Sodium Cyanide Special Review Request

EVIDENCE AND SUPPORTING INFORMATION

Please accept the following evidence and information in support of our request for a special review of Product Registration No. 25108, commonly referred to as sodium cyanide, under section 17 of the *Pest Control Product Act*, SC 2002, c 28 ("PCPA").

I. Summary

Pursuant to section 17 of the PCPA, the Minister shall initiate a special review of the registration of a pest control product if the Minister has reasonable grounds to believe that the health or environmental risks of the product are, or its value is, unacceptable. For the reasons outlined below, we believe that the health and environmental risks of sodium cyanide are unacceptable, and that its value with respect to reducing livestock loss is also unacceptable. We believe that the above-noted registration should therefore be cancelled following the Minister's special review.

Alternatives

- Humane and ecologically sustainable alternatives exist to using sodium cyanide (or other poisons) where conflicts arise between natural predators and livestock. In addition, contemporary science indicates that lethal removal carnivores, including coyotes, can backfire and lead to increased levels of conflict.

Health & safety of humans and pets

- In 2017, a young teenager narrowly escaped with his life as he watched his dog die after mistakenly biting into bait intended to kill coyotes, triggering the release of cyanide from an M-44 bomb device. The teen was critically injured and traumatized by the event and the loss of his companion. This is but one known dog death of over 415 that have occurred in the United States since 2010 caused by ingestion of cyanide intended to kill predators (PDI 2019). As a result of this incident and the collaboration of many individuals and NGO's, in 2020 the states of Idaho and Oregon banned the use of M-44 Cyanide bombs.
- New records compiled by Predator Defence describe numerous incidents of humans and dogs falling victim to cyanide from M-44 bombs in the U.S. Given similar methods of use of sodium cyanide in Canada, the risks to humans and pets are likely to be similarly high in this country.

Non-compliance

- New data reveals that M-44 Cyanide bombs are being used within range of federally listed species at risk in Alberta which are known to scavenge and may be lured to poisoned baits, including the American Badger – *Taxidea taxus*; Wolverine – *Gulo*; Grizzly Bear – *Ursus Arctos*; and Peregrine falcon - *Falco peregrinus*).
- New data reveals significant inadequate reporting by users following the deployment of M-44 Cyanide bombs. Records show that reporting is frequently incomplete and/or confusing. This lackadaisical approach may have contributed to an M-44 Cyanide bomb being lost on the landscape in 2014.

Environmental risks

- Sodium cyanide does not discriminate among the animals it kills, which puts non-target organisms in the vicinity of M44 Cyanide bombs at risk of harm and death.
- As listed above, data reveals that M-44 Cyanide bombs are being used within range of species at risk in Alberta. This is highly disconcerting, given that bait is used to lure animals to M-44 devices, putting scavenging species at risk in great jeopardy.

II. Background

Sodium cyanide is a potent poison with high acute toxicity to all mammals. It is registered in Canada as a restricted class vertebrate pest control product used for lethal coyote control in the province of Alberta only. Alberta Agriculture, Food and Rural Development is the Permit holder of Registration No. 25108 for Sodium Cyanide Predacide Coyote Control (Appendix 2). The last permit expired on December 31, 2018 and was then renewed for another five years until December 31, 2023.

Sodium cyanide is used in a mechanical device called an M-44. This entails a small cylinder containing the deadly poison which is driven into the ground on a stake and spring-loaded to deliver a dose of sodium cyanide when an animal licks, bites or pulls on the wax fabric covering of the cylinder. Cyanide then sprays into the animal's mouth and face, turning into gas in the throat or stomach. In addition to the intended coyote target(s), non-target wild animals that lick or step on the device, as well as livestock, pets and people who investigate these devices are exposed to great risk.

The product and associated equipment used under this label remains the property of the Alberta Government. As a restricted product, sodium cyanide is only to be used by persons authorized under the Alberta *Agricultural Pests Act,* RSA 2000, c A-8 and by designated Fish and Wildlife Officers of the Government of Alberta. However, the section in Alberta's current Fish and Wildlife Standards Manual entitled "Use, Storage and Handling of Vertebrate Toxicants for Problem Wildlife Control" states that "Cyanide is not to be deployed by Fish and Wildlife Staff" (pg. 57 of (E19-G-0390).

There have been numerous unintended deaths reported in the United States (US) as a result of Sodium Cyanide M44 bombs (Appendix 1, data compiled by Predator Defence Institute). Accidental and intentional human deaths have also resulted from cyanide in Canada, although a compilation of such records could not be found.

It is worth noting that both sodium cyanide and potassium cyanide are highly toxic salt compounds used in mining processes. Cyanide use at mining operations has been the subject of serious concern in several jurisdictions and has been banned in others. Most recently, in October 2019, the Sudanese government banned the use of cyanide and mercury in mining operations (CleanEarth Technologies 2019). The ban followed a public outcry concerning the health and environmental impact of these chemicals in mining communities.

III. Supporting Evidence for Special Review Request for Sodium Cyanide

A. Human Health and Public Safety

Cyanide is a poisonous chemical gas that prevents the body from absorbing oxygen. Sodium cyanide is a poisonous compound with the formula NaCN. It can kill all warm-blooded animals, including humans if "swallowed, inhaled or absorbed through the skin" (Alberta Agriculture and Forestry Food Safety and Technology Division 2016). Poisoning can result from accidental, improper, or malicious use or exposure. In addition to acute cases of poisoning which result in death, Health Canada (2019) also recognizes that cyanide is an endocrine-active compound that may disrupt reproduction and other biochemical processes at low concentrations. The dangers posed by the poison can be slow-acting or fast, but they remain, nonetheless.

In March 2017, a teenage boy was seriously injured in Idaho when he was accidentally exposed to sodium cyanide following his dog's deployment of an M-44 device (Wilkinson 2017). The dose intended for a single canid killed the dog and caused critical harm to the boy. This incident resulted in an increased level of public awareness and engagement, as well as renewed campaigning on the part of several NGO's which ultimately resulted in a decision by Idaho and Oregon to ban M-44 Cyanide devices. Canada should learn from these and other tragic incidents and take action to ban the use of M-44s rather than waiting for the highly publicized death or injury of pets and/or people.

