were either inadvertently lost or punctured, while only 57 were pierced by coyotes. *Id.* Petitioners also note that coyotes can bury collars or drag them away from sheep carcasses, and about half of missing collars were not recovered in research studies. *Id.* Not all of the contents of the spill may be found, particularly if the carcass of the sheep or lamb is dragged. While some soil microorganisms can break down Compound 1080, Petitioners assert that conditions such as extreme cold or drought might cause Compound 1080 residue to persist in the soil for several weeks or months. *Id.* Because 1080 LPCs routinely go missing and spills are common, Petitioners allege this constitutes "imminent harm" to the environment. *Id.*

Petitioners also allege that non-target effects to scavengers resulting from 1080 LPC use pose a significant risk to the environment under FIFRA. According to Petitioners, the EPA RED found that scavengers, including threatened and endangered species, could be affected by Compound 1080 if those animals fed on the head or neck area of dead livestock that wore 1080 LPCs. *Id.* at 24. In addition, according to Petitioners, it is commonly

known that birds such as vultures, ravens, magpies, hawks and even mammals can flee an area in seconds, but since Compound 1080 takes hours to act their poisoned corpses may not be found readily. *Id.*

Furthermore, Petitioners assert that Compound 1080 can cause secondary poisonings to predators and even herbivores. Secondary non-target effects are the potential hazard to an animal scavenging the corpse of a target animal that has punctured the 1080 LPC. *Id.* According to Petitioners, while Compound 1080 can be metabolized by animals that receive non-toxic doses, carrion poisoned with Compound 1080 can be toxic for months. *Id.*

2. Stakeholder Comments

With respect to environmental release from proper use of the 1080 LPC, APHIS WS commented that the amounts released or actually available for exposure are small. For example, in determining the potential environmental release from 1080 LPCs, APHIS WS considers the maximum potential amount of Compound 1080 lost, but it is likely closer to half that amount because most collars only have one reservoir damaged and not all contents from those damaged may be lost. Ref. 20 at 22. This is especially true for punctures not associated with predator attacks such as from cactus or barbed wire fence; cactus spines are often broken off and block the contents from being drained. *Id.* APHIS WS' records show that the average amount of 1080 LPCs damaged or lost is approximately 132 annually or about 6% of all 1080 LPCs used. *Id.* Using this data, APHIS WS estimates that nationwide no more than 32g of active ingredient is spilled into the environment per year. *Id.*

Furthermore, APHIS WS notes before using any pesticide, APHIS WS personnel are trained in its proper and safe use. *Id.* at 7. APHIS WS asserts that during inspections, damaged collars are taken off the sheep, and the collar and any contaminated wool are disposed according to label directions. *Id.* at 22. Additionally, APHIS WS activities must be in compliance with all federal, state, and local laws and regulations pertaining to pesticide applications, including certification requirements before using, transporting, shipping, disposing, supervising, or recommending the use of restricted use pesticides. *Id.* APHIS WS comments that it provides guidelines for storage, disposal, recordkeeping requirements, and the safe and effective use of pesticides in the APHIS WS program. *Id.* at 7. Each 1080 LPC has a serial number, which allows for accurate recordkeeping and tracking of individual units. *Id.* at 22.

The Wyoming Farm Bureau commented that a review by the Australian Pesticide and Veterinary Management Authority found Compound 1080 to be safe and effective. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0843). The comment included key findings from this study including that Compound 1080 does not accumulate in the environment; it is applied locally at relatively small rates and is readily degraded in soils, surface waters and by microorganisms**.** *Id.* Additionally, this study noted that most of the Compound 1080 ingested by animals is rapidly metabolized and/or excreted, with only low levels retained in the carcass. *Id.*

Additional comments from David Jones, a private citizen in support of the Petition, references a study in New Zealand. Ref. 10; *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0738). This comment provided a summary of the study's findings, which evidenced secondary poisoning to certain mammal (e.g., bats) and insect species vulnerable to Compound 1080 spills. *Id.*

Jones also referenced another New Zealand study showing that Compound 1080 concentrations in 75-day-old carcasses were potent enough to pose a serious hazard to domestic dogs. Ref. 11; *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0738).

3. EPA Response

EPA does not believe that use consistent with the 1080 LPC product labeling results in significant environmental releases of, or secondary exposures to, Compound 1080.

In the September 1995 Reregistration Eligibility Decision (RED) for 1080 LPC, EPA considered the primary and secondary exposures of Compound 1080 and concluded that multiple factors reduce the risk associated with use of the 1080 LPCs. These factors include selective feeding of scavengers from wounds on the carcass rather than contaminated skin, surface of the head, or neck; reduced Compound 1080 toxicity to birds; the emetic property of the chemical; and Compound 1080's rapid adsorption and degradation in soil. Moreover, the 1995 RED found that on average a relatively small amount of Compound 1080 spills on the ground when a collar is punctured (approximately 113 mg). *See* Ref. 15 – 24. In addition to those factors listed above, EPA explained in the RED that risks to non-target scavenging animals from secondary exposures (e.g., from consumption of the killed animal or vomitus of the coyote) are minimal given studies show that the concentration of Compound 1080 in coyote muscle tissue, stomach content and vomitus is not large enough to constitute a lethal amount. *Id.*

In the 1995 RED, EPA concluded that any concerns for risk to wildlife from Compound 1080 were addressed when applicators follow environmental hazard statements, special use and disposal restrictions, and endangered species protection statements that are required to be placed on the label. Petitioners offer no data supporting a different conclusion today.

In fact, more recent data from APHIS WS supports EPA's conclusion that, not only is use of the 1080 LPC very limited but accidental spills from 1080 LPC incidental punctures are rare. *See* Ref. 20 at 23-24. In addition, this supports EPA's RED conclusion that considering the small amount of Compound 1080 in a collar, such spills incidental to proper use are not expected to have any significant impact on the environment.

As to the New Zealand studies cited by Jones, EPA acknowledges that Compound 1080 is an extremely toxic compound. However, the New Zealand studies do not have much relevance to the current limited use pattern in the United States. The use pattern in

New Zealand, which includes aerial bait drops, is very different than 1080 LPC use in the United States, and these differences will likely affect the amount of Compound 1080 that is available for secondary poisoning. EPA reregistered the 1080 LPC use in the U.S. because data showed that such use would minimize the opportunity for non-target exposure to Compound 1080. EPA's 1995 RED on Compound 1080 confirms this, and EPA is not aware of, and Petitioners have not identified, any secondary poisoning deaths from legal uses of the 1080 LPC.

D. Petitioners Assert Common Misuse of M-44

The Petitioners assert that because so many misuse incidents have occurred, APHIS WS' mishandling of M-44 is a common and widespread practice across space and time under FIFRA, and this widespread misuse poses significant risks to the human health and the environment. Ref. 15 at 1. According to the Petitioners, APHIS WS, on a number of occasions, failed to follow FIFRA use restrictions for M-44s. Petitioners support the claim by referencing incidents alleging unauthorized placements of M-44s on private property and unauthorized placements of M-44 in a recreational area. *Id.* Responses to these assertions are addressed separately below.

Private Property Misplacements

1. Petitioners' Claims

The Petitioners refer to several incidents where they allege that APHIS WS illegally placed M-44s on private property without an owner's permission. Specifically, Petitioners identify two incidents occurring in the 1990s:

- An incident that occurred on March 3, 1999 in Crawford, Colorado. Paul Wright, while irrigating his farm with his three-year old daughter, witnessed his dog's death after it had triggered an M-44 illegally placed on Mr. Wright's private property *Id.* at 20. A lawsuit was filed in February 2000 in federal court and the matter settled in 2001 when USDA paid the Wrights $9500. *Id.*

- In 1994 in Oregon, Petitioners assert Amanda Wood Kingsley was exposed to sodium cyanide after her dog triggered an M-44 on her private property. Petitioners claim APHIS WS illegally placed the device there without her knowledge or permission. *Id.*

2. Stakeholder Comments

APHIS WS acknowledges that applicators have previously trespassed on private property but does not believe the potential for future inadvertent trespass incidents rise to the level of presenting any significant environmental effects. Ref. 20 at 37. APHIS WS asserts that operational predator damage management activities are conducted pursuant to agreements with landowners, permits or other necessary authorities and within guidelines established around APHIS WS policies and directives. *Id.* at 9. Landowners who request assistance from APHIS WS typically provide APHIS WS representatives with very specific information, not only about the property boundaries of their own land but about the boundaries of adjacent lands as well. *Id.*

In addition, APHIS WS notes that the Agency has responded to misplacement incidents by 1) emphasizing to employees that all "apparent" property entrances are to be posted with bilingual signs indicating the presence of M-44 on the property, and 2) implementing a formal agreement consisting of a signed form for property lessees requesting M-44 use that both reminds lessees of their obligation to notify their landowners, and holds them responsible if any harm results to an uninformed landowner. *Id.* at 41.

