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Mr. Frank A. DuBois  
Director/Secretary  
New Mexico Department of Agriculture  
Agricultural Programs and Resources Division  
Box 30005/APR  
Las Cruces, NM 88003-0005

Dear Mr. DuBois:

Subject: Sodium Fluoroacetate (Compound 1030) Livestock  
Protection Collar  
EPA Registration No. 39503-2  
Your Letter of January 20, 1994, and Your Submission of  
March 21, 1994 and June 14, 1994

Submission of March 21, 1994

The proposed revised label for the collar container is acceptable, except for an inaccurate citation in the "ENDANGERED SPECIES CONSIDERATIONS" section. Change

"See Technical Bulletin (for restriction No. 15) for . . . ."

to

"See USE RESTRICTION O. in Section II. of the Technical Bulletin for . . . ."

The proposed revised technical bulletin is acceptable, provided that the specific changes listed below are made.

1. In the 14th "DO" ("store collars properly . . ."), change "p. 15" to "p. 16."
2. In 7th sentence of Section I.2.b. (page 7), change "fronts" to "front."

CONCURRENCES

SYMBOL							
SURNAME							
DATE							

3. In USE RESTRICTION F. (Section II.F.), change "(#7505C)" to "(7505C)." Our mail code has been changed slightly.
4. In USE RESTRICTION J. (Section II.J.), change
- "(English/Spanish or other second language appropriate for the region)"

to

"(English/Spanish)."

Your current technical bulletin states "(English/Spanish)."  
Although we could be mistaken, we suspect that these two languages would be appropriate throughout New Mexico. Please let us know if this is not the case.

5. In USE RESTRICTION O. (Section II.O.), change "FWS" to "U.S. Fish & Wildlife Service."
6. Alter the positions of the photographs so that the picture with the lower number is in the upper half of each page. Position labels for pictures (e.g., "Photo 16") parallel to and either above or below the pictures to which they refer.

Submission of June 15, 1994

The text currently used on your collars is being accepted at this time so that large-size collars can be made available to your certified Livestock Protection Collar applicators. However, we find this "label" to be short on precautionary information and lacking the registrant's name and address.

The copies of the laminated labels which you provided with your letter of June 15, 1994, do provide your name and location plus additional precautionary statements but currently lack a place for the registration number. We feel that the amount of information provided on the laminated label is superior to that currently being provided and that the registration number could be added to the label rather easily. Our only reservations with the laminated label are concerned with possible irritation to livestock and conceivable deterrence of coyotes from completing throat attacks. We suspect that collars would be punctured by the time any coyotes would encounter the plastic, however.

Letter of January 20, 1994

In this letter, you raise issues concerning use of Livestock Protection Collars to control bobcats and on the potential for misuse.

Whether bobcat claims ultimately will be accepted for Livestock Protection Collars sold in the United States is an open issue. We have and will continue to consider applications pertaining to this use.

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Although it does not seem to be a major problem at this time, misuse of Livestock Protection Collars has taken place in the U.S. Among the incidents that have been reported are transfers of collars to and use by non-certified persons, and removal of 1060 solution from collars (under 39508-EUP-4). In at least two cases, collared sheep were rustled.

We recognize that "conscientious and responsible persons" in the livestock industry have a vested interest in the continued availability of the collars. We also are aware however, that not all human beings meet this description and that it is basically because of those who are not so "conscientious and responsible" that laws, regulatory agencies, and enforcement authorities are established by democratic societies. We view the collar as the most selective tool available for controlling coyotes that prey upon sheep and goats and the only tool that catches "offending animals" in the act. EPA has expended great effort (including information-gathering and Subpart D hearings, countless numbers of submission reviews, and several site visits) toward assessing the risks and benefits of Livestock Protection Collars. These efforts have culminated in the initial and continued registration of collars for use in the U.S. These registrations are highly restricted, but the restrictions are designed in large part to minimize incidents that would trigger petitions for cancellation of this use.

For many years, we have heard stories of illegal uses of various agents for controlling predators and are aware of several relatively recent instances in which violators were prosecuted. As the enforcement agents in your Department may attest, it is very difficult to "be everywhere," catching all offenders and casting a long deterrent shadow, over extensive land areas. Consequently, it is likely that this illegal activity will continue unless concerted coordinated efforts are made to eliminate it. Much of this activity seems to occur in areas (e.g., open rangelands) where collars cannot be used legally or appropriately. It is hard for us to muster sympathy for any producers who could use collars legally but who employ various illegal measures nevertheless.

Sincerely yours,

Robert A. Forrest  
Product Manager 14  
Insecticide-Rodenticide Branch  
Registration Division (7505C)

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Stamp

DANGER - PELIGRO  
EPA REG. NO. 39508-2  
SER. NO. NMA 0000001

DANGER - PELIGRO  
1080

EPA REG. NO. 395  
SER. NO. NMA 000

DANGER - PELIGRO  
EPA REG. NO. 39508-2  
SER. NO. NMA 0004

DANGER - PELIGRO  
1080

EPA REG. NO. 395  
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## DIRECTIONS FOR USE

It is a violation of state and federal laws to use this product in a manner other than that which is specified on the label and the label instructions. Misuse may result in civil or criminal prosecution.

**DO NOT REMOVE TOXIC ANTIFERMENT COLLARS. DO NOT USE TOXIC DAMAGED OR EXHAUSTED COLLARS.** Do not use damaged collars in accordance with the "Storage and Disposal" instructions on this label.

Put collars on the necks of sheep or goats in fenced pastures where coyote predation is occurring or is expected to occur. Use collars only in accordance with the "Use Instructions" and "Use Instructions Contained in the Accompanying Technical Bulletin."

## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

**STORAGE** Store Livestock Protection Collars only in original container, in a dry, locked place away from food, feed, domestic animals, and corrosive chemicals. Do not store in any structure occupied by humans.

**PESTICIDE DISPOSAL** Pesticide wastes are acutely hazardous. Improper disposal of such materials is a violation of Federal Law.

Dispose of wastes contaminated by 1080 (carcasses, wool, hair, vegetation, soil, leather clothing, and water) under three feet of soil, at a safe location, preferably on property owned or managed by the applicator, and at least one (1) mile from human habitations and water supplies.

When snow or frozen ground make on-site disposal impractical, up to one cubic foot of wastes may be stored in a leakproof container, in a dry, locked place for up to 90 days.

Incineration may be used instead of burial for disposal in the field (preferably on property owned or managed by the applicator) at least 1/2 mile from human habitation and water supplies. Place collars and wastes (if fed above) in an incinerator or refuse hole, saturate with diesel fuel and ignite. Attend the burn until the contaminated materials are completely consumed.

Alternatively, contact your State Pesticide Environmental Control Agency or the Hazardous Waste Regulations at the nearest EPA Regional Office for guidance in the handling of wastes at approved hazardous waste disposal facilities.

**COLLAR DISPOSAL** Dispose of collars under three feet of soil at a safe location, preferably on property owned or managed by the applicator, and at least one-half mile from human habitations and water supplies.

**CONTAINER DISPOSAL** Metal and plastic containers: Triple-rinse contaminated and uncleanable containers with water. Then puncture and dispose of contaminated containers and residue as above.