Aside from short-term health effects from human exposure to sodium cyanide (including death), there are also serious long-term health effects that come with exposure to this poison, even at low-level doses.

In 2018, Dennis Slaugh of Vernal, Utah, died. Slaugh was poisoned by an M-44 in 2003, and his death certificate listed cyanide poisoning from an M-44 as a contributing cause (PDI 2019), see Appendix 1.

During 1996 – 2006 there were 23 incidents of cyanide exposure due to M44's in the US (Saskatchewan 2017 ENV 558/16G) which strongly indicates that sodium cyanide presents a threat to human health and safety.

Although a review of PMRA's Pesticide Product Information Database Ingredient details for sodium cyanide[1] and an Incident Report Search[2] provided no records of incident reports, a brief internet search revealed that several human deaths have been caused by Cyanide in Canada in recent years, including the following:

- in 1999 a man was murdered by cyanide at a jail in Ontario,[3]
- in 2008 a man in Ottawa used cyanide in a suspected suicide,[4] and
- in 2013 a man in a Quebec prison was fatally poisoned by cyanide.[5]

B. Environment

i) Risks to non-target animals

[1] https://pesticide-registry.canada.ca/en/active-ingredient-details.html?q=SCN#historical-applications

[2] https://pesticide-registry.canada.ca/en/incident-report-search.html

[3] https://www.cbc.ca/news/canada/ottawa/inmate-charged-in-prison-cyanide-death-1.962147

[4] https://www.cbc.ca/news/world/cyanide-killed-ottawa-man-denver-coroner-1.762124

[5] https://globalnews.ca/news/950772/de-vitos-death-may-have-been-cyanide-poisoning-report/

Health Canada has acknowledged that cyanides, including sodium cyanide, are highly toxic to aquatic organisms and highly water soluble within aquatic environments (2019). If this poison were to accidentally or intentionally leach into a groundwater system, the results would be devastating.

In the United States, M-44 Sodium Cyanide bombs deployed by Wildlife Services, a government agency, have killed swift and grey fox (both species at risk in Canada), red fox, black bear, bobcat, fisher, marmot, raccoon and raptors, among other species (USDA Animal and Plant Health Inspection Service 2017). In 2017, the Centre for Biological Diversity reported that in the US, "[s]ince 2010, 14,431 animals have been killed each year on average by these poison bombs" (Revelator 2017). In Canada, similar non-target deaths can be expected to occur wherever scavenging animals roam and these devices are used. However, as we describe later, record keeping is inadequate when M44 Cyanide bombs are used in Canada, with little-to-no information provided after an M44 Cyanide bomb is placed. Thus, under-reporting of non-target deaths is likely to occur.

Once devices are set in Alberta, the label requires that they be inspected every 3 days and removed after 30 days. This is inadequate to ensure safety of non-target animals and provides ample time for organisms, including species at risk, to ingest a fatal dose of poison or for an accident to occur which could be deadly to a human passerby, as nearly occurred in Idaho in 2017.

In Alberta, use of M-44 Cyanide bombs has occurred recently in the ranges of several at risk and sensitive species (AF 2017-G-0010 2017), including the following federally listed species within range of M44's used between 2011-2016:

American Badger – Taxidea taxus
Federal Status: Special concern (COSEWIC 2012)

Grizzly Bear – Ursus Arctos
Federal status: Special Concern (COSEWIC 2012)

Peregrine falcon - Falco peregrinus
Federal status: Special Concern (COSEWIC 2017)

Wolverine – Gulo gulo
Federal status: –Special Concern (COSEWIC 2014)

Provincial status of vertebrate mammals that range within areas where M44-Cyanide bombs were used between 2011-2016 (AEP 2019) include:

Fisher – Martes pennanti
Provincial Status: Sensitive

Canada Lynx– Lynx canadensis
Provincial Status: Sensitive (Poole 2003, GoA 2017, GoA2015)

Bobcat - Lynx rufus
Provincial Status: Sensitive

Long-Tailed weasel – Mustela frenata

Provincial Status: Alberta: Sensitive (GoA 2017, 2015)