APHIS WS also provided more information on the Crawford, Colorado incident that Petitioners reference. According to APHIS WS, an employee following incorrect property boundary information provided by a ranch foreman, inadvertently placed two M-44s on an adjacent landowner's property. *Id* at 44. APHIS WS asserts that the action resulted in a warning letter from the Colorado Department of Agriculture, and the employee received a letter of warning from APHIS WS. This incident partly led to the revised procedures noted in the preceding paragraph. *Id.*

In addition, Predator Defense provided additional information on the Crawford, Colorado incident. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0851). According to Predator Defense, in March of 1999, Paul Wright, his 3-year-old daughter and dog Bob, were surveying an irrigation ditch in Crawford, Colorado, when the dog pulled an M-44. Predator Defense noted that the Wright family later discovered that the APHIS WS agent had planted 2 M-44s on their property. *Id.* According to Predator Defense, a state investigation found that the APHIS WS agent had not only trespassed but also broken a suite of federal rules regulating M-44's. *Id.*

3. EPA Response

EPA believes that private property misplacements of M-44s rarely occur and measures short of cancellation, such as the measures described by APHIS WS should reduce, and appear to have reduced, the likelihood of such misplacements.

First, evidence indicates that past private property misplacements are exceptionally rare considering the total number of M-44s placed. For example, annually, approximately 30,000 M-44s fire per year; Petitioners cite 10 dog deaths occurring over a twelve-year period, and only two of these dog deaths were allegedly from M-44 property misplacement. (1994 – 2006). Ref. 20 page 18; Ref. 15 page 19 – 20. Considering the high number of M-44s applied annually relative to the number of property misplacements identified, EPA does not believe there is evidence of a common practice of APHIS WS misplacement.

Second, APHIS WS has taken corrective action to prevent potential future incidents. Since these incidents, APHIS WS reports (EPA has verified these reports) having improved its training to certified applicators on obtaining accurate property boundaries, and posting signs on all apparent public and private property entrances. Ref. 20 at 41. APHIS WS also requires all individuals leasing private land to sign a form agreeing to notify the landowners of M-44 use on their property. *Id* at 41. Since APHIS WS has implemented this increased training and now requires a lessee agreement, EPA is not aware of any additional incidents from private property misplacement.

Recreational area misplacements

1. Petitioners' claims

The Petitioners refer to several incidents where they allege that APHIS WS misused M-44s on recreational lands. Specifically, Petitioners identify four incidents:

- Petitioners allege APHIS WS illegally placed several M-44s in the Gila National Forest. Ref. 15 at 19. The Petitioners claim the New Mexico Department of Agriculture fined APHIS WS $1000 and suspended the license of the trapper and his supervisor. *Id.*
- In addition, the Petitioners claim in December 1999, that two bird dogs were killed by M-44s during a bird-hunting trip in New Mexico on state lands. *Id.* at 20.

- Additionally, Petitioners allege in April 2006, a two-year-old German shepherd was killed by an M-44 at a rock quarry in Utah. *Id.*
- Finally, Petitioners claim on February 21, 2006, Samuel Pollock's dog triggered an M-44 near Bruff reservoir, which is managed by the Bureau of Land Management. *Id.*

2. Stakeholder Comments

APHIS WS clarified the two New Mexico incidents involving M-44 application on recreational land. According to APHIS WS, the two dogs allegedly killed on a bird-hunting trip on New Mexico State lands were in fact killed on private lands. *Id.* Additionally, APHIS WS comments that the individual owner of the dogs was trespassing, and APHIS WS was in compliance with all of the 26 use restrictions. *Id.*

Predator Defense commented that in 2006, in a rock quarry west of Fillmore Utah, Max, a German shepherd dog belonging to Sharyn Aquiar was killed by an M-44. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0851). According to Aquiar and her husband, Tony, who both frequent the area, no sodium cyanide warning signs were posted as required by law, both at road intersections near the area or within 25 feet of the actual traps themselves. *Id.* In addition, Predator Defense commented that just a month before Max's death, another Utah dog was killed by an M-44 that was set on federal lands near Vernal, Utah. Samuel Pollock, whose Labrador retriever died, reported seeing a USDA warning sign posted on an entry road, but insisted there was no warning sign near the trap itself. *Id.*

3. *EPA Response*

EPA believes that APHIS WS' alleged misplacement of M-44s in recreational areas is rare, and that measures short of cancellation such as APHIS WS' meeting quarterly with land management agencies should minimize the likelihood of such misplacements in the future.

Use Restriction #8 on the M-44 label prohibits M-44 use in areas within National Forests or other Federal lands set aside for recreational use. Even assuming the four incidents identified by Petitioners are in fact misplacements, (which is in question given APHIS WS' comments) such misplacements are few considering the large amount of M-44s that fire annually (approximately 30,000). EPA also notes that it is unlikely that misplacement of devices on recreational lands resulting in accidental death of pets or exposure to humans would go unreported, and therefore EPA does not suspect additional unreported incidents.

For public lands, there are several ways APHIS WS currently identifies recreational areas. First, all areas with "recreation" in the title are considered areas set aside for recreation. Ref. 18 at 1. Second, APHIS WS maintains a National Memorandum of Understanding (MOU) with the United States Bureau of Land Management (BLM), which sets forth a formal process for coordination. *Id.* Each year, APHIS WS state programs,

which conduct activities on BLM land, meet with their BLM counterpart to discuss planned wildlife damage control for that year. During these annual meetings, BLM notifies APHIS WS of any areas deemed recreational or recreational events close to or overlapping with APHIS WS M-44 use. *Id.* APHIS WS then avoids all M-44 use in the identified recreational areas or in areas during recreational events. *Id.* To ensure the success of this process and that recreational areas and events are avoided, APHIS WS has incorporated this process into its standard operating procedures, as described in its National Environmental Policy Act (NEPA) documents. *Id.*

Although APHIS WS has taken significant steps to prevent placement in recreational areas, there may nonetheless be potential exposure to individuals in areas not identified as recreational. In such cases, there are a number of existing label restrictions intended to prevent unwarranted exposure to people and pets. These include: restriction 14 requiring the device to be placed at least 50 feet or greater from all public roads or pathways to ensure that the M-44 device is not visible from the road or pathway, and restriction 23, requiring bilingual signs to be posted at the main entrances of commonly used access points to which M-44 devices are set and within 25 feet of the individual device to alert the public to the toxic nature of sodium cyanide and the danger to pets. These signs reduce the potential for exposure to people and pets even if in the rare case an M-44 is mistakenly placed on lands "set aside" for recreation. Moreover, many of the M-44s are placed in remote areas where exposure to people and pets is unlikely.

For all of these reasons, EPA believes recreational misplacements are rare and are unlikely to pose a substantial risk to humans or the environment. EPA also does not believe that cancellation, at least in the first instance, is necessary or appropriate to address this issue. However, EPA would like to improve the M-44 label to ensure that APHIS WS continues to work with appropriate land management agencies to protect the public from sodium cyanide exposure from M-44 use on public land. Therefore, EPA intends to amend the M-44 label to mandate that APHIS WS meet quarterly with the appropriate land management agency to discuss any recreation related events scheduled in the area if there is ongoing M-44 use.

E. Petitioners Assert Common Misuse and Likely Improper Disposal of 1080 LPC

1. Petitioners' Claims

The Petitioners claim that there is a history of illegal use of 1080 LPC, and that EPA should ban 1080 LPC use because the potential threat to wildlife, people and pets constitutes an unreasonable adverse effect under FIFRA. Ref. 15 at 23. According to the Petitioners, in 1989, a newly hired predator control agent to the Wyoming Department of Agriculture found that certain individuals had hoarded Compound 1080 despite the ban. *Id.* The Petitioners claim that these individuals sold Compound 1080 to private individuals who used it to poison wildlife, including bald and golden eagles. *Id.* According to the Petitioners, in 1991, the FWS, and the EPA raided the offices of the Wyoming Department

of Agriculture. *Id.* The FWS subsequently engaged in a law enforcement action that led to several convictions. *Id.* at 23.

The Petitioners also claim that in 2001, approximately 20 pets were poisoned by Compound 1080 in Grand Junction, Colorado, and the investigating police officer, David Palacios, who handled the poisoned animals, experienced "flu like symptoms, only 10 times worse." *Id.* The Grand Junction and Federal investigators were never able to apprehend the culprit. *Id.*

In addition, Petitioners assert that relying on livestock producers to dispose properly of Compound 1080 without any oversight by certified personnel, presents potential problems including the theft or improper disposal that could cause intentional or unintentional human poisoning to occur. *Id.* Petitioners note livestock producers who have been trained by licensed applicators are expected to incinerate or bury everything that has come into contact with Compound 1080. *Id.* at 22. Those that bury the toxicant must do so under less than three feet of soil. *Id.* at 23. The burial site is supposed to be one-half mile from human habituation and away from water sources; no more than 10 collars can be buried at one site and the sites must be ten feet apart from each other. *Id.* The Petitioners point to the USDA Office of Inspector General (OIG) report to emphasize that not even the federal government itself can be relied upon to maintain proper control over these dangerous toxicants. *Id.* According to Petitioners, because contamination to soil, water, and species from improperly stored or disposed Compound 1080 is likely, the use of 1080 LPCs poses foreseeable imminent hazards and adverse effects to the environment under FIFRA. *Id.* at 23.