## RESTRICTED USE PESTICIDE

**DUE TO EXTREMELY HIGH ACUTE TOXICITY AND THE NEED FOR HIGHLY SPECIALIZED APPLICATOR TRAINING.**

Collars shall be sold or transferred only by registrants or their agents and only to certified Livestock Protection Collar applicators. Collars may be used only by specifically certified Livestock Protection Collar applicators or by persons under their direct supervision.

For use only in the State of New Mexico

## SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR

For use on sheep or goats to kill depredating coyotes

ACCEPTED with COMMENTS in EPA Letter D-395	ACTIVE INGREDIENT - SODIUM FLUOROACETATE	1.00%
	INERT INGREDIENTS*	99.00%
	TOTAL	100.00%

\*Contains inert Tartrazine dye as a marker

JUN 27 1994

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the product registered under EPA Reg. No. 39508-2

**KEEP OUT OF REACH OF CHILDREN**

**DANGER**



**POISON**

## STATEMENT OF PRACTICAL TREATMENT

**IF SWALLOWED:** Induce vomiting at once with an emetic such as syrup of ipecac, use as directed. If emetic is not available, drink 1-2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. **PROMPT TREATMENT IS MANDATORY. GET MEDICAL ATTENTION IMMEDIATELY.**

**IF ON SKIN:** Wash the exposed area twice with soap and water.

**IF IN EYES:** Flush eyes with plenty of water for at least 15 minutes.

**IF ON CLOTHING:** Remove contaminated clothing and wash before reuse. Dispose of all contaminated leather, including shoes, boots, and gloves, according to the "Pesticide Disposal" section. See disposal instructions on the side panel.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

MANUFACTURED BY: Rancher's Supply, Inc.  
Box 725, Alpine, TX 79831  
U.S. PAT. 3,842,806 EPA ESTABLISHMENT NO. 39508-NM  
EPA REGISTRATION NO. 39508-2

NET CONTENTS: 30.4 grams (1.1 oz) per collar

## NOTICE

Seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risks of use and / or handling of this product when such use and / or handling is contrary to label instructions.

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

### DANGER

May be fatal if swallowed. Wear waterproof gloves when handling collars. Wash hands after handling Livestock Protection Collars or animals that have been contaminated with 1080 solution. Do not use contaminated animals for food or feed.

## ENVIRONMENTAL HAZARDS

This product is highly toxic to wildlife. Birds and mammals feeding on carcasses of contaminated livestock may be killed. Apply this product only as specified on this label. Keep out of any body of water.

## ENDANGERED SPECIES CONSIDERATIONS

**NOTICE:** It is a federal offense to use any pesticide in a manner that results in the death of a member of an endangered species.

The use of 1080 in the Livestock Protection Collar has been determined to pose a hazard to several endangered species. See Technical Bulletin (for restriction No. 15) for specific areas where the 1080 collar cannot be used without specific approval from the U.S. Fish and Wildlife Service.

## INFORMATION FOR PHYSICIANS

**WARNING SYMPTOMS.** 1080 poisoning results from the transformation of fluoroacetate into fluorocitrate within cell mitochondria. Poisoning is normally characterized by a symptom free latent period of 1/2 to 2 hours or longer between ingestion and onset of symptoms (nausea, vomiting, diarrhea, and hyperactive behavior leading to convulsions, coma, and cyanosis). Ventricular fibrillation is commonly noted and is the primary cause of death. Early symptoms include alteration of heart sounds and premature, weak cardiac contractions.

**TREATMENT** No effective antidote is known, but symptomatic treatment may be effective. Establish respiration, create artificial airway if necessary. Check adequacy of tidal volume. Induce emesis. If patient is comatose, convulsing or has lost the gag reflex, endotracheal intubation should precede gastric lavage with large bore tube. Administer activated charcoal and magnesium sulfate. Treat seizures with IV Diazepam. Monitor cardiac function closely. Treatment with glyceryl monoacetate (monoacetyl) may be effective, however, it is experimental and unproven in humans. **CONSULT NEAREST POISON CONTROL CENTER FOR CURRENT INFORMATION.** Symptoms of nonlethal intoxication will usually subside within 12-24 hours.

for use of the

**Sodium Fluoroacetate (Compound 1080)  
Livestock Protection Collar**

EPA Registration No. 39508-2

Text prepared by:

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**Agricultural Programs and Resources Division**

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REVISED MARCH 1994

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# TECHNICAL BULLETIN FOR THE LIVESTOCK PROTECTION COLLAR

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## DO'S AND DON'TS FOR LIVESTOCK PROTECTION COLLAR

### DO

- \*\*\* read the label and Technical Bulletin before using collars
- \*\*\* plan how to target coyotes to your collared animals before using collars
- \*\*\* use appropriate size collars (small collars for 25 to 50 lb. animals; large collars for larger animals)
- \*\*\* be sure to position collars correctly (see pp. 7-8)
- \*\*\* check and repair fences if necessary before putting collared animals in pastures
- \*\*\* notify neighbors that collars can be hazardous to free ranging pets
- \*\*\* keep warning signs in place as long as collars are being used (see p. 14 and Appendix B)
- \*\*\* check collared animals weekly or more often to be sure that all are present and that collars are in position and not punctured (see pp. 8-9, 14-15)
- \*\*\* properly dispose of all collars, animal remains, vegetation, leather clothing, water, soil, and containers contaminated by Compound 1080 (see pp. 10, 15)
- \*\*\* report any suspected poisoning of nontarget animals or humans (see pp. 9, 14)
- \*\*\* minimize human activity in pastures where collars are being used
- \*\*\* keep records up-to-date as directed in the labeling (see p. 13)
- \*\*\* take collars off when predation has stopped or is not expected to occur
- \*\*\* store collars properly when not in use (see p. 15)
- \*\*\* wear water-proof gloves when handling collars
- \*\*\* wash your hands with soap and water after handling collars



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**DON'T**

- \*\*\* waste time by placing collared animals where coyotes won't attack them
- \*\*\* use collars if your livestock can be protected more easily or economically by other measures
- \*\*\* use so few collared animals that coyotes won't find them
- \*\*\* use more than 20 collars in any 100-acre or smaller pasture, or more than 50 collars per section (640 acres) of pasture (see p. 16)
- \*\*\* use collars on unfenced, open range (see p. 14)
- \*\*\* use collars where their use is prohibited to protect endangered wildlife (see p. 16)
- \*\*\* use collars without required authorizations from the Fish and Wildlife Service Endangered Species Office (see p. 16)
- \*\*\* use contaminated animals for food or feed (see p. 16)
- \*\*\* use leaking or damaged collars
- \*\*\* remove toxicant from collars

## SECTION I. USER INSTRUCTIONS

### A. INTRODUCTION AND THEORY

The Livestock Protection Collar ("LPC" or "collar"), invented by Roy McBride of Alpine, Texas, exploits the coyote's habit of killing sheep and goats by bites to the throat. As described in McBride's U.S. Patent No. 3,842,806 (issued in 1974), coyotes that attack collared livestock usually bite through the collars and receive oral doses of the contents. When used with a toxicant such as sodium fluoroacetate (Compound 1080), LPCs kill the attacking coyotes. Collars may be used only by specifically certified LPC applicators or persons under their direct supervision (see Section II.B). This Technical Bulletin is part of the U.S. Environmental Protection Agency (EPA)-approved labeling and contains detailed instructions for safe and effective use of LPCs.

