

# Appendix E

## Standard Operating Procedures

### Wild Horse Gatherers

Gathers are conducted by utilizing contractors from the Wild Horse Gathers-Western States Contract or BLM personnel. The following standard operating procedures (SOPs) for gathering and handling wild horses apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations would be conducted in conformance with the *Wild Horse Aviation Management Handbook* (January 2009).

Prior to any gathering operation, the BLM would provide for a pre-gather evaluation of existing conditions in the gather area(s). The evaluation would include animal conditions, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with WSA boundaries, the location of fences, other physical barriers, and acceptable gather locations in relation to animal distribution. The evaluation would determine whether the proposed activities would necessitate the presence of a veterinarian during operations. If it is determined that a large number of animals may need to be euthanized or gather operations could be facilitated by a veterinarian, these services would be arranged before the gather would proceed. The contractor would be apprised of all conditions and would be given instructions regarding the gather and handling of animals to ensure their health and welfare is protected.

Gather sites and temporary holding sites would be located to reduce the likelihood of injury and stress to the animals, and to minimize potential damage to the natural resources of the area. These sites would be located on or near existing roads whenever possible.

The primary gather methods used in the performance of gather operations include:

1. Helicopter Drive Gathering. This gather method involves utilizing a helicopter to herd wild horses into a temporary gather site.
2. Helicopter Assisted Roping. This gather method involves utilizing a helicopter to herd wild horses to ropers.
3. Bait Trapping. This gather method involves utilizing bait (e.g., water or feed) to lure wild horses into a temporary gather site.

The following procedures and stipulations would be followed to ensure the welfare, safety and humane treatment of wild horses in accordance with the provisions of 43 CFR 4700.

#### **A. Gather Methods used in the Performance of Gather Contract Operations**

The primary concern of the contractor is the safe and humane handling of all animals gathered. All gather attempts shall incorporate the following:

1. All gather sites and holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The Contractor may also be required to change or move gather locations as determined by the COR/PI. All gather sites and holding facilities not located on public land must have prior written approval of the landowner.
2. The rate of movement and distance the animals travel shall not exceed limitations set by the COR who would consider terrain, physical barriers, access limitations, weather, extreme temperature (high and low), condition of the animals, urgency of the operation (animals facing drought, starvation, fire rehabilitation, etc.) and other factors. In consultation with the contractor the distance the animals travel would account for the different factors listed above and concerns with each HMA.
3. All gather sites, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:
  - a. Gather sites and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches high for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All gather sites and holding facilities shall be oval or round in design.
  - b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered with plywood or metal without holes.
  - c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the COR/PI.
  - d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses.
  - e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.
4. No modification of existing fences would be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.
5. When dust conditions occur within or adjacent to the gather site or holding facility, the Contractor shall be required to wet down the ground with water.
6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, estrays, or other animals the COR determines need to be housed in a separate pen from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions,

the government would require that animals be restrained for the purpose of determining an animal's age, sex, or other necessary procedures. In these instances, a portable restraining chute may be necessary and would be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gathering requires that animals be released back into the gather area(s). In areas requiring one or more satellite gather site, and where a centralized holding facility is utilized, the contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation would be at the discretion of the COR.

7. The Contractor shall provide animals held in the gather sites and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the gather site or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. The contractor would supply certified weed free hay if required by State, County, and Federal regulation.
8. An animal that is held at a temporary holding facility through the night is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.
9. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of gathered animals until delivery to final destination.
10. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI would determine if animals must be euthanized and provide for the destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.
11. Animals shall be transported to their final destination from temporary holding facilities as quickly as possible after gather unless prior approval is granted by the COR for unusual circumstances. Animals to be released back into the HMA following gather operations may be held up to 21 days or as directed by the COR. Animals shall not be held in gather sites and/or temporary holding facilities on days when there is no work being conducted except as specified by the COR. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays; unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours in any 24 hour period. Animals that are to be released back into the gather area may need to be transported back to the original gather site. This determination would be at the discretion of the COR or Field Office Wild Horse & Burro Specialist.