2. Stakeholder Comments

APHIS WS comments that it provides guidelines for storage, disposal, recordkeeping requirements, and the safe and effective use of pesticides in the APHIS WS program. Ref. 20 at 7. APHIS WS activities must be in compliance with all federal, state, and local laws and regulations pertaining to pesticide applications, including certification requirements before using, transporting, shipping, disposing, supervising, or recommending the use of restricted use pesticides. *Id.* APHIS WS notes before using any pesticide, APHIS WS personnel are trained in its proper and safe use. *Id.*

APHIS WS describes its accountability and oversight of pesticides, which includes use of the computer based Controlled Materials Inventory Tracking System (CMITS) to track inventories, including acquisition, transfers, and disposal of materials such as the M-44 and LPC. *Id.* at 1. APHIS WS commented that it has worked closely with the OIG to refine the accountability process and has implemented management directives that ensure compliance through quarterly and annual inventories and reporting. *Id.* Additionally, APHIS WS' Management Information System (MIS) is a computerized database system used to record and track pesticide application, animals taken, and other activities. *Id.* This system allows tracking of the number of LPCs applied, punctured by predators and other causes, damaged for other reasons, and lost. *Id.*

APHIS WS also describes its directive, APHIS WS Directive 2.465 (1/2/08), "Accountability and Oversight of Hazardous Materials," which directs the review of inventories by various levels of management, including State, Regional, and Headquarters personnel. *Id.* at 15. APHIS WS reported that users of hazardous materials must conduct and reconcile the quarterly physical inventory. *Id.* Also, according to APHIS WS, at least one annual physical inventory inspection is conducted by the hazardous material user and one reviewing official. *Id.* In addition, APHIS WS describes directive, APHIS WS Directive 2.401 (1/2/08), "Pesticide Use", which provides guidelines for storage, disposal, recordkeeping requirements, and the safe and effective use of pesticides in the APHIS WS program. *Id.* at 16. The Directive's attachment, "Standard for Storing Pesticides", provides standards for the safe storage, transportation, and disposal of pesticides to ensure a safe worksite for employees and the public and to appropriately define a pesticide inventory and its contents. *Id.*

Conservation Northwest commented that despite the 1080 LPC label restrictions, 1080 LPCs continues to be misused in the U.S. and poorly monitored. *See* www.regulations.gov (Docket ID: EPA-HQ-OPP-2007-0944-0698). According to Conservation Northwest, documents obtained through the Freedom of Information Act (FOIA) show that federal and state governments have a poor record of monitoring and recording the use of 1080 LPCs. *Id.* Commenters refer to a 1995 report by the Texas Center for Policy Studies concluding that the Texas Department of Agriculture had consistently failed to enforce use restrictions for 1080 LPCs and did not conduct mandatory inspections of LPC users. *Id.* In addition, Conservation Northwest allege that EPA reports indicate that more than twice as many collars have been lost and damaged than were punctured by coyotes in a number of states were the 1080 LPCs are used. *Id.*

Predator Defense provided supplemental information regarding a 1989 Wyoming incident mentioned by the Petitioners. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0851). According to Predator Defense, in 1990, FWS conducted an investigation now referred to as the "Wyoming Sting" that uncovered evidence that the illegal trade of Compound 1080 was common among APHIS WS agents. *Id.* FWS agents placed an ad in Wyoming Woolgrower magazine for a covert company offering "the private approach" to predator control. *Id.* One of the owners listed was Nick Koustralakos, the cover name of special agent Don McKenna. *Id.* Some ranchers invited McKenna's "company" to visit them and see what could be done about "those damn government crows." *Id.* During these visits, McKenna was shown a dozen dead eagles that had been poisoned by ranchers and he was told of 50 more such poisonings. *Id.* According to Predator Defense, the Wyoming Department of Agriculture official responsible for certifying individuals to use restricted poisoning sold illegal raw poisons from safes at the State lab to McKenna. *Id.* FWS raided the Wyoming Department of Agriculture in 1991, and the reverberations are still being felt. According to Predator Defense, there is a widespread belief by FWS special agents that a black market for Compound 1080 still exists. *Id.*

Additional comments were received from D.C. Jones, a private citizen, referring to citation describing a 1080 LPC use study. Ref. 3. According to Mr. Jones:

As an example of apparent bias that should concern the EPA, refer to a paper titled, Efficacy of Compound 1080 Livestock Protection Collars for Killing Coyotes that Attack Sheep by G. Connolly and R. Burns of APHIS, which was included in the Proceedings of the Fourteenth Vertebrate Pest Conference, Lincoln, Nebraska,1990. This paper concludes The LP Collar is a safe, effective, and selective technique for removing coyotes that attack sheep." The word *selective* implies that only target animals are killed… The experiment in question was conducted in the late 1970's under an EPA permit and with EPA funding. Collars were placed on 68 sheep on ranches located in Montana and Idaho. According to the researchers, coyotes punctured 32 of the 68 collars, and an additional eight collars were punctured on fences, thorns or brush. Additionally two collars were lost, apparently "carried away or cached by coyotes". The first field trial ended early "because the collars leaked so badly". (The authors state that leakage was significantly reduced in later collars, but no data is presented.) The researchers stated that all coyotes that punctured collars "probably" died, even though only three dead coyotes were ever located. Even though APHIS [WS] was unable to locate and examine roughly 90% of the coyotes they believe were killed, the authors state emphatically that the collars were both safe and selective. This raises a number of questions that the EPA should examine. How did the researchers determine that scavengers such as foxes, magpies, ravens, and eagles were not exposed to 1080 if the poisoned coyote carcasses themselves were never located? What were the environmental impacts from the 1080 that spilled from the eight collars that were punctured accidentally? What happened to the toxins in the two collars that were never located? Were these two collars just "lost" or could they have been stolen or otherwise subverted? (Compound 1080 is reported to have significant value on the "black market" for illegal wildlife control, and recently some observers have suggested that it may pose a terrorism risk). *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0738).

3. <u>EPA Response</u>

EPA is not aware of any 1080 LPC poisonings other than the Petitioners' two cited incidents, which do not seem to have involved registered 1080 LPC use, but involved illegally stockpiled or trafficked Compound 1080. However, even assuming those incidents involved the registered 1080 LPC use, EPA believes APHIS WS' reported recent improvement of its tracking and storage systems in response to the OIG audit has reduced the likelihood that individuals will be able to obtain Compound 1080 illegally from APHIS WS. The Agency does not believe that past or potential illegal Compound 1080 poisonings are likely to be more than isolated events. EPA also generally believes it is more appropriate, in the first instance, to address isolated illegal acts through appropriate

enforcement action and education rather than cancellation of the 1080 LPC registered under FIFRA.

In addition, EPA does not believe that relying on livestock producers to dispose properly of Compound 1080 presents a significant risk of exposure to Compound 1080. EPA finds no evidence of incidents arising from improper disposal, and the Petitioners do not identify any incidents that have occurred from these causes. In the absence of supporting evidence, the speculative possibility of ranchers or applicators improperly disposing of livestock protection collars does not warrant cancellation of the registration. Moreover, the use of 1080 LPCs is very limited nationwide. Considering such use, EPA believes that it is unlikely that environmental contamination from Compound 1080 is likely to be a significant problem in the future.

F. Petitioners Assert there are few Benefits of M-44 and 1080 LPC Use

1. Petitioners' Claims

The Petitioners claim that the risks of using M-44 and 1080 LPC far exceed the derived benefits. According to the Petitioners, APHIS WS kills a small portion of predators with M-44 and 1080 LPC. Of the 101,225 mammalian carnivores killed in 2004, 11,872 were killed with M-44s and 45 were killed with 1080 LPCs. The total killed by M-44s and 1080 LPCs were 12% and 0.04% respectively. Ref. 15 at 1. Because of these statistics, the Petitioners assert that benefits to livestock producers of using these toxicants are low, while the risks and costs to people and wildlife (including endangered wildlife) are high. *Id.*

Second, Petitioners claim predators kill only a fraction of the nation's livestock and many more livestock die unintentionally from weather problems or health problems. *Id.* at 25. According to the Petitioners, mammalian carnivores killed 0.18% of the total U.S. cattle production in 2005 and 3% of the sheep production in 2004. *Id.* The Petitioners assert in comparison, nearly 4% of cattle and 5% of sheep died from non-predator causes (illness, dehydration, falling on their backs or other causes). *Id.*

Third, the Petitioners claim that the U.S. sheep industry has been in dramatic decline over the past 20 years and fluctuations in the sheep industry are tied to labor and hay prices, not predation on livestock by coyotes and other carnivores. *Id*. at 25 – 26. The Petitioners note that the number of sheep and lambs in Colorado has decreased to 360,000 in 2004 compared with 690,000 in 1984 from a high of 840,000 in 1890. *Id.* at 26. Petitioners assert that even APHIS WS admits, "the sheep and wool market had declined making it uneconomical to raise sheep" *Id.*