Coyotes' attacking and feeding behaviors do not seem to be affected by the presence of LPCs. Attacking coyotes usually kill and feed upon collared animals just as they would if no collar were present. After a lethal dose of Compound 1080 has been ingested, symptoms of intoxication typically do not appear for two or more hours. Death occurs from 2 to 7 hours (average 4 hours 20 minutes) after the collar is punctured.

When LPCs are used properly, coyotes may puncture them in 75 percent or more of their attacks. A 100 percent puncture rate is unlikely to be achieved because coyotes sometimes attack body sites other than the throat.

Effective use of LPCs requires not only that collars be positioned correctly, but also that coyote attacks be directed or targeted to collared livestock. Targeting may be difficult or impossible under some conditions. If coyotes are killing less than once per week, the collar technique may be impractical. Collars are recommended for ranches with high rates of coyote predation and management conditions that permit effective targeting of predation to collared livestock.

Experienced persons usually can evaluate local conditions quickly to decide whether or not LPCs will be effective. In addition to the basic problem of targeting, other factors to consider in deciding whether or not to use collars include availability and effectiveness of other control methods, cost of collars, labor requirements to collar and monitor livestock, potential hazards of collars to humans and domestic animals--including pets and nontarget wildlife, and severity of predation.

### B. TOXIC PROPERTIES OF SODIUM FLUOROACETATE (COMPOUND 1080)

Compound 1080 is highly toxic to warm-blooded animals, including man, when taken internally. Humans are not likely to be poisoned except by ingestion of LPC contents. Based on available estimates of toxicity (0.7 - 2.1 mg/kg), one LPC contains approximately 2 to 6 lethal doses for a 150 pound man. Before using collars, read the label (Appendix A) and the Use Restrictions in this Technical Bulletin (Section II) carefully.

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The toxic solution in LPCs contains yellow dye (tartrazine) as a safety marker. Punctured, damaged, or broken collars together with animal remains, vegetation, clothing, soil, or other materials marked by this dye must be cleaned or disposed of in accordance with the label and Sections I.D.5 and II.M of this Technical Bulletin. Collars with minor damage to straps or fastenings may be repaired by applicators as long as the toxicant reservoirs have not been punctured and do not leak.

Compound 1080 is hazardous to domestic animals, including livestock and pets. Dogs are particularly susceptible. In field studies, dogs have died after they attacked collared livestock and punctured the collars. As little as 0.1 ml of an LPC's contents may be fatal to a 25 pound dog. Dogs could be poisoned by scavenging the carcasses of collared livestock. Therefore, to minimize the potential hazard to dogs, promptly dispose of all livestock carcasses as well as coyote carcasses suspected of being poisoned by Compound 1080 according to instructions in this bulletin.

Pen studies have shown that an adult sheep can be fatally poisoned by eating forage containing as little as 1 ml of Compound 1080 solution from LPCs. Although no livestock appeared to have been poisoned by eating contaminated vegetation during five years of field testing, it could happen. Therefore, contaminated forage must be disposed of as directed on the product labeling.

### C. DESCRIPTION OF LIVESTOCK PROTECTION COLLARS

The LPC is a rubber bladder that contains a solution of Compound 1080, with neck straps for attachment to a sheep or goat. The type of collar used most up to 1985 has two Velcro® neck straps (0.75 inches wide and 22-25 inches long on new collars). Three-strap models are also available and are intended for use on goats. Each collar has two toxicant reservoirs that contain 150 mg (0.15 grams) of sodium fluoroacetate (active ingredient). Each collar contains a total of 300 mg (0.3 grams) of sodium fluoroacetate (active ingredient).

LPCs of two sizes are available. The small collar is intended for lambs and kids weighing from 25 to 50 pounds, the larger for sheep and goats weighing more than 50 pounds. LPCs are not recommended for small animals under 25 pounds.

### D. MANAGEMENT OF LIVESTOCK PROTECTION COLLARS ON SHEEP AND GOATS

#### 1. Things to do before putting collars on livestock:

- a Be sure you have enough LPCs (see Section I.E).
- b Inspect all LPCs for leaks and inspect straps to be sure they are securely attached. Do not use leaking or torn collars or collars on which the straps are coming loose. Loose straps may be reattached by sewing.

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- c. Check the fence around the pasture where collared animals are to be placed and repair as necessary to keep animals within the pasture.
- d. Establish locations for warning signs (Appendix B), and be sure you have enough signs (see Use Restriction J).
- e. Inform neighbors of your intent to use LPCs and advise them of the potential hazards to free-roaming dogs.
- f. If ear tags or other marks are to be used, have the tags and related equipment on hand.
- g. Have an emetic (1 ounce bottle of syrup of ipecac) available when LPCs are to be handled. Also have a few good quality plastic bags or other leakproof containers on hand for packaging damaged collars.
- h. Select and pen the target flock (animals to be collared).

2. Attaching collars:

- a. Hold LPCS up to the necks of target livestock to determine the size of collar needed for each animal. The rubber portion of the collar should come up to the ear. If the collar is too small, there will be an unprotected region below each ear. This will result in a lower puncture rate than would be obtained with collars of proper size.
- b. One person can put LPCs on livestock, but the task is much easier for a two-person team. One person holds each animal while the other attaches its collar. To attach a collar, hold it in position under the animal's throat. Tighten the rear strap over the animal's neck just behind the ears and fasten it temporarily. Then tighten the front strap over the head between the eyes and ears and fasten it securely. Straps should be positioned to keep the rubber part of the collar directly below the ear. On goats with horns, the front straps may pass in front of both horns or in front of one horn and behind the other. If necessary, use string or twine to tie the front strap to one or both horns to keep the collar in position. Once the front strap is in position, readjust the rear strap if necessary and then secure it. If the straps are longer than needed, a knife or scissors can be used to trim off the excess. Fasten the strap ends by stapling.
- c. LPCs straps must be tight enough to prevent collars from slipping out of position, but not so tight as to choke the animal or cause sores. Each strap should be loose enough that the applicator can insert two fingers between the strap and the animal. Collars stay in place well on animals with wool or mohair, but may be difficult to keep in position on newly shorn or slick-necked animals, particularly goats. Head and neck conformation varies among animals and it may be impossible to keep collars in place on some individuals. They should be taken out of the collared flock.

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- d. A suitable method of permanently identifying individual animals in a target flock is required to keep track of collared livestock. One such method is the use of numbered ear tags. Tags that can be read from a distance of 50 feet or more are most useful. If you are using ear tags, attach them before the animal is collared.
- e. When the LPC is in place, release the animal into a corral or other confined area and observe it carefully. Listen for labored breathing that may indicate the collar is too tight. When first released, collared sheep and goats often shake their heads, rub, or make other attempts to rid themselves of the collars. This behavior will stop within a few hours if collars are not too tight. After you are satisfied that the collars are properly attached, move collared animals to the desired location.
- f. Place warning signs at logical points of access (see Section II.J and Appendix B).
- g. After handling LPCs, wash your hands with soap and water.