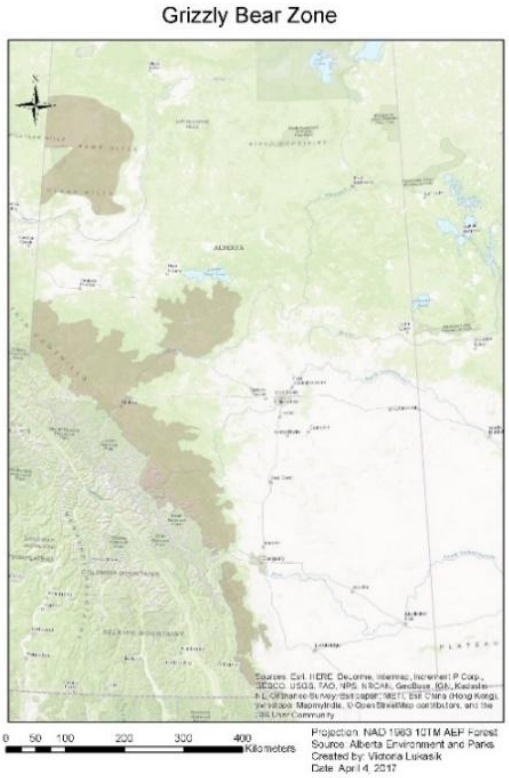

FIGURE 1 MAP SHOWING GRIZZLY BEAR RANGE IDENTIFIED IN ALBERTA

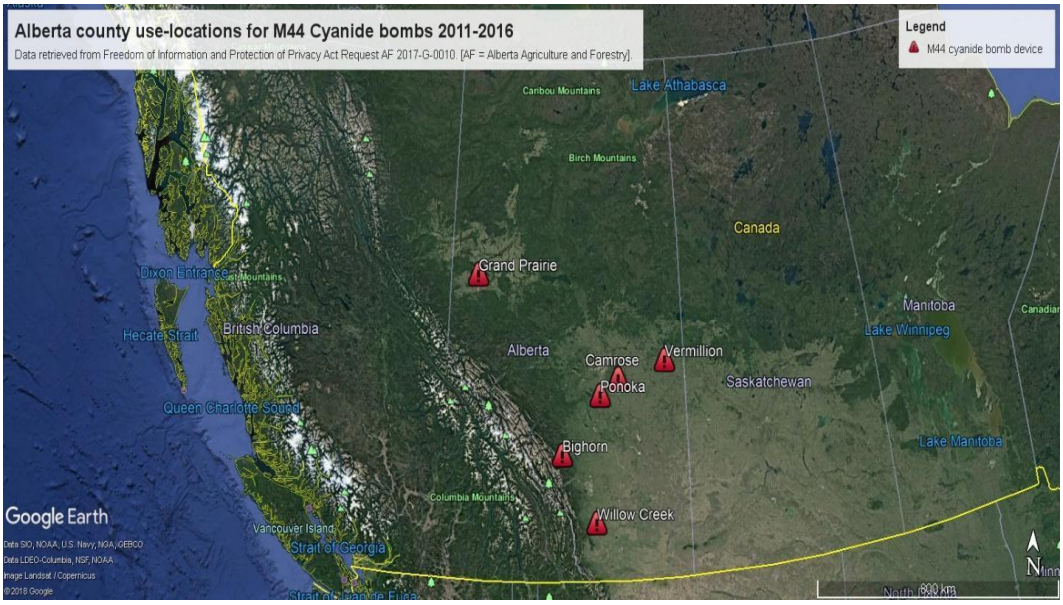

FIGURE 2 MAP SHOWING APPROXIMATE USE LOCATIONS FOR M-44 CYANIDE BOMBS 2011 – 2015. ALBERTA FOIP RESPONSES INDICATE ZERO M-44 USE-RECORDS IN 2016, 2017, 2018.

ii) Use in ranges of species at risk

The above-noted permit states, under ENVIRONMENTAL HAZARD:

> Endangered species such as the swift fox (*Vulpes velox*) inhabit the same ranges as coyotes. Prior to using this product in areas likely to be inhabited by the swift fox (for location see: www.pnrrpn.ec.gc.ca/nature/endspecies/sar/db08s06.en.html), users may consult with the Alberta Fish and Wildlife office in Medicine Hat or Lethbridge for approval. [See Appendix 2]

The link above, which is provided through Health Canada's on-line Consumer Product Safety Label Search for permit Registration No 25108 is dead, and so no direct information can be obtained from PMRA or Alberta Agriculture and Forestry regarding swift fox range on-line.

While no records indicate that M44's are being used within swift fox range, as described in the above section titled **Environment: Non-human animal health**, M44 Cyanide devices are still used where several other species at risk and sensitive species range.

The permit's ENVIRONMENTAL HAZARD precaution also states:

> To allow the natural movements of endangered, threatened, vulnerable or indeterminate status species that may venture outside provincial or national parks or conservation areas, a buffer zone of 400 metres must be strictly obeyed.

However, this is insufficient to ensure that these wide-ranging species and vagile species are protected from the poison, even if these precautions are met. Large carnivores (including the federally listed Grizzly bears and wolverines, which occur in Alberta) live at low densities and have large home ranges which can be several hundreds to thousands of kilometers. The living requirements of these animals usually require them to venture beyond the artificial boundaries of parks and protected areas. These animals are frequently mobile and can travel several kilometers on any given day in search of food,

increasing the likelihood of being exposed to poisoned bait as they search the landscape for food resources.

C. Value

Pursuant to section 17 of the PCPA, the Minister shall initiate a special review of the registration of a pest control product if she has reasonable grounds to believe that the health or environmental risks of the product are, or its value is, unacceptable. As outlined above, both the health and environmental risks of sodium cyanide are unacceptable. Similarly, its value is unacceptable. The "value" of a pest control product refers to:

> …the product's actual or potential contribution to pest management, taking into account its conditions or proposed conditions of registration, and includes the product's
>
> **(a)** efficacy;
>
> **(b)** effect on host organisms in connection with which it is intended to be used; and
>
> **(c)** health, safety and environmental benefits and social and economic impact. (PCPA s 2(1))

i) Sodium Cyanide is not an effective means of reducing livestock predation

The value of sodium cyanide can be summarised as non-existent because the circumstances for its permit deem it completely unnecessary. Aside from the high risks sodium cyanide presents to human and non-human animal health, safety and welfare, better alternatives exist to address and resolve concerns regarding conflicts between coyotes and livestock.

Public attitudes towards wildlife and the health and safety of our environment have significantly changed since this pesticide was first developed and non-lethal alternatives have proven to be as or more effective at reducing future livestock depredation events compared to lethal control.

See separate document: Lethal predator control and livestock loss property damage.

ii) Product non-use

Records from Alberta Agriculture and Forestry obtained through a provincial request under Alberta's *Freedom of Information and Protection of Privacy Act* RSA 200 c F-25 ("FOIP Act") through Alberta FOIP requests AF 2017-G-0010 and AF 2019-G-0032 indicate that aside from 'non-responsive' records from Willowcreek in 2016 (see section below on non-compliance with record keeping), zero M-44 Cyanide bombs were used in Alberta in 2016, 2017 and 2018. Similarly, although used frequently in the past, M-44 Cyanide bombs have not been used for more than a year and half in Oregon and Idaho since both states banned them. This further indicates that these dangerous devices have no value today and that the inherent risks they present to health, safety, and environment outweigh any potential perceived benefit.

D. Non-compliance with labelling and monitoring requirements

The federal government permits Alberta to use this highly toxic substance. Alberta's *Agricultural Pests Act* then assigns the significant responsibility of handling, monitoring, inspecting and training to the local municipal government level, which can further devolve responsibility for storage, use and handling to persons authorized under the Alberta *Agricultural Pest Act*, meaning a private landholder.