#### **B. Gather Methods That May Be Used in the Performance of a Gather**

1. Gather attempts may be accomplished by utilizing bait (feed, water, mineral licks) to lure animals into a temporary gather site. If this gather method is selected, the following applies:
  - a. Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.
  - b. All trigger and/or trip gate devices must be approved by the COR/PI prior to gather of animals.

- c. Gather sites shall be checked a minimum of once every 10 hours.
2. Gather attempts may be accomplished by utilizing a helicopter to drive animals into a temporary gather site. If the contractor selects this method the following applies:
  - a. A minimum of two saddle-horses shall be immediately available at the gather site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one-half hour.
  - b. The contractor shall assure that foals shall not be left behind, and orphaned.
3. Gather attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor, with the approval of the COR/PI, selects this method the following applies:
  - a. Under no circumstances shall animals be tied down for more than one hour.
  - b. The contractor shall assure that foals shall not be left behind, or orphaned.
  - c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who would consider terrain, physical barriers, weather, condition of the animals and other factors.

### **C. Use of Motorized Equipment**

1. All motorized equipment employed in the transportation of gathered animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI, if requested, with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.
2. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that gathered animals are transported without undue risk or injury.
3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from gather site(s) to temporary holding facilities, and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have at least two (2) partition gates providing at least three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing at least two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5-foot-wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.
4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be

strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.

5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping as much as possible during transport.
6. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:
  - 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
  - 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
  - 6 square feet per horse foal (0.75 linear feet in an 8-foot-wide trailer);
  - 4 square feet per burro foal (0.5 linear feet in an 8-foot-wide trailer).
7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of gathered animals. The COR/PI shall provide for any brand and/or inspection services required for the gathered animals.
8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor would be instructed to adjust speed.

#### **D. Safety and Communications**

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the gather of wild horses utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio. If communications are ineffective the government would take steps necessary to protect the welfare of the animals.
2. The proper operation, service and maintenance of all contractor furnished property is the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor would be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.
3. The Contractor shall obtain the necessary FCC licenses for the radio system.
4. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.
5. Should the contractor choose to utilize a helicopter the following would apply:
  - a. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.

- b. Fueling operations shall not take place within 1,000 feet of animals.

#### **E. Site Clearances**

1. No Personnel working at gather sites may excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage or otherwise alter or deface any archaeological resource located on public lands or Indian lands.
2. Prior to setting up a gather site or temporary holding facility, the BLM would conduct all necessary clearances (archaeological, T&E, etc.). All proposed site(s) must be inspected by a government archaeologist and wildlife biologist. Once clearance has been obtained, the gather site or temporary holding facility may be set up. Said clearance shall be arranged for by the COR, PI, or other BLM employees.
3. Gather sites and temporary holding facilities would not be constructed on wetlands or riparian zones.

#### **F. Animal Characteristics and Behavior**

Releases of wild horses would be near available water when possible. If the area is new to them, a short-term adjustment period may be required while the wild horses become familiar with the new area.

#### **G. Public Participation**

Opportunities for public viewing (i.e. media, interested public) of gather operations would be made available to the extent possible; however, the primary considerations would be to protect the health, safety and welfare of the animals being gathered and the personnel involved. The public must adhere to guidance from the on-site BLM representative. It is BLM policy that the public would not be allowed to come into direct contact with wild horses being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at any time or for any reason during BLM operations.

#### **H. Responsibility and Lines of Communication**

- Rock Springs Field Office – Contracting Officer's Representative/Project Inspector: Jay D'Ewart
- Alternate – Contracting Officer's Representative/Project Inspector:  
Ed Vandenburg  
Clay Stott  
Benjamin Smith  
Scott Fluer

Wyoming State Office – Contracting Officer's Representative/Project Inspector: N/A

The Contracting Officer's Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. The Rawlins and Rock Springs Assistant Field Managers for Renewable Resources and the Rawlins and Rock Springs Field Managers will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, District Office, State Office, National Program Office, and BLM Holding Facility offices. All employees involved in the gathering operations would keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries would be handled through the Assistant Field Manager for Renewable Resources and District Public Affairs Officer. These individuals would be the primary contact and would coordinate with the COR/PI on any inquiries.