3 Monitoring collared livestock:

- a. Once collared animals are in the desired location, the pasture should be checked every seven (7) days or more often if frequent predation is expected. During each check, try to locate each animal and observe collars to be sure they are in position. If the collar has slipped out of position, catch the animal and reposition its collar. Inspect each animal's neck for yellow dye, which could indicate a punctured or leaking collar. If dye is seen, catch the animal and check the collar. Replace any damaged or leaking collar. See the label and Section I.D.5 and II.M of this Technical Bulletin. Collars on small kids or lambs may require periodic adjustment to allow for growth.
- b. When searching for collared livestock, watch for both animal carcasses and congregations of scavenging birds that could indicate the locations of carcasses. Whenever you visit a pasture, record the identity of each collared animal seen. Check each warning sign weekly to ensure that it is in place and is legible.

Based on experience gained in research studies, you will not see each collared animal every time you visit large, brushy pastures. Any animal not accounted for in two consecutive checks may be dead. An intensive search for it must be made. In addition, if more than three collared animals are not accounted for during any one check, an intensive search for these animals is required. Pastures must be systematically searched in their entirety or until the missing animals are located.

- c. If more than nine (9) LPCs and/or collared animals are unaccounted for during any 60 day period, remove all collars from animals and terminate their use. Seek technical advice if necessary to determine and correct the cause(s) of collar loss. Collar use may be resumed after adequate steps have been taken to prevent further, excessive loss of collars (see Section II.K).

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- d. Routine checks of collared livestock are difficult if the animals are secretive or wild. Feed concentrates can be used to train animals to come to you or your vehicle. This facilitates the identification and inspection of collared livestock. It also helps to have a few tame animals in the collared flock. Binoculars may be useful for inspecting collared livestock from a distance.
  - e. Infrequently, LPCs may be missing from carcasses of sheep or goats killed by coyotes. In research studies, missing collars appeared to have been carried or dragged away by coyotes. Some were found as far as 1/2 mile away from kill sites, but about half of the missing collars were never recovered. Coyotes sometimes cache (hide or bury) them. Whenever a collar is missing, make a reasonable effort to find it (see Section II.K).
  - f. If you see an animal that you think may have been poisoned, report it promptly to the appropriate regulatory agency. Any suspected poisoning of threatened or endangered species must be reported immediately (see Section II.F).
4. Handling collars and contaminated animal remains, vegetation, clothing, water, and soil:
- a. The toxic solution in the LPC contains a yellow dye (tartrazine) which is used as a marker for the presence of Compound 1080 on punctured, damaged or broken collars; on animal remains, vegetation, clothing, soil, or other materials; and in water. Always use waterproof gloves when handling collars or any materials known to be contaminated by Compound 1080.
  - b. Inspect carcasses of collared animals to determine the cause of death. When the carcasses are fresh (within 24 hours after death), coyote kills usually are obvious. Remove punctured collars carefully and examine the punctures. Holes made by coyote teeth usually can be distinguished from accidental punctures. When collars are punctured by cactus thorns, the thorns sometimes remain in the holes.
  - c. If the LPC was punctured, remove it carefully to minimize leakage and place in a leakproof plastic bag or other container for transport to your disposal site. If necessary, doublebag to prevent leakage. Examine the carcass for contamination as indicated by yellow dye. Cut away the contaminated parts for disposal along with the punctured collar (see Section II.L-M). Dispose of the remainder of the carcass using your normal practice. Cut or dig up contaminated forage and soil and place them in a leakproof container for transport to the disposal site.
  - g. If the LPC was not punctured, save it for reuse on another animal. Dispose of carcass using your normal practice. No special handling is required. If an unpunctured collar has only minor damage to straps or fasteners, the applicator may repair it.
  - h. When predation has stopped, or when LPCs are to be taken off for other reasons such as shearing, gather the collared flock into a corral. Hold each animal and inspect its collar

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for punctures. Loosen the neck straps and pull them free. Do not pull so hard that you rupture the collar. It may be necessary, particularly with Angora goats, to use a knife or scissors to free collar straps from the animal's hair. Clean unpunctured collars as necessary and return them to locked storage until you need them again.

- i. If clothing becomes contaminated with Compound 1080 solution, remove it promptly. Wash clothes before wearing them again. Contaminated leather clothing, including gloves and footwear, should be disposed of in the same manner as contaminated animal remains because pesticides cannot be easily cleaned from leather (see Section II.M).

5. Disposal of damaged collars and other contaminated materials:

- a. Damaged, punctured, or leaking LPCs, contaminated animal remains, vegetation, leather clothing, water, and soil must be properly disposed of. The preferred method is by deep burial under three foot of soil in a safe field location at least 1/2 mile from human habitations and water supplies. For disposal on the ranch, it may be convenient to drill several deep holes using a mechanized post hole auger, or to make a trench with a backhoe. Then, as waste materials are produced, they can be dropped into the hole or trench and covered with earth. Not more than ten collars may be buried in any one hole. If buried in a trench, each group of ten collars must be at least 10 feet apart.

Incineration may be used instead of burial for disposal in the field (preferably on property owned or managed by the applicator) at least 1/2 mile from human habitation and water supplies. Place collars and wastes (listed above) in an incinerator or refuse hole, saturate with diesel fuel, and ignite. Attend the burn until the contaminated material is completely consumed.

Alternatively contact your State Pesticide or Environmental Control Agency or the Hazard Waste representative at the nearest EPA Regional Office for guidance in disposing of wastes at approved hazardous waste disposal facilities.

- b. When snow or frozen ground make on-site disposal impractical, up to one cubic foot of wastes may be stored in a leakproof container, in a dry, locked place for up to 90 days.

## E. DIRECTING COYOTE PREDATION TO COLLARED LIVESTOCK

### 1. General comments:

The process of directing coyote predation to collared livestock is called targeting. Knowledge of targeting is in its infancy and should improve as more people gain experience with LPCs. Three different approaches or targeting strategies are described here. Ranchers and predation control specialists are encouraged to apply these methods as necessary to achieve the best results in their own circumstances.

2. Targeting Strategies:

- a. Place LPCs on vulnerable livestock. Collaring all sheep or goats on a ranch would solve the targeting problem. This strategy has not been tested due to the cost of collars and the large number that would be required in large flocks (over 100 animals). Nevertheless, in small flocks (50 or fewer animals) it may be practical to collar all the lambs or kids. In flocks with 50-100 lambs or kids, it may be worthwhile to collar the smallest 20 to 50 individuals. Do not use more than 20 collars in any pasture under 100 acres, or more than 50 collars per square mile of fenced pasture.
- b. Use large (collared) flocks. When coyotes are killing in particular pastures, remove all vulnerable livestock. Place 20 to 50 collared lambs or kids with their mothers in the pasture while all other vulnerable animals are penned at night or moved elsewhere. Add uncollared adult sheep or goats to the target flock to increase its total size to 50 or 100 head. If coyotes have been killing adult sheep or goats in the area, both adults and kids in the target flock should be collared. Remove collars 30 days after predation ceases, or whenever the risk of predation has abated.

This was the strategy used in most field tests and is the usual approach when LPCs are introduced onto a ranch where depredation is in progress. This strategy also can be employed by placing collared flocks in vacant pastures one to two months before large bands of sheep or goats arrive.

- c. Collar vulnerable individuals in large flocks. Coyotes usually prefer kids or lambs to adult goats or sheep. Experience with Angora goats has shown that if a few collared kids are placed in wether<sup>1</sup> flocks (5-10 collared kids per 100 uncollared adults), coyotes will select the kids. This strategy has not been tested on sheep and it is not recommended at this time.