Given the extreme care required for handling and applying this highly toxic substance, it is irresponsible to allow landholders to handle sodium cyanide or to introduce it into the environment. If PMRA continues to accept the inherent risks of this poison, at the very least only trained and licenced applicators should be handling sodium cyanide.

FOIP records obtained from Alberta Agriculture and Forestry for the period between January 1, 2011 through December 31, 2016 indicate the following non-compliance issues pertaining to sodium cyanide use in Alberta (AF 2017-G-0010):

- Inadequate record keeping,
- Improper storage, and
- Using toxicant in ranges of species at risk.

Pesticide use contrary to label directions is illegal according to the PCPA. It is an offence for a registrant to not comply with the conditions of a registration (s 31 (1)). Furthermore, the Minister may cancel or amend a product's registration if the registrant does not comply with conditions of registration (s 25). Below, we provide evidence that individuals are not using sodium cyanide in a way that is consistent with the directions required under the PCPA, which is a violation of subsection 6(5). Serious and valid concerns for human safety and environment are exacerbated by non-compliance with label directions.

i) Inadequate record keeping

A copy of the spreadsheets summarizing the Annual Reports submitted by all municipal districts and counties to the Inspection and Investigation Section, Animal Health and Assurance Branch of Alberta Agriculture and Forestry obtained through the FOIP request AF 2017-G-0010 contains records for the December 31 2012 quarter that are confusing. Although the records indicate that no M44 Cartridges were deployed that quarter in Forty Mile county, the side notes indicate "3 M44 devices used by insp. & returned" (pg. 3 AF 2017-G-0010). Similarly, the counties of Starland and Two Hills provided no data entry for M44 cartridge use in the appropriate column, yet side notes indicate for the 2 counties respectively "3 M44 cartridges and devices were placed …" and "M44 cartridges– destroyed 3/damaged/used" (pg. 3 & 4 AF 2017-G-0010).

The Label Requirements for Permit No. 25108 indicate that a record must be kept for when each bait is deployed. However, during the quarter of Dec. 31 2011, records from the spreadsheets summarizing Annual Reports submitted by all municipal districts and counties to the Inspection and Investigation Section indicate that although eighteen M44 devices were used in Bighorn county, no report (Form 7a or Form 7b) was submitted (page 1 of AF 2017-G-0010). The same applies for Vermillion and Willowcreek counties during that quarter, where records indicate that ten and four M44 cartridges were used, respectively (page 2 of AF 2017-G-0010). During the quarter of Dec. 31, 2012, in Forty Mile and Starland (page 3) M44's were used but records indicate no report was submitted.

In addition, although the above spreadsheet indicates that the county of Willowcreek used M-44 Cyanide bombs in 2011, 2012, 2014 and 2015 (as well as Compound 1080 in 2012), the county was *non-*

responsive with blank records and *zero data provided for 2013 and 2016.* It is unlikely that there were no poisoned baits deployed in the two years that records were not produced for this county. The fact that this data is missing is highly disconcerting and reflects poorly on the due diligence and oversight required at the municipal, provincial and federal levels.

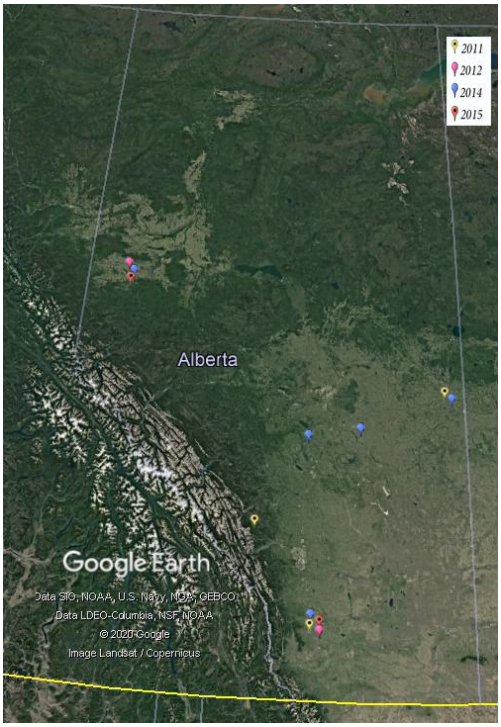

FIGURE 3 MAP SHOWING APPROXIMATE USE LOCATIONS FOR M-44 CYANIDE BOMBS 2011 – 2015 BY YEAR. THE BOTTOM CLUSTER SHOWS WILLOWCREEK COUNTY WHICH WAS NON-RESPONSIVE IN 2013 AND 2016. DATA OBTAINED FROM FOIP REQUEST AF 2017-G-0010.

ii) Improper use and storage

A record from Willowcreek indicates that during the quarter of Dec. 21, 2014, two M44 Cyanide bombs were placed and one was lost, which should be highly alarming to all. In addition to inadequate record-keeping, there is evidence that M44 Cyanide bombs have been lost. Therefore, having this poison available with present labelling requirements is inadequate to protect the public and the environment and the products' registration should be cancelled. It is worth noting that Willowcreek is part of an important wildlife corridor referred to as the Yellowstone to Yukon Conservation Initiative, which includes the home range of Grizzly Bears – *Ursus Arctos,* federally listed as species of special concern (COSEWIC 2012).

One of the product registration label requirements for Registration no. 25108 is to:

> Store Cyanide cartridges under lock and key in a dry, well ventilated place away from food, feed, domestic animals, and corrosive chemicals. Keep children, unauthorized personnel as well as dogs and other domestic animals away from set Cyanide cartridges.

However, records from AF 2017-G-0010 reveal that neither M44 devices nor cyanide cartridges are being handled with due diligence. For example, during the Dec. 31, 2014 quarter, when Vermillion county reported use of one M44 cartridge, the county records note "used 2 coyote getters & 5 shells –

disposed of 14 shells that were corroded". Not only does the information within this record not match, but corrosion of cartridges indicates that these may not be being stored under label conditions (ie. dry and well-ventilated), which raises concerns regarding other storage and handling requirements.