The COR would coordinate with the contractor and the BLM Corrals to ensure animals are being transported from the gather site in a safe and humane manner and are arriving in good condition.

The contract specifications require humane treatment and care of the animals during removal operations. These specifications are designed to minimize the risk of injury and death during and after gather of the animals. The specifications would be vigorously enforced.

Should the Contractor show negligence and/or not perform according to contract stipulations, he would be issued written instructions, stop work orders, or defaulted.

## **Fertility Control Treatments**

*Standard operating procedures for use of fertility control vaccines, and insertion of Y-shaped silicone Iud for feral horses*

### **SOPs common to all vaccine types:**

#### *Animal Identification*

Animals intended for treatment must be clearly, individually identifiable to allow for positive identification during subsequent management activities. For captured animals, marking for identification may be accomplished by marking each individual with a freeze mark on the hip or neck and a microchip in the nuchal ligament. In some cases, identification may be accomplished based by cataloguing markings that make animals uniquely identifiable. Such animals may be photographed using a telephoto lens and high quality digital camera as a record of treated individuals.

#### *Safety*

Safety for both humans and animals is the primary consideration in all elements of fertility control vaccine use. Administration of any vaccine must follow all safety guidance and label guidelines on applicable EPA labeling.

#### *Injection Site*

For hand-injection, delivery of the vaccine should be by intramuscular injection, while the animal is standing still, into the left or right side, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone): this is the hip / upper gluteal area. For dart-based injection, delivery of the vaccine should be by intramuscular injection, while the animal is standing still, into the left or right thigh areas (lower gluteal / biceps femoralis).

#### *Monitoring and Tracking of Treatments*

Estimation of population size and growth rates (in most cases, using aerial surveys) should be conducted periodically after treatments.

Population growth rates of some herds selected for intensive monitoring may be estimated every year post-treatment using aerial surveys. If, during routine HMA field monitoring (on-the-ground), data describing adult to foal ratios can be collected, these data should also be shared with HQ-261.

Field applicators should record all pertinent data relating to identification of treated animals (including photographs if animals are not freeze-marked) and date of treatment, lot number(s) of the vaccine, quantity of vaccine issued, the quantity used, the date of vaccination, disposition of any unused vaccine, the date disposed, the number of treated mares by HMA, field office, and State along with the microchip numbers and freeze-mark(s) applied by HMA and date. A summary narrative and data sheets will be forwarded to HQ-261 annually (Reno, Nevada). A copy of the form and data sheets and any photos taken should be maintained at the field office. HQ-261 will maintain records sent from field offices, on the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, field office, and State along with the freeze-mark(s) applied by HMA and date.

#### **SOPs for one-year liquid PZP vaccine (ZonaStat-H)**

ZonaStat-H vaccine (Science and Conservation Center, Billings, MT) would be administered through hand-injection or darting by trained BLM personnel or collaborating partners only. At present, the only PZP vaccine for dart-based delivery in BLM-managed wild horses or burros is ZonaStat-H. For any darting operation, the designated personnel must have successfully completed a nationally recognized wildlife darting course and who have documented and successful experience darting wildlife under field conditions.

Until the day of its use, ZonaStat-H must be kept frozen.

Animals that have never been treated with a PZP vaccine would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA). Animals identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA).

Hand-injection of liquid PZP vaccine would be by intramuscular injection into the gluteal muscles while the animal is restrained in a working chute. The vaccine would be injected into the left hind quarters of the animal, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).

For Hand-injection, delivery of the vaccine would be by intramuscular injection into the left or right buttocks and thigh muscles (gluteals, biceps femoris) while the animal is standing still.

#### *Application of ZonaStat-H via Darting*

Only designated darters would prepare the emulsion. Vaccine-adjuvant emulsion would be loaded into darts at the darting site and delivered by means of a projector gun.



No attempt to dart should be taken when other persons are within a 100-m radius of the target animal. The Dan Inject gun should not be used at ranges in excess of 30 m while the Pneu-Dart gun should not be used over 50 m.