3. Mistakes in Targeting:

As with any new technique, one must learn how to use LPCs before optimum results can be expected. Following is a list of some mistakes commonly made by persons learning this technique:

- a. Placing collars where effective targeting cannot be expected. In one example, 20 lambs were collared in a ewe-lamb flock containing hundreds of lambs. Coyotes subsequently killed the uncollared lambs. Effective targeting did not occur because collared lambs were far outnumbered by uncollared lambs that were equally attractive to coyotes.

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<sup>1</sup>Wethers are castrated male goats.



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- b. Placing collars where predation is too infrequent. In one such case, collared sheep were exposed for four weeks during which no predation occurred. The users then lost interest and removed the collars. There was no further predation on this ranch for several months. Collars cannot be used effectively when there is little or no predation.
  - c. Using target flocks that are too small. In a Montana trial, six collared lambs were placed in a 640-acre pasture. Coyotes passed through the pasture without finding the collared animals and then killed sheep from a large flock in an adjacent pasture. The larger the flock, the more likely it is to attract coyotes. The optimum size for target flocks has not been determined, but pastures of 100 acres or more should probably contain at least 50 head.
  - d. Using target flocks that are not sufficiently isolated from uncollared livestock. On one small farm, a group of ewes and collared lambs was exposed while other sheep on the place were penned each night. Instead of killing in the collared flock, coyotes switched to a neighbor's unprotected flock 1/2 mile away. With small farm flocks, adjacent land owners may have to work together to achieve effective targeting.
  - e. Using collars of the wrong size. When small LPCs are used on large sheep or goats, the throat region is inadequately covered (see photo 10). Coyotes frequently kill these animals without puncturing the LPCs.
  - f. Attaching collars improperly or insecurely. When LPCs are attached improperly, or they slip out of position (see photo 13), coyotes will kill these animals but are unlikely to puncture the collars. Photos 4, 5, 6, 11, and 16 show proper positions LPCs.
  - g. Placing collars on sick or cull animals. Placing collars on sick or cull animals in an effort to avoid sacrificing more valuable livestock may be false economy, as coyotes may not attack ill or lethargic animals. Collars should be used only on animals of the size and kind that coyotes have been killing locally.
  - h. Greatly increasing level of human activity on ranch while collars are in use. Coyotes often are wary of unusual activity and may temporarily stop killing because of it. Collars should be placed and monitored with a minimum of disruptive activity.

## SECTION II. USE RESTRICTIONS

- A. Use of LPCs shall conform to all applicable federal, state, and local regulations.

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- B. LPCs shall be sold or transferred only by registrants or their agents and only to certified LPC applicators. Collars may be used only by specifically certified LPC applicators or by persons under their direct supervision.<sup>2</sup>

The certified applicator is directly responsible for assuring that all Use Restrictions are met. The certified applicator will decide, in accordance with label directions, when and under what circumstances LPCs will be used. The certified applicator will either apply collars or be physically present where collars are applied by a noncertified person. However, a noncertified person who has received adequate instructions from the certified applicator may store collars, check collars in the field, remove collars, repair or dispose of damaged collars in accordance with Use Restrictions, retrieve collars lying in the field, and properly dispose of contaminated material and animal carcasses.

- C. Certification of applicators shall be performed by appropriate regulatory agencies. Prior to certification, each applicator shall receive training which will include, but need not be limited to:
1. Training in safe handling and attachment of LPCs.
  2. Training in disposal of punctured or leaking LPCs, and contaminated animal remains, vegetation, clothing, and soil.
  3. Instructions for practical treatment of Compound 1080 in humans and domestic animals.
  4. Instructions on record keeping.
- D. Registrants or their agents shall keep records of all collars sold or transferred at their address of record. Records shall include the name, address, and state where LPC certification was issued, certification number of each recipient, and dates and numbers of collars sold or transferred.
- E. Each applicator shall keep records dealing with the use of LPCs and the results of such use. Records shall be maintained in accordance with appropriate state or federal regulations but for not less than two years following disposal or loss of collars. Such records shall include, but need not be limited to:
1. The number of LPCs attached on livestock.
  2. The pasture(s) where collared livestock were placed.

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<sup>2</sup>"Direct Supervision," as described in this restriction, conforms to the requirements established under 40 CFR 171.6.

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- 3. The dates of each attachment, inspection, and removal.
  - 4. The number and locations of livestock found with ruptured or punctured LPCs and the apparent cause of the damage.
  - 5. The number, dates, and approximate locations of LPCs lost.
  - 6. The species, locations, and dates of all suspected poisonings of humans, domestic animals, or non-target wild animals resulting from LPC use.
- F. Any suspected poisoning of threatened or endangered species must be reported immediately (within three days) to the EPA, as will each suspected poisoning of humans, domestic animals, or non-target wild animals. The person to contact at the EPA is Robert A. Forrest (PM-14), Registration Division (H7505C), 401 M Street SW, Washington, DC 20460.
- G. Only the registrant or collar manufacturer is authorized to fill LPCs with Compound 1080 solution. Certified applicators are not authorized to fill LPCs. Compound 1080 solution may not be removed from collars and used for any other purpose.
- H. LPCs shall only be used to take coyotes within fenced pastures<sup>3</sup> no larger than 2,560 acres (4 square miles). But where average annual precipitation does not exceed 20 inches and vegetation is sparse, consisting only of short to mid-height grasses and scattered shrubs, collars may be used in pastures up to a maximum of 10,000 (16 square miles) in size.
- In no case shall the applicator place collared livestock in pastures where compliance with other Use Restrictions, such as monitoring, is impossible; in fenced pastures larger than 10,000 acres; or in unfenced, open range.
- I. LPCs shall be used only where losses of sheep or goats due to predation by coyotes are occurring or where coyote predation can reasonably be expected to occur, based upon prior experience.
- J. Where LPCs are in use, each logical point of access (e.g., roads, gates, and trails) shall be conspicuously posted with a bilingual (English/Spanish or other second language appropriate for the region) warning sign not less than 8" by 10" in size. Signs shall be inspected weekly to ensure

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<sup>3</sup>Fenced pastures include all grazing land that is enclosed by livestock fencing. This includes wire or other man-made fences such as rock walls, and natural barriers such as escarpments, lakes, and large rivers that will prevent escape of livestock.

their continued presence and legibility and will be removed when collars are removed. The signs will have a minimum type size for "DANGER-POISON" of 24 point (1/4 inch), with remaining text at least 18 point (3/16 inch).

- K. All collared livestock must be checked at least once every seven (7) days and collars adjusted if needed.

If any collared animal is not accounted for in two (2) consecutive checks, an intensive search for it must be made.

In addition, if more than three (3) collared animals are not accounted for during any one check, an intensive search for these animals is required.

If more than nine (9) LPCs are unaccounted for during any 60-day period, remove all collars from animals and terminate their use. Do not resume use until adequate steps have been taken to prevent further, excessive loss of collars.

- L. Damaged, punctured, or leaking LPCs shall be removed from the field for repair or proper disposal. Damaged collars shall be placed individually in leakproof containers while awaiting repair or proper disposal. Authorized collar repairs are limited to minor repairs of straps and fastenings. Leaking or punctured collars must be properly disposed of by deep burial or incineration.