E. Other Jurisdictions

i) United States

M44's were banned approximately 20 years ago statewide in Washington and California due to environmental and safety concerns. In April 2017, Idaho agreed to a temporary ban that became more permanent in March 2020, when an Idaho Court officially banned them until a detailed environmental impact statement (EIS) can be completed.[6] In May of 2019, Oregon banned M44 Sodium Cyanide for predator control (Oregon Legislative Assembly 2019)[7] with almost unanimous support (Senate vote 25-3 and House vote 53-6) (PDI 2019). This decision followed the introduction of US Congressman Rep. Peter DeFazio's 2017 federal bill named the *Chemical Poisons Reduction Act* which introduced legislation to ban sodium cyanide and Compound 1080 across the country. The bill was announced shortly after five[8] animal welfare and conservation organizations submitted a petition to the EPA[9] seeking cancellation of these products after the near-death of a teenager exposed to an M44 Cyanide bomb, described above.

In the fall of 2018, the EPA denied the petition to ban M44's across the US. However, the bill noted above was reintroduced in 2019 with bipartisan legislation (DeFazio 2019) with strong support from non-government organizations Predator Defense, the International Fund for Animal Welfare, and the US Humane Society. In a media release, Rep DeFazio stated the following (DeFazio 2019):

> The unnecessary use of these deadly toxins by the U.S. Department of Agriculture's (USDA) Wildlife Services has led to countless deaths of family pets and innocent animals, as well as injuries to humans…It is only a matter of time before they kill someone. The federal government should not be using these extreme measures in the name of so-called 'predator control'.

Similarly, Rep. Gaetz noted that:

> Cyanide bombs have no place on public land…These dangerous devices threaten animals and humans alike. Better—and more humane—predator-control tools and techniques already exist. I am glad to join Congressman DeFazio in introducing this common-sense bipartisan legislation, which will enhance public safety across America.

In August 2019, the EPA announced it would re-evaluate the use of M-44 devices to control wild animals that prey on livestock and other animals.[10]

iii) Other countries

Outside of North America, several countries and jurisdictions have withdrawn or banned cyanide as a pesticide due to the threats posed to human health and its high acute toxicity to mammals (United

[6] https://www.predatordefense.org/m44s.htm

[7] https://olis.leg.state.or.us/liz/2019R1/Measures/Overview/SB580

[8] The Animal Legal Defense Fund, the Animal Welfare Institute, the Center for Biological Diversity, Predator Defense, and Project Coyote

[9] https://www.biologicaldiversity.org/campaigns/carnivore_conservation/pdfs/M44NationwidePetition_08-10-2017.pdf

[10] https://www.epa.gov/newsreleases/statement-epa-administrator-wheeler-m-44-predator-control-devices

Nations 2009). Countries that have banned this substance for use as a pesticide include (United Nations 2009): China (banned in 1985); Cyprus (banned in 1999); and Panama (banned 1987).

Sodium cyanide and other cyanide compounds are used by the mining industry during the extraction processes of metals from rock. Due to the extreme dangers cyanide presents, it has also been banned and/or withdrawn from use in mining processes in many jurisdictions around the world. It is time for Canada to follow suit and ban all uses of sodium cyanide.

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Featured Incidents of Pet Killings and Human Poisonings Caused by M-44s

Published by Predator Defense, www.predatordefense.org, Sept. 13, 2018

The list below highlights just a few of the documented incidents of people and domestic animals injured or killed by the M-44 cyanide devices used by USDA Wildlife Services. It was compiled from agency documents, news reports, and various other sources. The real M-44 body count is in the thousands, and far exceeds the numbers officially reported by Wildlife Services. See explanatory note on official counts in separate report titled *"USDA Wildlife Services Yearly Summary Statistics of Domestic Dog Killings by M-44s."*

February 2018: Dennis Slaugh of Vernal, Utah, dies. Slaugh was poisoned by an M-44 in 2003, and his death certificate listed cyanide poisoning from M-44 as a contributing cause (see death certificate).

March 2017: A dog and a 14-year-old boy triggered an M-44 in Idaho. The boy, along with several emergency personnel, were exposed to cyanide. The boy suffered long-term, adverse health effects. His dog died in front of him. Were it not for wind direction, the boy might also have have died. No warning signs were posted.[i]

March 2017: Two dogs were killed in Wyoming by an M-44 during a walk with their family.[ii]

February 2011: An M-44 was placed 918 from a residence without the family's knowledge, killing their dog and violating three EPA use restrictions.[iii,iv]

February 2010: A dog was killed in Nebraska by an M-44 set by Wildlife Services on the dog owner's rangeland/pasture.[v]

April 2010: A dog wearing collar and tags was killed in W. Virginia by an M-44 set on neighboring land. The Wildlife Services agent buried her without notifying the family.[vi]

January 2008: A dog was killed by an M-44 in N. Dakota.[vii]

January 2008: A man in Texas was injured by an M-44 placed without his knowledge on grazing land.

February 2008: A beagle was killed by an M-44 in Virginia.[viii]

February 2008: A dog was killed by an M-44 in New Mexico.[ix]

April 2008: A dog in N. Dakota was killed by an M-44 set on rangeland/pasture.[x]

June 2008: A pit bull was killed in Virginia by an M-44 in a livestock pasture/hayfield.[xi]

January 2007: A dog was killed by an M-44 in North Dakota.[xii]

March 2007: A Border collie was killed by an M-44 in Virginia.[xiii]

April 2007: A Border collie puppy was killed by an M-44 in Virginia.[xiv,xv]

May 2007: A worker in Texas accidentally triggered an M-44. The cyanide was ejected into the man's eyes and he subsequently experienced burning and irritated eyes as well as disorientation.[xvi,xvii]

Appendix 1

June 2007: A Great Pyrenees was killed by an M-44 in New Mexico.[xviii]

January 2006: A Golden retriever was killed by an M-44 in Virginia.[xix,xx]

February 2006: A Labrador retriever was killed in Utah when she triggered an M-44 set a foot from a road.[xxi]

April 2006: A young German shepherd was killed when he triggered an M-44 on public land in Utah.[xxii,xxiii]