No attempts would be taken in high wind (greater than 15 mph) or when the animal is standing at an angle where the dart could miss the target area and hit the flank or rib cage. The ideal is when the dart would strike the skin of the animal at a 90° angle.

If a loaded dart is not used within two hours of the time of loading, the contents would be transferred to a new dart before attempting another animal. If the dart is not used before the end of the day, it would be stored under refrigeration and the contents transferred to another dart the next day, for a maximum of one transfer (discard contents if not used on the second day). Refrigerated darts would not be used in the field.

A darting team should include two people. The second person is responsible for locating fired darts. The second person should also be responsible for identifying the animal and keeping onlookers at a safe distance.

To the extent possible, all darting would be carried out in a discrete manner. However, if darting is to be done within view of non-participants or members of the public, an explanation of the nature of the project would be carried out either immediately before or after the darting. Attempts will be made to recover all darts. To the extent possible, all darts which are discharged and drop from the target animal at the darting site would be recovered before another darting occurs. In exceptional situations, the site of a lost dart may be noted and marked, and recovery efforts made at a later time. All discharged darts would be examined after recovery in order to determine if the charge fired and the plunger fully expelled the vaccine. Personnel conducting darting operations should be equipped with a two-way radio or cell phone to provide a communications link with a project veterinarian for advice and/or assistance. In the event of a veterinary emergency, darting personnel would immediately contact the project veterinarian, providing all available information concerning the nature and location of the incident. In the event that a dart strikes a bone or imbeds in soft tissue and does not dislodge, the darter would follow the affected animal until the dart falls out or the animal can no longer be found. The darter would be responsible for daily observation of the animal until the situation is resolved.

#### **SOPs for application of PZP-22 pelleted vaccine:**

PZP-22 pelleted vaccine treatment would be administered only by trained BLM personnel or designated partners.

A treatment of PZP-22 is comprised of two separate injections: (1) a liquid dose of PZP vaccine (equivalent to one dose of ZonaStat-H) is administered using an 18-gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14-gauge needle. For animals constrained in a working chute, these are delivered using a modified syringe and jabstick to inject the pellets into

the gluteal muscles of the animals being returned to the range. The pellets are intended to release PZP over time.

Until the day of its use, the liquid portion of PZP-22 must be kept frozen.

At this time, delivery of PZP-22 treatment would only be by intramuscular injection into the gluteal muscles while the animal is restrained in a working chute. The primer would consist of 0.5 cc of liquid PZP emulsified with 0.5 cc of adjuvant. Animals that have never been treated with a PZP vaccine would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA). Animals identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA). The syringe with PZP vaccine pellets would be loaded into the jabstick for the second injection. With each injection, the liquid or pellets would be injected into the left hind quarters of the animal, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).

In the future, the PZP-22 treatment may be administered remotely using an approved long range darting protocol and delivery system if and when BLM has determined that the technology has been proven safe and effective for use.

### **SOPs for GonaCon-Equine Vaccine Treatments**

GonaCon-Equine vaccine (USDA Pocatello Storage Depot, Pocatello, ID; Spay First!, Inc., Oklahoma City, OK) is distributed as preloaded doses (2 mL) in labeled syringes. Upon receipt, the vaccine should be kept refrigerated (4° C) until use. Do not freeze GonaCon-Equine. The vaccine has a 6-month shelf-life from the time of production and the expiration date will be noted on each syringe that is provided.

For initial and booster treatments, mares would ideally receive 2.0 ml of GonaCon-Equine.

#### *Administering GonaCon Vaccine by Hand-Injection*

Experience has demonstrated that only 1.8 ml of vaccine can typically be loaded into 2 cc darts, and this dose has proven successful. Calculations below reflect a 1.8 ml dose.

For hand-injection, delivery of the vaccine should be by intramuscular injection, while the animal is standing still, into the left or right side, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone): this is the hip / upper gluteal area.

A booster vaccine may be administered after the first injection to improve efficacy of the product over subsequent years.

#### *Application of GonaCon-Equine via Darting*

General practice guidelines for darting operations, as noted above for dart-delivery of ZonaStat-H, should be followed for dart-delivery of GonaCon-Equine.