- M. Dispose of Compound 1080 wastes (punctured, leaking, or otherwise unrepairable LPCs; contaminated animal remains, wool, hair, vegetation, leather clothing, water, and soil) under 3 feet of soil, at a safe location, preferably on property owned or managed by the applicator and at least 1/2 mile from human habitations and water supplies. No more than ten collars may be buried in any one hole. If buried in a trench, each group of ten collars must be at least 10 feet apart.

Incineration may be used instead of burial for disposal in the field (preferably on property owned or managed by the applicator) at least 1/2 mile from human habitation and water supplies. Place collars and wastes (listed above) in an incinerator or refuse hole, saturate with diesel fuel, and ignite. Attend the burn until the contaminated material is completely consumed.

Alternatively, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in disposing of wastes at approved hazardous waste disposal facilities.

When snow or frozen ground make on-site disposal impractical, up to one cubic foot of wastes may be stored in a leakproof container, in a dry, locked place for 90 days.

**Metal Container:** Triple rinse contaminated and uncontaminated containers with water. Puncture and dispose of contaminated container and rinsate as above.

**Plastic Container:** Triple rinse contaminated and uncontaminated containers with water. Puncture and dispose of contaminated container and rinsate as above.

- N. All persons authorized to possess and use LPCs shall store them under lock and key in a dry place away from food, feed, domestic animals, corrosive chemicals, and in outbuildings or outdoor storage areas attached to, but separate from human living quarters.
- O. Provisions for protection of endangered species: The use of Compound 1080 in the LPC has been determined to pose a hazard to several endangered species. Currently, the FWS has not determined that the use of the collar may adversely impact on any endangered species in New Mexico.
- P. The number of LPCs used shall be the minimum necessary for effective livestock protection. For pastures of the following size classes, do not use more collars than the number indicated:

<u>Size (acres)</u>	<u>Number of Collars</u>
Up to 100	20
101 to 640	50
641 to 10,000*	100

\*See Section II.H

- Q. Each applicator will have a 1 ounce bottle of syrup of ipecac (to induce vomiting in case of accidental poisoning) available when attaching, inspecting, removing, or disposing of LPCs.
- R. No contaminated animal will be used for food or feed.

### SECTION III. APPENDICES

- A. Registered Label
- B. Bilingual Warning Sign
- C. Photo Captions
- D. Photos

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### DIRECTIONS FOR USE

It is a violation of state and federal laws to use this product in a manner inconsistent with its labeling or the Compound 1080 cancellation order. Misuse may result in civil or criminal enforcement action.

DO NOT REMOVE TOXICANT FROM COLLARS. DO NOT USE TORN, DAMAGED OR LEAKING COLLARS. Dispose of damaged collars in accordance with the "Storage and Disposal" instructions on this label.

Put collars on the necks of sheep or goats in fenced pastures where coyote predation is occurring or is expected to occur. Use collars only in accordance with the User Instructions and Use Restrictions contained in the accompanying Technical Bulletin.

### STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

**STORAGE:** Store Livestock Protection Collars only in original container, in a dry, locked place away from food, feed, domestic animals, and corrosive chemicals. Do not store in any structure occupied by humans.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of such materials is a violation of Federal Law.

Dispose of wastes contaminated by 1080 (carcasses, wool, hair, vegetation, soil, leather clothing, and water) under three feet of soil, at a safe location, preferably on property owned or managed by the applicator and at least one-half mile from human habitations and water supplies.

When snow or frozen ground make on-site disposal impractical, up to one cubic foot of wastes may be stored in a leakproof container, in a dry, locked place for up to 90 days.

Incineration may be used instead of burial for disposal in the field (preferably on property owned or managed by the applicant) at least 1/2 mile from human habitation and water supplies. Place collars and wastes (listed above) in an incinerator or refuse hole, saturate with diesel fuel and ignite. Attend the burn until the contaminated material is completely consumed.

Alternatively, contact your state pesticide Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in disposing of wastes at approved hazardous waste disposal facilities.

**COLLAR DISPOSAL:** Dispose of collars under three feet of soil, at a safe location, preferably on property owned or managed by the applicator and at least one-half mile from human habitations and water supplies.

**CONTAINER DISPOSAL:** Metal and plastic containers - Triple rinse contaminated and uncontaminated containers with water. Then puncture and dispose of contaminated containers and rinse as above.

### RESTRICTED USE PESTICIDE

**DUE TO EXTREMELY HIGH ACUTE TOXICITY AND THE NEED FOR SPECIALIZED APPLICATOR TRAINING.**

Collars shall be sold or transferred only by registrants or their agents and only to Livestock Protection Collar applicators. Collars may be used only by specifically certified Livestock Collar applicators or by persons under their direct supervision.

For use only in the State of New Mexico

## SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR

For use on sheep or goats to kill depredating coyotes.

ACTIVE INGREDIENT - SODIUM FLUOROACETATE .....	100.0
INERT INGREDIENTS* .....	99.0
TOTAL .....	100.0

\*Contains inert Tartrazine dye as a marker

**KEEP OUT OF REACH OF CHILDREN**

**DANGER**



**POISON**

### STATEMENT OF PRACTICAL TREATMENT

**IF SWALLOWED:** Induce vomiting at once with an emetic such as syrup of ipecac; if an emetic is not available, drink 1-2 glasses of water and induce vomiting by touching back of tongue with finger. Do not induce vomiting or give anything by mouth to an unconscious person. First Aid Statement is MANDATORY. GET MEDICAL ATTENTION IMMEDIATELY.

**IF ON SKIN:** Wash the exposed area twice with soap and water.

**IF IN EYES:** Flush eyes with plenty of water for at least 15 minutes.

**IF ON CLOTHING:** Remove contaminated clothing and wash before reuse. Dispose of clothing, including shoes, boots, and gloves, according to the "Pesticide Disposal" section of the instructions on the side panel.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS.

MANUFACTURED BY: Rancher's Supply, Inc.  
Box 725, Alpine, TX 79831  
U.S. PAT. 3,842,806 EPA ESTABLISHMENT NO: 39508-NM  
EPA REGISTRATION NO: 39508-2

NET CONTENTS: 30.4 grams (1.1 oz) per collar

### NOTICE

Seller makes no warranty, expressed or implied, concerning the use of this product or the results obtained therefrom. Buyer assumes all risks of use and / or handling of this product when such use is contrary to label instructions.

**A POISON, COMPOUND 1080  
(SODIUM FLUOROACETATE).**

**DO NOT TOUCH COLLARED  
LIVESTOCK, COLLARS, OR DEAD  
ANIMALS. DO NOT RELEASE  
LIVESTOCK.**



**PELIGRO — VENENO**



**PARA CONTROLAR COYOTES QUE ATACAN  
AL GANADO, ALGUNAS OVEJAS O CABRAS  
EN ESTA AREA LLEVAN COLLARES QUE  
CONTIENEN UN VENENO, COMPUESTO 1080  
(FLUROACETATO DE SODIO).**