March 2005: An Australian Shepherd was killed in New Mexico by an M-44 set by Wildlife Services on rangeland.[xxiv]

March 2005: A dog was killed in New Mexico by an M-44 set by Wildlife Services on ranch land.[xxv]

April 2005: A Border collie in New Mexico was killed by an M-44 set on the owner's ranch property.[xxvi,xxvii]

December 2005: A certified therapy dog who worked with at-risk youth was killed in front of a girl's group by an M-44 set 10 feet from a public road.[xxviii,xxix]

January 2004: A dog was killed by an M-44 set by Wildlife Services in New Mexico on the ranch of the dog owner's relative.[xxx]

February 2004: An Irish setter was likely killed by an M-44 in Virginia.[xxxi]

March 2004: A dog in Idaho was found dead within 200 yards of an M-44 set by Wildlife Services in a nearby sheep pasture.[xxxii,xxxiii]

March 2004: A German shepherd was killed by an M-44 in New Mexico.[xxxiv]

May 2003: Dennis Slaugh was poisoned and permanently disabled when he triggered an M-44 on public land in Utah. He was forced to retire from his job.[xxxv]

January 2002: A rancher in Nebraska was injured by the accidental discharge of an M-44 that had been set by Wildlife Services on his property.[xxxvi]

February 2002: A dog was killed by an M-44 set by Wildlife Services.[xxxvii]

February 2002: A Labrador retriever was killed in Virginia by an M-44 set by Wildlife Services on a neighbor's cattle pasture.[xxxviii]

February 2002: A dog was killed in New Mexico by an M-44 set by Wildlife Services on rangeland/pasture.[xxxix]

February 2002: A dog triggered an M-44 in Oregon placed on a neighboring ranch by Wildlife Services.[xl]

February 2002: A dog was killed by an M-44 set by Wildlife Services.[xli]

February 2002: A dog was killed by an M-44 set by Wildlife Services on the farm of the dog owner's relative.[xlii]

February 2002: A dog in Oregon took 8 hours to die after exposure to an M-44 set on property next door to her home and without her knowledge. During a subsequent investigation WS requested that Oregon authorities "consider the info provided during the investigation be confidential *and not disclosed as public record* [emphasis added]." WS also refused to release a copy of the incident report to the dog's owner.[xliii,xliv,xlv]

April 2002: A dog was killed by an M-44 set by Wildlife Services on a neighboring farm in Virginia.[xlvi]

June 2002: A black Angus cow was killed in West Virginia by an M-44 set by Wildlife Services in a pasture.[xlvii]

November 2002: A woman was injured after trying to remove an M-44 set by Wildlife Services on her neighbor's property.[xlviii]

May 2001: A dog in Colorado was killed by an M-44 set by Wildlife Services on a neighboring ranch "outside the provisions authorized by state law".[xlix]

April 2001: A dog in Nebraska was killed by an M-44 set by Wildlife Services on rangeland/pasture.[l]

January 2000: A dog in Oregon was killed after triggering an M-44 set 100 yards from the owner's home. The device was one of six that had been planted in a tree farm frequented by local children.[li,lii,liii]

February 2000: A dog in New Mexico activated an M-44 set on rangeland/pasture by Wildlife Services.[liv]

March 2000: A dog in Colorado was killed by an M-44 set on private property without the knowledge of the owners. The family, including a three-year-old girl, watched as the dog suffered and died. A state investigation found that Wildlife Services had not only trespassed, but broken a suite of federal rules regulating M-44s.[lv]

May 2000: A Border collie in West Virginia was killed by an M-44 set by Wildlife Services in a sheep pasture.[lvi]

September 2000: A county surveyor in Utah discharged an M-44 after mistaking it for a survey marker.[lvii]

March 1999: A man and his three-year old daughter were walking with their dog on their property in Colorado when it triggered an M-44 and later died. A WS staffer had placed two traps on their land, trespassing and breaking a suite of federal rules.[lviii]

April 1999: A dog was killed in Virginia when he triggered an M-44 set by Wildlife Services on a neighboring farm. The owner also found another dog's body at the device. A third dog also encountered an M-44 and returned home with red and swollen eyes as well as a swollen mouth and a peculiar odor. The owner himself likely experienced secondary poisoning.[lix,lx]

August 1999: An individual helping a Wildlife Services employee look for and remove M-44s accidentally fired one of the devices.[lxi]

September 1999: A hunting dog was killed in Virginia by anM-44 set by Wildlife Services. M-44s were not permitted for use in that state from September 1 to January 7, but the Wildlife Services employee had failed to remove them.[lxii]

September 1999: A dog was killed in Oregon by an M-44 set by Wildlife Services.[lxiii]

October 1999: A Wildlife Services employee in Texas accidentally discharged an M- 44 as he was setting it. He had to be airlifted to a facility for treatment.[lxiv]

October 1999: A dog was killed in Utah by an M-44 set by Wildlife Services.[lxv]

December 1999: Two dogs were killed by M-44s during a hunting trip in New Mexico on state lands.[lxvi]

December 1999: A citizen in Nebraska accidentally discharged an M-44 as he attempted to move it with a pair of pliers while he was repairing fence wire.[lxvii]

February 1998: A dog in Utah was killed by anM-44set by Wildlife Services on BLM land that adjoined the owner's private yard. No one was notified about Wildlife Services' activities.[lxviii,lxix,lxx]

November 1998: A man in Texas, working on private land, was injured when he grabbed what he thought was a rusted metal rod to pull it from the ground and an M- 44 exploded in his hand.[lxxi]

December 1998: A dog was killed in Oregon by an M-44 set by Wildlife Services.[lxxii]

April 1995: A hunter in Idaho accidentally discharged an M-44 that had been set by Wildlife Services.[lxxiii]

Fall 1994: A dog in Oregon was walking with its family when it triggered an M-44 set on the property without their knowledge. The owner, not knowing why her dog was in respiratory distress, attempted to help it and suffered secondary cyanide poisoning from inhalation. The dog suffered for 15 minutes before dying.[lxxiv]