Fourth, the Petitioners argue large-scale predator eradications are biologically expensive, inherently non-selective, and are not effective and therefore provide no benefits. *Id.* at 27. According to the Petitioners, one study found no correlation between the numbers of coyotes killed and the number of lambs lost. *Id.* The Petitioners argue that lethal predator controls are socially and biologically expensive and do little to benefit the

sheep industry. *Id.* The Petitioners argue that traps, snares and poison bates often attract younger coyotes, not the older ones that are usually implicated in livestock depredations. *Id.* at 9. Petitioners also note that several biologists have expressed their skepticism about the current course and efficacy of lethal predator controls that involve millions of dollars and tens of millions of animals. *Id.* Petitioners claim that APHIS WS' approach to predator control is blanket, indiscriminate and wasteful, and relies on lethal methods that do not even pretend to capture the "single offending animal." *Id.* Petitioners further claim that APHIS WS kills many animals that were never involved in livestock conflicts. *Id.*

Fifth, Petitioners note when humans exploit coyote populations, these canids adapt by utilizing various breeding strategies such as producing more pups or increasing the number of females that breed in a population; thus underscoring the need for APHIS WS to use more non-lethal controls. *Id.* at 35**.** The Petitioners cite many unanticipated consequences from coyote control. *Id.*

- Where coyotes have been controlled, ingress of coyotes from outside the control area will replace killed coyotes and the ratio of males to females will increase. After control actions, there may be an initial decrease in coyote population density, but the density may then promptly increase by the ingress of solitary coyotes or infusion from neighboring packs. *Id.*
- Coyote control may result in the reproductive release of reproductively suppressed females, as follows: in unexploited coyote populations, coyotes have tight social networks in which only the alpha pair of coyotes breed. Subordinate individuals in the pack do not breed likely due to the type of behavioral-physiological suppression found in other mammals showing such reproductive skew. With exploitation, this reproductive repression disintegrates, and more coyotes within a social group will consequently breed. *Id.*
- Knowlton et al. found that unexploited populations of coyotes tend to have older family structures characterized by lower reproductive rates than exploited populations. The latter group is likely to be characterized by younger adult members and larger numbers of breeding members with increased litter sizes. *Id.*
- Coyote control can result in a smaller group size, which increases the amount of food per coyote and decreased intra-species competition. This increased ration of food per coyote leads to higher litter survival rates, as the increase in the availability of food improves conditions of breeding females. Pups consequently enjoy increased birth weights and increased survival rates. *Id.*
- Other researches found low yearling reproduction, low litter size and high pup mortality on their study site, where they describe exploitations levels as light. An increased rate of pup survival increases the need for more food for pups, which may alter coyote forage and predation patterns. *Id.*

Sixth, the Petitioners assert that the EPA's analysis must also consider socio-economic benefits when doing its risk benefits analysis. *Id.* at 27. The Petitioners stress that the definition of cost benefit and socio-economic analysis is entirely different. *Id.* The former refers to the value of the ratio of costs to benefits, while the latter refers to the

effects to society, for example what benefit society derives when the federal government kills predators in a specific region. *Id.*

The benefits the Petitioners want the EPA to consider include ecosystem services including pure air, clean water, intact soils and healthy plant communities. *Id.* The Petitioners claim that APHIS WS has done little to benefit ecosystem health; instead APHIS WS contributes to habitat dysfunction because it kills so many species, especially top-level carnivores, and thus increases prey species. *Id.* at 9. The Petitioners claim without carnivores in their habitats, ecosystems can fail to function and the number of species in those ecosystems can decline. *Id.*

According to Petitioners, coyotes play a keystone role in the ecosystem they inhabit from preventing mesopredators (housecats, skunks, raccoons) from killing ground-nesting squirrels, to creating species richness and diversity, to protecting kit fox from red foxes. *Id.* at 34-35. Moreover, Petitioners claim the destruction of coyote territories, through killing programs may make endangered species and other sensitive species more vulnerable to disease or to other predators. *Id.* at 35.

Additionally, the Petitioners note that people have complex perceptions about wildlife. *Id.* at 5. Petitioners claim that according to DOI, those values translate into hundreds of billions of dollars annually through the spending of wildlife watchers, anglers and hunters. *Id.* at 25. The Petitioners argue in contrast that the sheep industry benefits only a handful of people. *Id.* The Petitioners argue ranching is "a drop in the bucket" compared to funds spent on wildlife watching in Colorado. *Id.* at 28. According to Petitioners, DOI and FWS reported that in the U.S. in 2001, 13 million people hunted, 34.1 million fished, and 66.1 million people were wildlife watchers. *Id.* In their Colorado specific report, FWS found that wildlife watchers spent $624 million, and hunters and anglers participated greatly in Colorado's economy. *Id.* Moreover, the Petitioners assert that Colorado cannot begin to compare its wildlife watching with that of Wyoming or Montana, which benefit from having a suite of native carnivores. *Id.* In contrast, the Petitioners claim APHIS WS spent $101,460,740 killing wildlife, which the Petitioners' claim is a contradiction of values. *Id.*

2. Stakeholder Comments

APHIS WS notes that on average, nearly one-fifth (19%) of all coyotes taken by APHIS WS nationally each year were taken with M-44s. Ref. 20 at 19. APHIS WS writes that the value of M-44s in states where it is registered and in situations where predation management is essential, is not measured by the percentage or number of coyotes taken, but the effectiveness in resolving depredation problems. *Id.* According to APHIS WS, the Petitioners are incorrect when they claim that a "low" percentage of coyotes taken by M-44s indicate its lesser value. *Id.* Importance is related to the degree to which the tool can be incorporated into the overall IPM approach: its selectivity, safety, and effectiveness in particular circumstances. *Id.* Therefore, APHIS WS believes that the M-44 and 1080 LPC are effective methods and important for use by APHIS WS personnel. *Id.*

According to APHIS WS, predation is a large problem for livestock operations. APHIS WS notes that according to USDA's National Agricultural Statistics Service, in 2004, predators killed 29,800 sheep and 155,000 goats worth $18 million and $16 million respectively. *Id. at* 47**.** In 2005, predators killed 197,000 head of cattle valued at $55 million. *Id.* at 48. These losses occurred despite predation management efforts being conducted by APHIS WS, or the sheep producer. Predations rates would have been much higher had predation management not been conducted. *Id.* at 47.

APHIS WS asserts that the sheep and cattle industries are still important economic industries that benefit many Americans. *Id.* at 45. APHIS WS lists three main operations that benefit from the use of 1080 LPCs and M-44s. These include sheep and lamb; goat; and range beef cattle and calf operations. *Id.* Although the number of sheep operations has declined over the last 20 years, the industry has been quite constant since 1998. *Id.* at 47. Sheep operations are still quite important in the US. The industry is locally and regionally significant in many parts of the country. *Id.* The cattle and calf industry is also still very important in the US. Over the previous 20 years, the number of individual cattle and calves has only decreased by 8%. *Id.* at 48.

APHIS WS also notes that certain individual livestock producers suffer disproportionately higher losses than what is reflected in industry-wide averages and maintaining the availability of adequate management tools is a more serious issue for those producers. *Id***.** at 49.

APHIS WS claims there is considerable evidence that predation damage management including the use of M-44s and 1080 LPCs to protect livestock is both effective in preventing livestock predation and cost effective. *Id.* According to APHIS WS, a detailed economic analysis of APHIS WS' predator damage management program was conducted by USDA in the APHIS WS programmatic Environmental Impact Statement (EIS). *Id*. APHIS WS asserts that in 1997, USDA concluded that benefits, in terms of avoided sheep and lamb losses plus price benefits to consumers was 2.4 times the cost of providing APHIS WS predation management services for sheep protection in the 16 Western states. *Id.* APHIS WS claims that sheep and lamb losses are generally lower where predation management is applied. *Id.* at 50.

According to APHIS WS, total take (combined APHIS WS take and harvest by sportsmen) is estimated to be less than 25% of the coyote population, which is less than half of the take level determined to be sustainable for coyote populations. *Id.* at 26. APHIS WS NEPA analyses have found that cumulative coyote take in predation damage management programs by APHIS WS and the public along with sport harvest and other known take has not affected this species' population at the statewide or local level (e.g., APHIS WS 2002, 2005, 2006, 2007). *Id.*

APHIS WS recognizes that native wildlife, including predators, have positive values to society and the environment. *Id.* at 51. APHIS WS environmental assessments have concluded that the cumulative take of predators by APHIS WS and others has not significantly affected any population, thus "ecosystem services" provided by predator

populations have not been significantly impacted by APHIS WS. *Id*. APHIS WS believes that aesthetic appreciation is not impacted by these devices either. *Id.* at 37. APHIS WS notes that its predation damage management activities occur on a relatively limited portion of the total area in any state (generally less than 10% of the land acreage in a state), and the portion of various predator species' populations removed through APHIS WS activities is a low percentage, usually less than 5%. *Id*. at 36. According to APHIS WS, opportunities to view, hear, or see evidence of predators would still be available over the vast majority of land areas of the states since APHIS WS conducts predation management on a small proportion of land area, and often on private property where the public would not typically be present or interact with wildlife. *Id.* APHIS WS also commented that in localized areas where APHIS WS removes some portion of the predator population, dispersal of predators from adjacent areas typically contributes to repopulation of the area within a few weeks to a year, depending on the level of predator removal and predator population levels in nearby areas. *Id.*