**NO TOQUE LOS ANIMALES, LOS  
COLLARES, NI LOS ANIMALES  
MUERTOS. NO SUELTE A LAS  
OVEJAS O CABRAS.**

## PHOTO CAPTIONS

1. When coyotes attack sheep or goats, they usually bite at the throat. The Livestock Protection Collar ("LPC" or "cellar") is an effective way to deliver chemicals selectively to depredating coyotes.
2. A coyote attacked this Angora goat at the rear, but did not puncture the collar. The goat had to be destroyed.
3. Large and small LPCs made by Ranchers Supply, Alpine, Texas. Each toxicant reservoir is 1.5 inches wide and 3.75 inches long on large collars (top) or 2.25 inches long on small collars (bottom). The beige Velcro straps are 0.75 inches wide and 22-24 inches long.
4. Small LPC on a 30-pound lamb. Note that the toxicant reservoir comes up almost to the ear.
5. Large LPC on an adult Angora goat.
6. Small elastic-strap LPC on a 50-pound lamb. In field tests on Angora goats, the rate of collar puncture by attacking coyotes was lower for elastic-strap than for Velcro strap collars.
7. The corners of this small collar tore when the collar was being removed from the Angora goat. To avoid such damage, a knife or scissors can be used to free collar straps from hair or wool.
8. The rubber portion of this collar was poorly attached to the neck straps. Repairs can be made by sewing or stapling neck straps back in position. Only heavy thread or staples should be used.
9. The small collar is too small for effective coverage on this 100-pound lamb.
10. This lamb's collar is too small. Note the unprotected region below the ear. Large collars should be used on lambs of this size.
11. To keep the collar in position on this Angora goat, the forward collar strap was tied to a horn using butcher's twine. Any heavy string or cord will do.
12. An ordinary office stapler can be used to tack collar strap ends in place. These staples are inadequate for reattaching straps to collars (see photo 8).
13. The collar on this Angora goat has slipped back out of position. If the collar was in this position when a coyote attacked, the collar probably would not be punctured.
14. If collar straps are too tight, they will produce abrasions that become infected and attract flies, as shown on this Angora goat. This problem, which is more common with goats than sheep, can be avoided by frequently checking strap tension.



15. Numbered ear tags are a valuable aid in keeping track of collared livestock. The numbers on this tag can be read at a distance of 50 feet or more.
16. Checking of collared livestock is easy if the animals are trained to come for feed.
17. Typical remains of a collared lamb that was killed and fed upon by coyotes. The collar was punctured.
18. An LPC punctured by prickly pear thorns. Thorn punctures are smaller than coyote tooth punctures. This damaged collar cannot be reused.
19. This coyote was found dead 0.4 miles from the spot where it attacked a collared lamb and punctured the collar. Laboratory analyses confirmed that it was killed by the collar toxicant, Compound 1080.
20. Flocks of adult Argora goats can be protected with LPCs by adding 1 to 10 collared kids per 100 uncollared adults. Two collared kids appear in this photograph (facing camera, left of center). Test statistics revealed a high rate of coyote selection for the kids.