August 1993: Two bow hunters in Utah pulled M-44s set by Wildlife Services.[lxxv]

April 1990: A dog in New Mexico accompanying a ranch hand triggered an M-44. After attempting mouth-to-mouth resuscitation on the dog, who died within a few minutes, the man quickly experienced loss of breath, a swollen tongue, a fast heart rate, numb lips, and curling fingers on one hand. He was transported to a hospital where he was treated and placed in intensive care.[lxxvi]

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[i]Idaho State Journal David Ashbury March 16 2017 Pocatello boy watches family dog die after cyanide bomb explodes. http://idahostatejournal.com/news/local/pocatello-boy-watches-family-dog-die-after-cyanide-bomb-explodes/article_d0003a2f-6b7f- 5d31-b427-68db03d3b93a.html

[ii]http://www.predatordefense.org/features/m44_WY_Amy_dogs.htm

[iii]Predator Defense, http://www.predatordefense.org/m44s_bella.htm

[iv]Tom Knudson, "Efforts to investigate Wildlife Services' methods continue," The Sacramento Bee, June 25, 2012.

[v]USDA-APHIS-WS, Adverse Effects Incident Information Report.

[vi]Letter from James R. Gardner to Commissioner Gus Douglas, West Virginia State Department of Agriculture, April 21, 2010.

[vii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[viii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[ix]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[x]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[xi]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[xii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[xiii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[xiv]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[xv]USDA-APHIS-WS, Report of Injury or Death of Non-target Animal.

[xvi]USDA-APHIS-WS, Adverse Effects Incident Information Report and Human Incident Supplemental Report

[xvii]Brazoria County Sheriff Incident/Offense Report, 22 May 2007.

[xviii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[xix]USDA-APHIS-WS, Adverse Effects Incident Information Report.

[xx]USDA-APHIS-WS, Report of Injury or Death of Nontarget Animal.

[xxi]Mike Stark, "Dog died at cyanide trap set in an off-limits area," Associated Press, 01 June, 2008.

[xxii]Memo from Michael J. Bodenchuk, Utah State Director, Wildlife Services to Ms. Barbara Knotz, 21 June 2006.
[xxiii]"Utah couple challenges USDA use of cyanide bombs," Associated Press, 20 August 2006.
[xxiv]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxv]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxvi]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxvii]USDA Work Task form, 15 April 2005.
[xxviii]USDA-APHIS-WS, Adverse Effects Incident Information Report.
[xxix]Born Free USA, http://www.bornfreeusa.org/database/trapping_incident.php?id=110
[xxx] USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxxi]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxxii] USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxxiii]USDA-APHIS-WS, Report of Injury or Death of Non-target Animal.
[xxxiv]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxxv]Christopher Ketcham, "America's secret war on wildlife," Men's Journal, January 2008, p. 49.
[xxxvi]USDA-APHIS-WS, Adverse Effects Incident Information Report and Human Incident Supplemental Report.
[xxxvii] USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxxviii] USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xxxix] USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xl] USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xli]USDA-APHIS-WS, Report of Injury or Death of Non-target Animal.
[xlii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Human Incident Supplemental Report.
[xliii]Letter from Danielle Clair to Congressman Peter DeFazio, 18 February 2002.
[xliv]Letter from Mark Jensen, Oregon Assistant State Director, Wildlife Services, to Dale Mitchell, Assistant Administrator, Oregon Department of Agriculture, 15 April 2002.
[xlv]Letter from Congressman Peter DeFazio to Bill Clay, Deputy Administrator of Wildlife Services, 24 May 2002.
[xlvi]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xlvii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[xlviii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Human Incident Supplemental Report.
[xlix]Memo from Craig Coolahan, Colorado State Director, USDA-APHIS-WS to Martin Mendoza, Director, OSS, 16 May 2001.
[l]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[li]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[lii]Keri Watson and Greg Hanscom, "Poison traps kill unintended victims," High Country News, March 13, 2000.
[liii]Predator Defense, http://www.predatordefense.org/docs/m44_article_Buddy_Tippetts.pdf
[liv]USDA-APHIS-WS, Adverse Effects Incident Information Report.
[lv]Keri Watson and Greg Hanscom, "Poison traps kill unintended victims," High Country News, March 13, 2000.
[lvi]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.

[lvii]Memo from Michael J. Bodenchuk to Michael V. Worthen and Thomas R. Hoffman, 28 September 2000.
[lviii]High Country News 3/1300 Poison traps kill unintended victims https://www.hcn.org/issues/174/5628
[lix]Written account from Gary Tucker, 20 May 1999.
[lx]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[lxi]Accident Report signed by Alan May, District Supervisor, 16 August 1999.
[lxii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[lxiii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[lxiv]USDA-APHIS-WS, Adverse Effects Incident Information Report and Human Incident Supplemental Report.
[lxv]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[lxvi]Keri Watson and Greg Hanscom, "Poison traps kill unintended victims," High Country News, March 13, 2000.
[lxvii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Human Incident Supplemental Report.
[lxviii]Memo from Nick Sandberg, Bureau of Land Management to Mike Bodenchuck, USDA-APHIS-WS, 19 March 1998.
[lxix]U.S. Department of the Interior, Bureau of Land Management Incident Record, Case No. UT-069-98-03.
[lxx]U.S. Department of the Interior, Bureau of Land Management, San Juan Resource Area, Conversation Confirmation Report, 03 March 1998.
[lxxi]Predator Defense, http://www.predatordefense.org/docs/m44_letter_Guerro_DeFazio.pdf
[lxxii]USDA-APHIS-WS, Adverse Effects Incident Information Report and Domestic Animal, Fauna, or Flora Incident Supplemental Report.
[lxxiii]Memo from Dr. Peter L. Joseph, USDA-APHIS-Biotechnology, Biologies, and Environmental Protection to Mr. Robert A. Forrest, U.S. Environmental Protection Agency, 25 April 1995.
[lxxiv]Predator Defense http://www.predatordefense.org/testimonials.htm
[lxxv]Memo from James A. Winnat, Utah State Director, USDA-APHIS-WS to ADC employees, 09 September 1993.
[lxxvi]Memo from Larry J. Killgo, State Director, ADC, Albuquerque, NM to District Supervisor, ADC, Roswell, NM, 01 May 1990.