In addition, according to APHIS WS, most of the species potentially affected by APHIS WS predation management activities are relatively abundant, but are not commonly observed because many of these species are secretive and nocturnal. *Id.* at 36. APHIS WS notes that opportunities for observing or hearing certain predator species in some localized areas could be temporarily reduced because of APHIS WS predator damage management, but because there is already a low likelihood of seeing a predator, this temporary local reduction in public viewing opportunity would not likely be noticeable in most cases. *Id.* The impact of APHIS WS predation management on overall predator populations is minimal. *Id.*

The Montana Stockgrowers State Grazing District commented that the Petitioners misrepresented the economic impacts predators have on the livestock industry. *See* www.regulations.gov (Docket ID: EPA-HQ-OPP-2007-0944-0359). According to this commenter:

> In Montana in 2005, coyotes accounted for losses to sheep and lambs equaling 10,100 head. In 2006, those losses increased to 11,500 head. The value of that livestock is $745,000, in each of those years. The petitioners state, "Predators kill only a fraction of the nation's livestock. In Montana, 11,000 head of animals and nearly a million dollars a year is a significant economic impact to our industry. Without the use of M-44's and Compound 1080, those losses have the potential to become much higher. Our organizations dispute the claim, "Despite decades of predator control, which has resulted in more than 5 million deaths of predators in the last six decades, lethal predator controls do not benefit sheep growers." For livestock producers, experience shows, without predator controls, the losses would be much greater. *Id.*

The West Virginia Dept. of Agriculture commented that according to the trained professionals that administer the program in West Virginia, these devices are responsible for greater than 70% of the coyotes taken each year throughout the state, and their use is

imperative. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0135). These commenters stated that the elimination of these compounds would lead to a decrease in capacity of the predator management program to serve farmers and ranchers in exactly those areas where help is needed the most. *Id.* These commenters also referred to data gathered in West Virginia by the West Virginia University Cooperative Extension Service indicating that greater than 50% of the sheep and lamb producers who have left the business did so because of the hardships created by coyote predation. *Id.*

3. EPA Response

EPA believes that the uses of M-44 and 1080 LPC have significant benefits. Predation is typically variable and depends on a variety of factors including terrain, vegetation, pasture location and size, flock size, predator abundance, prevalence of the predator's natural prey, choice of prey control measures, and the uniqueness of each livestock operation. Some alternative predation management methods do not work well in some regions of the country (e.g., where terrain or weather makes trapping difficult). *See* Ref. 30 (describing EPA's full qualitative benefits and alternative analysis).

Livestock prematurely die from many causes; however, predation accounts for a significant portion of premature livestock losses. In the U.S., sheep and goats are subject to predation by mountain lions, wolves, coyotes, dogs, bobcats, lynxes, bears and to a lesser extent, foxes, eagles, ravens and vultures. Sheep are especially vulnerable to predation because they have no effective means of protecting themselves. In 2004, out of an estimated 6.1 million sheep and lambs, approximately 66,300 sheep and 157,800 lambs were lost to predators. *Id.* Those numbers represents 37.3% of reported sheep and lamb deaths for that year. *Id.* Coyotes and dogs, respectively, accounted for 51.7% and 22.7% of the reported sheep and lamb losses to predators. *Id.* Cattle suffer relatively lower rates of predation than sheep as they are larger and better able to defend themselves. However, given the number of U.S. cattle relative to the combined number of sheep and goats, the absolute number of cattle lost to coyote predation is similar to losses in sheep and of much greater value. Losses of cattle to coyotes were valued at $43.9 million in 2005. *Id.*

Although Petitioners are correct in their assertion that more sheep, goats and cattle die from causes other than predators, EPA finds these losses irrelevant to this benefits assessment. The impact of cancelling M-44s and LPCs would be the added cost of sheep, goat and calf loss that could have been avoided or reduced if the producer would have had access to either of these predacides in a predation management program.

Market forces may have played a larger role in the U.S. sheep industry's decline than predators; however, the sheep and goat industry is still an important part of the United States economy. Dozens of products are derived from sheep with the most common being meat, wool, and dairy products. In addition to the value of meat, wool and dairy products, sheep and goat production engender other benefits to the U.S. economy. For example, one 2008 study estimated the total economic impact of the sheep industry associated with supply chain, incomes received by employees, expenditures on goods and services provided to consumers and the "ripple effect" in a community. Ref. 17. The study found

that for every $1.00 of lamb produced resulted in an additional $1.80 to the local economy. *Id.* Furthermore, for every 25 jobs created in the sheep industry, 10 jobs are created in associated industries. *Id.* Dairy goats have proven to be a vital industry with an estimated one million head of dairy goats in the U.S. producing 50 million kg of milk annually. Ref. 16.

EPA believes M-44s and 1080 LPCs are effective in reducing predation on livestock. In one study, 86% of sheep producers sampled in Oregon found that taking coyotes with M-44s provided at least some alleviation from predation. Guthrey and Beasom (1978) found that in terms of capture/pull rates, M-44s were the third most effective predatory control. Ref. 6. The two alternatives found most effective were leg hold traps and cable snares. Comments submitted to the Agency also indicate that while some livestock producers do not use M-44s or 1080 LPCs, others consider them essential to the viability of their operations. Furthermore, M-44s are not the only predation management methods used on an operation. Producers rely on a variety of predator control techniques, which include lethal and nonlethal methods. When predation is high, many producers have found the M-44 device to be effective and convenient, especially when aerial hunting is impractical due to heavy plant cover or when freezing conditions preclude traps and snares.

EPA does agree with Petitioners that although the M-44 ejector is very specific to canids, it cannot discriminate between coyotes that prey on sheep, goats and cattle and those that do not. However, with the exception of denning, hunting, and LPCs, alternative lethal control methods (trapping, snaring, e.g.) are less selective than M-44s in terms of taking non-target species. Traps and snares are more likely than M-44s to affect species other than canids. The EPA also believes that if M-44s and 1080 LPCs were cancelled, producers would likely rely more heavily on traps and snares than non-lethal alternatives.

EPA does not believe that the numbers of coyotes taken with M-44 and 1080 LPC have a large enough impact on coyote populations to alter breeding strategies or other behaviors, except in localized situations. M-44 use only results in 19% of all coyote takes by APHIS and 1080 LPC use results in less than 1% of all of APHIS WS' reported coyote take. These percentages are relatively low considering the large amount of coyote takes from private hunting. Considering the small amount of coyote deaths caused by M-44s and 1080 LPCs, EPA does not believe that continued M-44 and 1080 LPC use will affect coyote populations significantly enough to result in coyotes changing their breeding strategy (e.g. increased litter size). Since ranchers will pursue the use of other lethal alternatives for predator control, if M-44 and 1080 LPC were not available, the EPA believes the requested cancellation would not have any impact on coyote population.

EPA recognizes the benefits of wildlife but does not believe that the use of M-44s and 1080 LPCs significantly affect ecological benefits such as clean air or water or economic benefits resulting from recreational activities such as wildlife watching, angling and hunting. An average of only 5% of takes with M-44s are non-target species. The remainder of all M-44 takes are coyotes, red foxes, gray foxes, and feral dogs. These target species are abundant in the environment. Small fractions of their population are apparently

taken with either M-44 or LPCs, the latter of which takes coyotes almost exclusively. Therefore, EPA does not find that the use of these pesticides has an impact on target or non-target species sufficient to affect ecosystem services or wildlife recreation.

While the benefits of predator control may be overstated by some, the Agency does not agree that predator control programs generally have no benefits. More important, EPA finds compelling the comments by supporters of the M-44s and 1080 LPCs that, in certain targeted circumstances, the M-44 and the 1080 LPC are effective in reducing livestock predation and provide significant benefits to ranchers in such circumstances.

G. Petitioners Assert That Alternatives To Use of M-44 and 1080 LPC are Sufficient to Control Predation

1. Petitioners' claims

According to the Petitioners, non-lethal methods of predator control can be very effective in reducing livestock losses and therefore the use of M-44 and 1080 LPC have little benefit. Moreover, the Petitioners assert that there are few economic incentives to use non-lethal controls because the producers enjoy highly subsidized lethal predator controls. Ref. 15 at 30.

According to the Petitioners, by failing to assist livestock growers with alternative non-lethal controls, APHIS WS is perpetuating the necessity of its lethal program and the subsequent unsafe use of toxicants. *Id.* The Petitioners claim that in Marin County, California, commissioners stopped their appropriations to APHIS WS and instead invested $40,000 per year in non-lethal alternatives such as fences, bells, and guard animals for ranchers. *Id.* The Petitioners claim that after five years, the ranchers experienced a 2.2% loss of sheep in comparison to a 5% loss under APHIS WS. *Id.* The Petitioners assert that this case study shows that long-term non-lethal controls can be more effective, safer and less controversial than the lethal approach. *Id.*

The Petitioners list a variety of non-lethal techniques to protect livestock including human herders, guard animals, bonding sheep with cattle, concentrating sheep into small areas, bringing sheep into barns or sheds during lambing, synchronizing birthing of lambs with wild prey species, scaring devices, and removing livestock carcasses. *Id.*

2. Stakeholders comments

APHIS WS believes that continued registration of M-44s and 1080 LPCs is critical to integrated pest management programs to reduce predation on livestock. Ref. 20 at 47. APHIS WS asserts that it applies Integrated Wildlife Damage Management (IWDM), which encompasses the integration and application of many approved methods for wildlife damage prevention, and management. *Id.* at 58. According to APHIS WS, their National Wildlife Research Center is the only research center in the world that is dedicated solely to research on methods to alleviate wildlife damage and about 75% of its total research funding has been directed toward nonlethal methods development. *Id.* at 9.