**\*\*NOTE:** Photo No. 2 by D A. Wade, Texas Agricultural Extension Service; all others by G. Connolly.

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## PHOTO CAPTIONS

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**BEST AVAILABLE COPY**

Photo 1



Photo 2





Photo 4



Photo 3

Photo 5



Photo 6



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Appendix 1

Photo 7

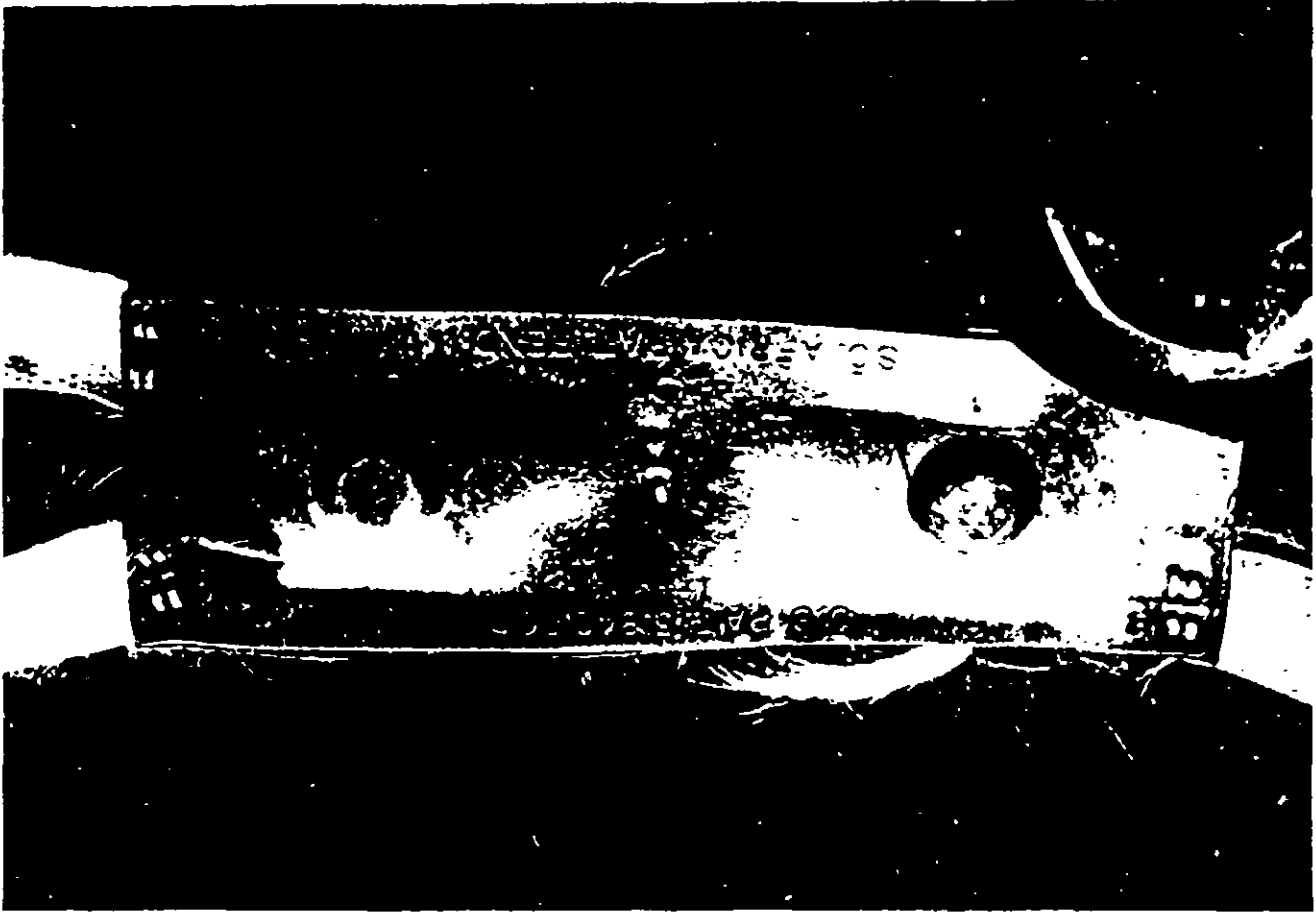


Photo 8

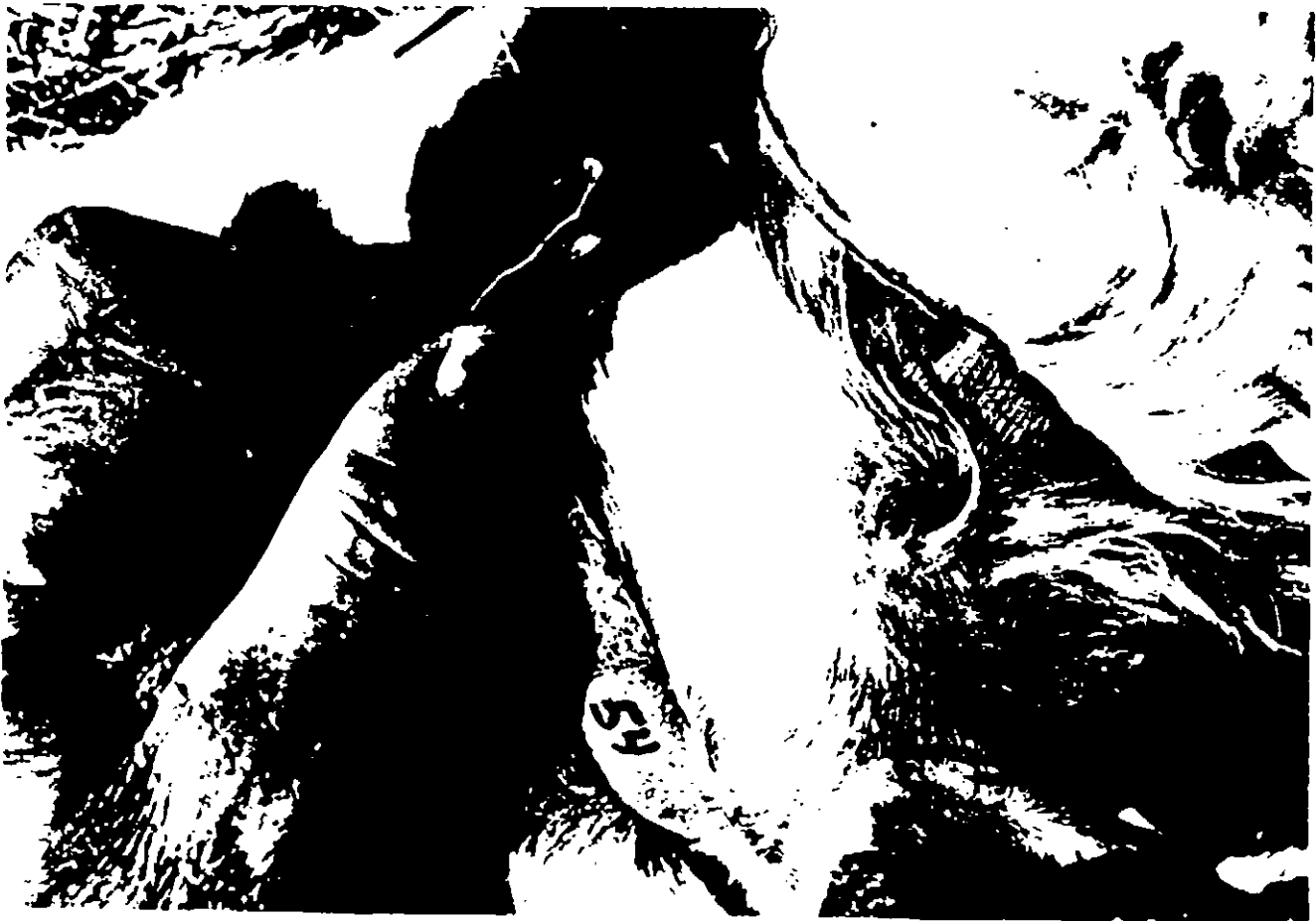


Photo 9



Photo 10



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Appendix D



Photo 12



Photo 11



Photo 13



Photo 14



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Photo 16

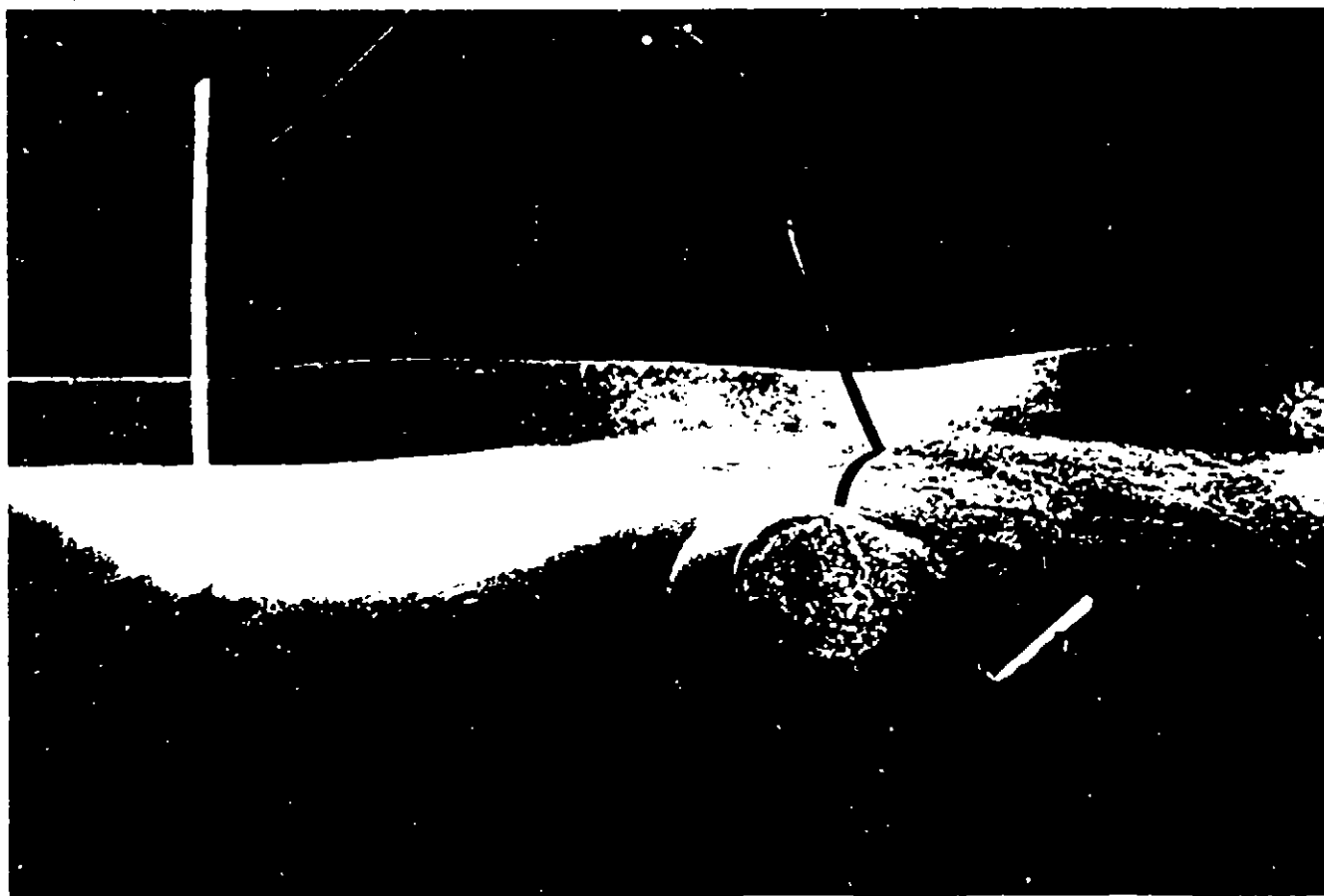


Photo 15

Photo 17



Photo 18



5/10/21

Photo 19



Photo 20