Appendix 2

Health Canada Santé Canada

Canada

Registration Number	Registrant Name	Product Name	Registration Status
25108	ALBERTA GOVERNMENT/ALBERTA AGRICULTURE & FORESTRY	SODIUM CYANIDE PREDACIDE COYOTE CONTROL	REGISTERED

Health Canada

Product Information	
Registration Number :	25108
Product Name :	SODIUM CYANIDE PREDACIDE COYOTE CONTROL
Registrant Name :	ALBERTA GOVERNMENT/ALBERTA AGRICULTURE & FORESTRY
Registration Status :	REGISTERED
Date of First Registration :	1997-10-10
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2023-12-31
Marketing Type :	RESTRICTED
Active Ingredient(s):	SODIUM CYANIDE SODIUM CYANIDE CASN = (GUAR = 84 %)

PERMIT/LABEL

SODIUM CYANIDE

DANGER POISON

PREDACIDE

RESTRICTED

COYOTE CONTROL

READ THE LABEL BEFORE USING

GUARANTEE: Sodium Cyanide - 84 %

REGISTRATION NO. 25108 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 840 MG OF SODIUM CYANIDE PER M-44 CARTRIDGE

GOVERNMENT OF THE PROVINCE OF ALBERTA

Alberta Agriculture and Food Regulatory Services Division 2nd Floor, Agronomy Building
6903 – 116 Street Edmonton, Alberta T6H 5Z2 Tel. 1-800-332-1414

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It an offence under the Pest Control Products Act to use a control product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

The product and associated equipment used under this label remains the property of the Alberta Government.

NATURE OF RESTRICTION:

This product is for storage, use and handling only by persons authorized under the Alberta Agricultural Pests Act and by designated Fish and Wildlife Officers of the Government of Alberta.

RESTRICTED USES:

COYOTE

Place up to three cyanide cartridges on land where a site is identified for coyote control.

Use Limitations

1. For predator control where a person in possession of a Form 7 permit under the Agricultural Pests Act (ALBERTA) or a Fish and Wildlife Officer has verified that coyote predation of livestock or game production animal has recently occurred.

2 . For use by Alberta government authorized personnel to control rabies.

3. The user must remove cyanide cartridges within 30 days of placement.

4. Sodium cyanide must not be set nearer than 800 metres from the boundary of a hamlet, village, town or city, nor closer than 400 metres to a residence except that of the landholder who has approved the use of poison.

5. The user must immediately post warning signs at all normal entry points to land where sodium cyanide is in use and remove the signs when the poison is consumed or removed.

6 . The user must keep accurate records of when each cartridge is set.

7 . The user must inspect cyanide cartridges at least every 3 days.

8. The user must provide a copy of this label to the landholder when cyanide cartridges are set.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN AND UNAUTHORIZED PERSONNEL. Sodium cyanide can kill all warm-blooded animals. It is extremely poisonous if swallowed, inhaled or absorbed through the skin. Do not breathe cyanide dust or gas. Store cyanide cartridges under lock and key in a dry, well ventilated place away from food, feed, domestic animals, and corrosive chemicals. Keep children, unauthorized personnel as well as dogs and other domestic animals away from set cyanide cartridges. Wear safety glasses, a heavy-duty mask and gloves when setting or inspecting cyanide cartridges. When handling, setting or inspecting cyanide cartridges, always carry an antidote kit containing at least 6 pearls of amyl nitrite in case sodium cyanide is swallowed or inhaled. Always work from the upwind de and never have your face directly over a cartridge that is set to fire. Wash hands thoroughly before eating or smoking.

DISPOSAL:

Do not reuse cartridge storage containers. Bury to a depth of 60 cm or burn at high temperature any unusable or spent cyanide cartridges and containers. For information on the disposal of unused, unwanted product and the cleanup of spills contact the regional office the Pest Management Regulatory Agency, Health Canada.

FIRST AID:

Immediately remove anyone exposed to cyanide from the contaminated area. Have person lie down and keep them warm. Use artificial respiration if breathing has stopped. If swallowed: Start treatment and call a doctor or poison control centre immediately or transport the person to the nearest hospital. Do not induce vomiting unless told to do so by a poison control centre or doctor. Never give anything by mouth to an unconscious person. If in eyes: Hold eye open and rinse with running water for 15-20 minutes, including under the eyelids. Remove contact lenses, if present, after the first five minutes, then

continue rinsing eye. If on skin or clothing: Take off contaminated clothing. Flush exposed area of skin immediately with plenty of water, then wash with soap and water. take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

Patient should breathe the contents of an amyl nitrite pearl 15-30 seconds each minute if necessary until 5 pearls have been used. The symptoms of cyanide overdose include weakness, headache, confusion, nausea and vomiting. Higher doses may be followed by gasping for breath, unconsciousness, convulsions, feeble breathing and respiratory arrest and weak or absent pulse. Cyanides attacks the heart, circulatory system and central nervous system as well as the liver and kidneys. Acid must not be allowed to come in contact with sodium cyanide, as gaseous hydrogen cyanide (HCN) will be released. The release of HCN gas produces an almond-like odour, however the odour is undetectable at low concentrations by many people.

ENVIRONMENTAL HAZARD:

This pesticide is TOXIC TO WILDLIFE. Keep out of lakes, ponds and streams. Do not contaminate water by cleaning of equipment or disposing of wastes.

Endangered species such as the swift fox (Vulpes velox) inhabit the same ranges as coyotes. Prior to using this product in areas likely to be inhabited by the swift fox (for location see: www.pnrrpn.ec.gc.ca/nature/endspecies/sar/db08s06.en.html), users may consult with the Alberta Fish and Wildlife office in Medicine Hat or Lethbridge for approval.

To allow the natural movements of endangered, threatened, vulnerable or indeterminate status species that may venture outside provincial or national parks or conservation areas, a buffer zone of 400 metres must be strictly obeyed.