APHIS WS describes the methods used in IWDM fall under three categories: resource management, physical exclusion and wildlife management. *Id.* at 10. APHIS WS noted that Resource Management includes a variety of practices that may be used by agriculture producers and other resource owners to reduce their exposure to predator losses. *Id.* According to APHIS WS, resource management techniques are usually not conducted operationally by APHIS WS, but usually implemented by producers, and can be very effective. *Id.* APHIS WS lists resource management techniques including habitat management, animal husbandry techniques (e.g., use of herders, night penning, and shifting breeding schedule), guard animals, and modification of human behavior (e.g., eliminate wildlife feeding and handling, and calm irrational fears of predators attacking people). *Id.* at 12.

APHIS WS commented that physical exclusion methods restrict the access of wildlife to resources. *Id.* According to APHIS WS, these methods can provide effective prevention of wildlife damage in many situations. *Id.* APHIS WS noted that physical exclusion methods, though, can restrict animal travel for many species of wildlife and must be considered carefully. *Id.* Physical exclusion methods include "predator-proof" fencing and netting. *Id.* APHIS WS comments these can be effective for long-term management in particular situations and are mostly implemented by producers. *Id.*

APHIS WS commented that Wildlife Management techniques are varied, and the objective of this approach is to alter the behavior of, or repel, the target species, remove specific individuals from the population, reduce or suppress local population densities, or extirpate exotic species populations in order to eliminate or reduce the potential for loss or damage to resources. *Id.* Wildlife management techniques to reduce predation include frightening devices (e.g., the Electronic Guard, propane cannons, pyrotechnics, harassment shooting, auditory stimuli such as people talking and barking dogs, bright lights, and strobe lights), and capture and take or relocation methods (trapping, snaring, shooting, the use of chemical pesticides such as the M-44, LPC, and gas cartridge, and the use of chemical immobilization and euthanasia drugs). *Id.*

APHIS WS asserts that many nonlethal techniques are only practical for smaller areas, and can be effective for only short periods of time because predators habituate to them. *Id.* at 11. Nebraska WS conducted surveys in 1994 to determine the number of producers using different nonlethal methods and found that most livestock producers were using one or more methods to reduce predator losses. *Id.* According to APHIS WS, the Government Accountability Office reported that "[a]lthough nonlethal methods sometimes suffice, in other instances they do not effectively deter predators or may only postpone predation" and that in some instances, "nonlethal methods also pose problems," such as habituation, costliness, and low or short-lived effectiveness. *Id.* APHIS WS agrees that use of livestock guarding dogs by sheep producers has been proven effective in preventing at least some predation losses. *Id.* at 13. APHIS WS also noted that use of guard dogs is generally perceived as a selective form of nonlethal predator management, although guard dogs may also cause deaths of target and non-target animals. *Id.* APHIS WS referred to a study authored by Timm and Schmidt, who documented that guard dogs in their study

regularly killed deer fawns, and anecdotal evidence from APHIS WS personnel and livestock producers suggests that guard dogs sometimes kill coyote and red fox pups as well as deer fawns and elk calves. *Id.* APHIS WS also agrees with Petitioners that llamas have been advocated as effective livestock guarding animals, but some degree of non-target hazard may exist from the use of llamas for this purpose. *Id.* APHIS WS commented that llamas are sometimes carriers of paratuberculosis (Johne's disease) which may be transmissible to native ungulates or domestic livestock. *Id.* Fencing of livestock pastures may inhibit big game movement, resulting in restricted migration and possibly death through starvation. *Id.* Increased husbandry practices may temporarily decrease livestock depredations, but could increase anxiety in the livestock, resulting in lower birth rates and increased abandonment of young, which then starve. *Id.*

Moreover, APHIS WS asserts that their personnel are frequently contacted only after requesters have tried nonlethal techniques and found them to be inadequate for reducing damage to acceptable levels. *Id.* at 9**.** According to APHIS WS, sheep and cattle producers frequently implement nonlethal methods to reduce predator losses. *Id.* National Agricultural Statistics Service (NASS) surveys estimated that sheep producers spent $9.8 million in 2004, and cattle producers spent $199.1 million in 2005 on non-lethal methods to protect their livestock from predators. *Id.* The most common methods included fencing, guard animals, night penning, and shed lambing. *Id.*

APHIS WS notes that they recognize that the decision to implement lethal predator damage reduction activities is a serious professional responsibility. *Id.* APHIS WS comments that lethal control can foster the coexistence between people and wildlife, and has a legitimate role in wildlife management but that lethal control must be undertaken with care. *Id.* According to APHIS WS, they use a Decision Model to determine the appropriate damage management methods to implement based on several factors including species responsible, magnitude, geographical extent, frequency, historical damage and duration of the problem, status of target and non-target species, environmental conditions, potential biological, physical, economic, and social impacts, potential legal restrictions and costs of damage management options. *Id.* APHIS WS comments that their personnel consider the costs associated with implementing a particular method, but also consider other factors based on social and professional values, legal factors, species, and location and so on. *Id.*

In addition, APHIS WS reviewed the Petitioners' Marin County, California example, a nonlethal plan to address predation on sheep initiated in October 2000 that replaced the APHIS WS program that had previously operated there. *Id.* at 13. According to APHIS WS, the County-administered Plan consisted of two parts: 1) cost share funds for ranch facilities improvements and nonlethal predatory control alternatives and 2) indemnification payments for predator-caused losses of sheep. *Id.* APHIS WS notes that Marin County recognized 29 commercial sheep ranchers with 7,500 head of sheep in the original program. According to APHIS WS, not every livestock producer in the county participated. Data for this nonlethal/indemnity payment program were provided to APHIS WS from the Marin County Commissioner's Office for two years: 2001 and 2002. *Id.* According to APHIS WS, the cost of a national replacement program, as proposed by the

Petitioners, was estimated, using predation trends, indemnification, participation, production, and reimbursements from two years of the Marin County Nonlethal Plan. *Id.* Projections of first and second year costs to conduct nonlethal, predation damage management programs nationwide, similar to the one conducted in Marin County, California, were developed for the protection of several categories of livestock. *Id. 13 – 14.* According to APHIS WS, nationally, the total cost of a national livestock protection replacement program was determined at two different levels of predation for sheep and cattle. In Year 1, at a predation percentage of 1.5% for all sheep and a 1.0% predation percentage for all beef cattle, it would cost an estimated $300 million for a sheep and beef cattle protection replacement program nationwide. *Id. at 14.* In Year 2, at a 3.2% level of predation for sheep and a 1.5% level of predation for beef cattle, costs would rise to over $400 million annually. *Id.*

Currently, according to APHIS WS, the annual cost of the livestock protection program conducted by APHIS WS to manage mammal predation nationwide is estimated at less than $20 million in Federal and Cooperative funds in 2006. *Id.* Thus, APHIS WS states that the program cost is between 5% and 10% of the estimated cost of a replacement program ($300 to $400 million). *Id.* Additionally, APHIS WS notes that the replacement program could include higher levels of the misuse of pesticides and other lethal methods by nonprofessionals and would likely not reduce predation on livestock to acceptable levels. *Id.*

The New Mexico Federal Lands Council (NMFLC) comments that the M-44 device is necessary, especially in areas where vegetative cover precludes aerial hunting. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0944-0418). According to NMFLC, much of the grazing lands in New Mexico are an interspersion of grass and woody cover, and alternative control techniques are impractical. *Id.* In addition, NMFLC commented that the M-44 device is necessary where freezing soil conditions make foothold traps impractical. *Id.*

The Wyoming Livestock Board comments that without these compounds, APHIS WS' work would continue but with potential adverse impacts. *See,* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0719). According to the Livestock Board, in the absence of effective damage management, livestock losses to predation by coyotes could be two to three times more than current levels, estimated to be $16.3 million in losses to the sheep industry and $51 million in losses to the cattle industry. *Id.* They also noted that LPCs are valuable in removing specific depredating coyotes that have eluded removal by other methods. *Id.* The Livestock Board also described results from a National Wildlife Research Center economic study, which indicated that for every $1 California counties invest in APHIS WS they save between $6.50 and $10.00 in wildlife damage replacement program costs. *Id.* According to the Livestock Board, the National Agricultural Statistic Service has documented that farmers and ranchers routinely spend over $200 million a year on non-lethal methods, yet still suffer losses from predation. *Id.*

3. EPA Response

EPA does not believe either that non-lethal predator control measures are always as effective as lethal predator control measures or that it is likely that livestock producers would adopt non-lethal measures (instead of other lethal measures) if EPA were to grant the petition and cancel the M-44 and 1080 LPC registrations. It is worth mentioning again here that the petition does not ask EPA, and EPA does not have the authority, to prohibit non-pesticidal predator control programs or measures.

EPA also disagrees that producers have little incentive to use non-lethal methods. EPA received many comments from producers who reported relying heavily on non-lethal methods, but who also noted that such methods can fail when predation pressures are high. EPA believes that non-lethal approaches can be effective in reducing predation; however, the effectiveness of such techniques varies with the characteristics of the livestock operation. A discussion of the strengths and weaknesses of available alternatives to the use of M-44s and 1080 LPCs is presented below:

- EPA believes guarding animals can be effective but they have certain limitations. Under the cover of darkness, and rough terrain, guard animals may not be able to attack coyotes. Moreover, guard animals such as llamas may not be able to distinguish between guard dogs and predating dogs. Moreover, guard animals have been known to attack herding dogs. In addition, the use of llamas is lower in southern climates because they are not adapted to hot and dry conditions and are susceptible to heat stress.

- The presence of a herder is also effective but often the cost of employing a trained herder is often uneconomical for producers.

- EPA has found that fencing sheep reduces predation; however, to be effective, the fences have to be coyote proof. The fences must not allow coyotes to go over, under or through them at any time. They also have to be inspected regularly in order to repair damaged sections or trim away vegetation that can be used by coyotes to bridge the fence. Maintenance costs are a major drawback for producers considering fencing. Fences are also impractical for large flocks, or where terrain is highly irregular. Fencing can also have negative ecological impacts because it can act as a barrier to many species and result in habitat fragmentation.

- EPA believes sound and light devices also may deter predators especially at night. However, coyotes become habituated to these devices over time and eventually ignore them.

- Night penning can also be effective, but it is not practical for large flocks.

- Alternating lambing with coyote breeding times can also be effective, but EPA has found that a major drawback to this technique is that the estrus cycle of ewes must be artificially altered, and fall lambing may not be compatible with marketing concerns, or range and weather conditions.

EPA reviewed the Marin County study, which Petitioners cite to suggest that the non-lethal alternatives to M-44 and 1080 LPC are more effective for reducing predation on livestock nationally. Petitioners apparently did not consider the fact that during this program, ranchers could still use lethal measures, including hunting and trapping on their own land. In addition, recent research has shown that livestock losses have returned to levels before the program was implemented. Ref. 9. Moreover, studies suggest that costs to the County have increased under this new program, in part, because the County compensates ranchers for lost sheep at their market value. EPA also doubts that a program such as this one in Marin County could be extended to all other areas where sheep are raised in the U.S. EPA concludes that a program such as this one could only be effective with smaller flocks and smaller pastures on even terrain. However, these characteristics do not correspond to the mountain west and Texas where large flocks and large-area grazing are practiced.

Overall, EPA believes there are many methods that can be effective in reducing predation on livestock. However, a variety of conditions can make these alternatives impractical and the producer may then need to try lethal devices such as the M-44 or 1080 LPC, to reduce predation. For the reasons above, EPA believes that despite the availability of alternatives, the use of M-44s and 1080 LPCs can provide important benefits.

H. Petitioners Assert Discrepancies Between EPA and APHIS WS Records of M-44 Non-target Impacts

1. Petitioners' Claim

The Petitioners synthesized M-44 kill data from USDA APHIS WS and EPA incident data from 1998 – 2005. Ref. 13 at 1. The Petitioners claim there is a large discrepancy between EPA and USDA's records. *Id.* The Petitioners requested EPA to explain the inconsistencies between USDA and EPA's records.

2. Stakeholder Comments

According to Predator Defense, APHIS WS has made few reports of the poisonings to the public. *See*, www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0851). Predator Defense states that in 2000, Oregon Department of Agriculture pesticide inspectors demonstrated gross incompetence when they were provided detailed information and witnesses from Predator Defense regarding the poisoning of a dog in Estacada, Oregon. *Id.* Predator Defense asserts that Oregon State investigators never interviewed the witnesses, including teenagers and several children who were playing within feet of the M-44s. *Id.* Predator Defense believes that there is an inherent conflict of interest with state agriculture agencies, in this case, Oregon Department of Agriculture, who are required to make critical evaluations on cases. *Id.*

In addition, Predator Defense commented that there is no confidence in the reliability of the incident data APHIS WS provides. *Id.* According to Predator Defense, APHIS WS often does not refer information to the EPA at all or fails to provide details or

include reference numbers. *Id.* Predator Defense states that the lack of continuity and uniformity in APHIS WS' reporting often results in confusion, delays, and omissions of reports. *Id.*

3. EPA's Response

This issue does not seem to be directly related to the question of whether the registrations should be canceled, but rather whether APHIS WS may have committed certain reporting violations under FIFRA, which could subject APHIS WS to potential enforcement action. EPA believes these allegations warrant investigation, and they are being referred to EPA's Office of Enforcement and Compliance Assurance. EPA believes it would be inappropriate to comment further on these potential violations because they are part of potential enforcement activities. However, the Agency also intends to work with APHIS WS to ensure that APHIS WS understands its obligations under FIFRA section (6)(a)(2).

I. Petitioners Assert M-44 and 1080 LPC Use Create Bioterrorism Concerns

1. Petitioners' claims

The Petitioners allege that sodium cyanide and Compound 1080 pose significant risks to people and the environment because these toxicants could be used as bioterrorism agents. Ref. 15 at 2. According to Petitioners, EPA should ban the manufacture and distribution of sodium cyanide for predator control and completely ban the manufacture and distribution of 1080 LPC at the earliest possible moment because APHIS WS failed two Federal audits concerning their handling of and accountability for lethal toxicants. *Id.* Petitioners state that in 2005 and 2006, USDA OIG released audits revealing that WS was not complying with regulations concerning the security of toxins, that it had not secured certain materials against access by unauthorized persons, that individuals did not have adequate training, and that inventories had not been maintained to prevent the illegal possession, transfer, or sale of these toxicants. *Id.* The Petitioners also cite a 2004 OIG report that found that APHIS WS:

> WS [was] unable to fully account for its inventories of hazardous pesticides and controlled drugs and that these inventories are not always stored in a safe and secure manner…Therefore, hazardous materials remain vulnerable to undetected theft and unauthorized use and may pose a threat to human and animal safety. *Id.* at 16.

In addition, Petitioners state that because APHIS WS cannot adequately safeguard the storage of sodium cyanide or even account for the transfer of these chemicals, the public is a risk of "imminent hazard" as contemplated by FIFRA. *Id.*

2. Stakeholder Comments

USDA APHIS WS describes several steps they have taken since the OIG audit to safeguard chemical storage, prevent unauthorized access, and improve tracking. These steps include execution of a national safety review, improvement of pesticide use, disposal and storage, implementation of a management tracking system, and the requirement of frequent, mandated inventories. Ref. 20 at 15.

First, APHIS WS describes a national safety review of its overall operational programs including hazardous materials. In this review, APHIS WS has retained independent contractors to conduct thorough reviews of APHIS WS pesticide and hazardous material operations and training programs. *Id.* APHIS WS asserts that field visits and inspections are underway and a final report was disseminated in FY 08. *Id*; *See* "WS Program Safety Review" at http://www.aphis.usda.gov/wildlife_damage/.

In addition, according to APHIS WS, its new directive, 2.401, "Pesticide Use" provides guidelines for storage, disposal, recordkeeping requirements, access to authorized personnel and the safe and effective use of pesticides in the WS program. Ref. 20 at 16. WS asserts that pesticide use, storage, and disposal conforms to label instructions and other regulations and laws, and WS personnel are trained in proper safety and use. *Id.* APHIS WS also notes that they received a Department of Homeland Security supplemental appropriation and expended $1,652,351 to upgrade the storage and security of hazardous materials. According to APHIS WS, this funding was used to acquire locking storage sheds or containers at all APHIS WS state and district offices and warehouses. *Id.* APHIS WS claims that all field employees who use pesticides have lockable boxes for transporting pesticides in their vehicles and lockable safes/vaults to store safely hazardous materials at their official duty station. *Id.*

APHIS WS also claims they have improved chemical accounting and tracking by working closely with USDA OIG. *Id.* at 52. APHIS WS reports having implemented all of OIG's audit recommendations through strengthened management controls and improvement in the program's inventory process. *Id.*. WS believes they have strengthened tracking through the implementation of their comprehensive inventory accounting system called Control Materials Inventory Tracking System (CMITS) for hazardous materials that they use in wildlife damage management. *Id.*. According to APHIS WS, CMITS allows APHIS WS to account fully for all inventories by documenting acquisition, transfer, and disposal of materials within all states. *Id.* APHIS WS claims their hazardous materials management system is rigorous and responsive to program needs and is accountable to OIG and other government wide policies and requirements *Id.*

Finally, APHIS WS asserts that management controls are in place to ensure APHIS WS performs periodic inventories of hazardous pesticides and controlled drugs. According to WS, they have issued multiple directives to provide direction for staff regarding inventories of hazardous materials. *Id* at 15. APHIS WS Directive 2.465, "Accountability and Oversight of Hazardous Materials," directs the review of inventories by various levels of management and requires users of hazardous materials to conduct and reconcile quarterly physical inventory. *Id.* WS asserts that all inventories are reviewed by the immediate supervisor within 14 days of receipt of the inventory; and discrepancies are

corrected and accounted for within 30 days. *Id.* at 16. APHIS WS claims that their policy requires annual inventory reports that accurately list amounts of pesticide products on hand in every state. *Id.*

The Multi-County Predator District of South Dakota commented that the total numbers of M-44 cyanide capsules shipped from Pocatello Supply Depot, the sole manufacturer, over ten years (1992-2001) has averaged about 77,000 capsules annually. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0725). According to commenters, the corresponding amount of sodium cyanide used in M-44 capsules varied between approximately 105 and 194 pounds annually. These commenters remarked that these amounts are a miniscule fraction of the 250 million pounds of sodium cyanide produced in the U.S. each year for use in gold extraction and other industrial applications (HSDB 1991). Moreover, commenters noted that the small amount of sodium cyanide used in M-44s is subject to EPA pesticide regulations whereas the millions of pounds used industrially are not. These commenters further stated that the use of M-44 is the responsibility of highly trained and responsible personnel.

Eureka County Natural Resources Advisory Committee commented that Petitioners' concerns should be set aside until they have been addressed by the proper authorities. *See* www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0816). Commenters refer to Sections 201 and 212 of The Public Health Security and Bioterrorism Preparedness Act of 2002 requiring the Departments of Health and Human Services (HHS) and Agriculture, respectively, to maintain lists of each biological agent and toxin that poses a severe threat to public health and safety or to animal or plant health or to animal or plant products. *Id.* According to these commenters, neither of these lists include sodium cyanide or Compound 1080. *Id.* In addition, these commenters state that by statute, HHS and USDA are responsible for determining which toxic agents pose severe threats to human, animal, or plant life. *Id.* Commenters assert that should the Petitioners believe that sodium cyanide or Compound 1080 pose such a threat, their proper recourse is to petition the appropriate Departments for inclusion of the compounds on the lists maintained pursuant to law, and unless and until the responsible Departments give a positive response to such a petition, the EPA should decline to take action on a petition like the one submitted in this case. *Id.*

Predator Defense commented that Compound 1080 has been identified by both the FBI and the Canadian Security Intelligence Service as a substance which may be sought as a chemical warfare agent for addition to water supplies. *See*, www.regulations.gov (Docket Id: EPA-HQ-OPP-2007-0851). Predator Defense noted that in 1999 the U.S. Air Force identified the poison as a likely biological agent. *Id.* Predator Defense also referenced an EPA study by Malcolm S. Field in a 2002 US Geological Survey Report reiterating this urgent concern in: "Development of a Counterterrorism Preparedness Tool for Evaluating Risks to Karstic Spring Water. *Id.* In addition, Predator Defense references a CIA report, which cited Iraq's test of Compound 1080, revealing that a can of the poison had been found in Saddam Hussein's chemical weapons laboratory. *Id.* According to Predator Defense, the Iraqi Intelligence Service tested the poison on animals with possible plans for using it for political assassination. *Id.*

3. EPA Response

EPA disagrees with Petitioners' allegation that potential bioterrorism threats arising from APHIS WS' use of M-44 and 1080 LPC warrant cancellation or suspension.

EPA acknowledges that sodium cyanide and Compound 1080, like certain other pesticides and chemicals, are acutely toxic to humans. EPA also acknowledges the significance of the findings from USDA OIG's past audits. However, according to the USDA OIG, APHIS WS has made dramatic improvements to its handling of these pesticides. EPA believes extra consideration is being given to ensure supplies of pesticides containing sodium cyanide and Compound 1080 are adequately protected. APHIS WS has made significant modifications to their chemical security procedures based on recommendations from the USDA OIG and implemented through their own new directives for protecting hazardous materials. Ref 3 at 15 – 16; *See*, Ref. 7-9. APHIS WS has worked with OIG and USDA's Office of the Chief Financial Officer (OCFO) regarding hazardous materials inventory and accountability as a result of the OIG audit and management alert. As of April 2007, APHIS WS has obtained closure of all the audit recommendations through strengthened management controls and improvement in the program's inventory process**.** *See* Ref. 1, 2, 4, 5, 7, 8, 12.

Moreover, EPA has consulted with the Department of Homeland Security, and the Department agrees that cancellation is not necessary from a homeland security perspective. Given the Department's position and the corrective steps APHIS WS has taken, EPA does not believe cancellation is either necessary or appropriate from a homeland security perspective.

IV. CONCLUSION

Petitioners have raised a number of varied arguments against the M-44 and 1080 LPC registrations, but essentially the arguments boil down to two separate ones. First, a variety of reasons is put forward to support the contention that proper use of the products poses unreasonable risks to the environment. Second, Petitioners argue that the pesticides have not been used properly and the registrant, APHIS WS, has failed to live up to some of its responsibilities. EPA does not believe that the information or arguments put forward by Petitioners warrant cancellation of these registrations under either theory. EPA is therefore denying that portion of the petition that requests EPA initiate cancellation action against the registrations. Because suspension is an interim remedy under FIFRA that must be accompanied by the initiation of cancellation action, and because EPA has determined not to initiate cancellation action, that portion of the petition that requests EPA suspend the registrations is also denied. EPA does believe it appropriate to reinitiate consultation with the FWS on endangered species issues related to these registrations, and is granting that portion of the petition.

As to the argument that proper use of the M-44 and 1080 LPC poses unreasonable risks to the environment, EPA finds the petition unpersuasive for a number of reasons.

First, a number of the issues raised by Petitioners seem directed against lethal predator control practices generally, rather than the M-44 and 1080 LPC registrations specifically. For example, Petitioners argue that predator control programs are ineffective in substantially reducing predator populations, and that reducing predator populations can have negative effects on ecosystems. Even if true (and the arguments appear, at least at first blush, to be somewhat mutually inconsistent), given that the great majority of lethal predator control in the United States does not involve either the M-44 or 1080 LPC (approximately 12% and 0.04% respectively (*See* Ref. 15 at 1) it is not clear at all that granting the petition would have much impact. Similarly, while Petitioners argue that use of the M-44 and LPC devices can be expected to kill non-target wildlife and (at least in the case of the M-44) predators that may not themselves be preying upon cattle or sheep, Petitioners do not present much evidence or argument to believe that other lethal control measures, principally trapping, are more selective or would result in fewer fatalities. As stated earlier, the only authority EPA may exercise in responding to this petition would be to impact the lethal predator control measures sanctioned under FIFRA; EPA can not ban lethal predator control measures generally.

Moreover, most of the arguments raised in the petition are similar to the arguments that have been considered by EPA in its previous decisions relating to these pesticides. EPA has long recognized that there will be non-target fatalities with use of the M-44 and LPC, and the Petitioners have not provided any substantial new information in this regard. Petitioners do not argue that the number of non-target fatalities is greater than was anticipated by the earlier Agency decisions, or that the devices have been significantly less selective than was believed when those decisions were made. Where a petition essentially seeks reconsideration of a decision that has been the subject of a number of previous determinations, the Agency would expect to see a greater discussion of the significance of new information that was not previously considered by the Agency. The information proffered by Petitioners on non-target fatalities, on the other hand, seems consistent with the Agency's earlier decisions.

It also bears noting that the Agency is obligated to reassess the compliance with registration standards by every pesticide registration every fifteen years under the "registration review" provision of section 3(g) of FIFRA. EPA will be opening the registration review docket for both M-44 sodium cyanide capsules and 1080 LPCs for public review and comment in September 2010. Through this registration review process, EPA will thoroughly review any new information regarding potential risks from these two products, and if appropriate, consider additional risk management steps. While EPA has considered Petitioners' arguments here, a case could be made for denying any petition seeking separate review of registrations that is not accompanied by substantial new information demonstrating that the Agency review should not wait until the next registration review cycle.

Petitioners also argue that the risks presented by these registrations are unreasonable because of homeland security concerns and the ESA. As discussed earlier, EPA does not believe that it is obligated under the ESA to cancel these registrations, and

EPA believes (and the Department of Homeland Security agrees) that cancellation is not necessary from a homeland security perspective.

While Petitioners also argue that there are no benefits associated with the use of these predacides, EPA finds that there do appear to be benefits associated with these registrations. While different predator-control techniques are frequently used, EPA believes that these pesticidal uses do have value as a last resort to prevent depredation of specific herds or flocks.

For all these reasons, EPA does not believe that Petitioners' claims separately or in the aggregate show that the lawful use under these registrations results in unreasonable adverse effects on the environment or that there is any likelihood that a cancellation action would either be appropriate or successful.

As to the allegations of misuse of these pesticides and the allegations that APHIS WS has failed to submit required information to EPA pursuant to section 6(a)(2) of FIFRA or to properly safeguard material, EPA believes that these assertions, even if true, would not warrant cancellation in the first instance. EPA does not agree that the information proffered by Petitioners supports a finding that there has been widespread misuse of these registrations, although isolated misuse could well have occurred. But even if the misuse were more widespread than EPA believes to be the case, EPA believes that enforcement and education, rather than cancellation, are generally the appropriate first responses to pesticide misuse. Similarly, in most cases the preferred initial response to the assertions against APHIS WS would also be enforcement and/or education. EPA agrees with Petitioners that it is important that the M-44 and LPC devices be used properly, and EPA has initiated discussions with APHIS WS, and will continue to have such discussions, in order to minimize the potential for misuse and to assure that the registrant properly fulfills its obligations under FIFRA. But upon considering the arguments and information in the petition, EPA does not believe that cancellation is the appropriate response even if the allegations of misuse and reporting violations are true.

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