Wearing latex gloves, the applicator numbers darts, and loads numbered darts with vaccine by attaching a loading needle (7.62 cm; provided by dart manufacturer) to the syringe containing vaccine and placing the needle into the cannula of the dart to the fullest depth possible. Slowly depress the syringe plunger and begin filling the dart. Periodically, tap the dart on a hard surface to dislodge air bubbles trapped within the vaccine. Due to the viscous nature of the fluid, air entrapment typically results in a maximum of approximately 1.8 ml of vaccine being loaded in the dart. The dart is filled to max once a small amount of the vaccine can be seen at the tri-ports. Important! Do not load and refrigerate darts the night before application. When exposed to moisture and condensation, the edges of gel barbs soften, begin to dissolve, and will not hold the dart in the muscle tissue long enough for full injection of the vaccine. The dart needs to remain in the muscle tissue for a minimum of 1 minute to achieve dependable full injection. Sharp gel barbs are critical.

Darts should be weighed to the nearest hundredth gram by electronic scale when empty, when loaded with vaccine, and after discharge, to ensure that 90% (1.62 ml) of the vaccine has been injected. GonaCon weighs 0.95 grams/mL, so animals should receive 1.54 grams of vaccine to be considered treated. Animals receiving <50% should be darted with another full dose; those receiving >50% but <90% should receive a half dose (1 ml). All darts should be weighed to verify a combination of  $\geq 1.62$  ml has been administered. Therefore, every effort should be made to recover darts after they have fallen from animals.

Although infrequent, dart injections can result in partial injections of the vaccine, and shots are missed. As a precaution, it is recommended that extra doses of the vaccine be ordered to accommodate failed delivery (which may be as high as ~15 %). To determine the amount of vaccine delivered, the dart must be weighed before loading, and before and after delivery in the field. The scale should be sensitive to 0.01 grams or less, and accurate to 0.05 g or less. For best results, darts with a gel barb should be used. (i.e. 2 cc Pneu-Dart brand darts configured with Slow-inject technology, 3.81 cm long 14 ga. tri-port needles, and gel collars positioned 1.27 cm ahead of the ferrule). One can expect updates in optimal dart configuration, pending results of research and field applications.

Darts (configured specifically as described above) can be loaded in the field and stored in a cooler prior to application. Darts loaded, but not used can be maintained in dry conditions at about 4° C and used the next day, but do not store in any refrigerator or container likely to cause condensation, which can compromise the gel barbs.

### **Insertion of Y-shaped Silicone IUD for Feral Horses**

#### **Background**

Mares must be open. A veterinarian must determine pregnancy status via palpation or ultrasound. Ultrasound should be used as necessary to confirm open status of mares down to at least 14 days for those that have recently been with stallions. For mares segregated from stallions, this determination may be made at an earlier time when mares are identified as candidates for treatment, or immediately prior to IUD insertion. Pregnant mares should not receive an IUD.

### **Preparation**

IUDs must be clean and sterile. Sterilize IUDs with a low-temperature sterilization system, such as Sterrad.

The Introducer is two PVC pipes. The exterior pipe is a 29” length of ½” diameter pipe, sanded smooth at one end, then heat-treated to smooth its curvature further (Figure 1). The IUD will be placed into this smoothed end of the exterior pipe. The interior pipe is a 29 ½” long, ¼” riser tube (of the kind used to connect water lines to sinks), with one end slightly flared out to fit more snugly inside the exterior pipe (Figure 1), and a plastic stopper attached to the other end.

Introducers should be sterilized in Benz-all cold sterilant, or similar. Do not use iodine-based sterilant solution. A suitable container for sterilant can be a large diameter (i.e., 2”) PVC pipe with one end sealed and one end removable.

Prepare the IUD: Lubricate with sterile veterinary lube, and insert into the introducer. The central stem of the IUD goes in first.

Fold the two ‘legs’ of the IUD, and push the IUD further into the introducer, until just the bulbous ends are showing.

**Restraint and Medication:** The mare should be restrained in a padded squeeze chute to provide access to the rear end of the animal, but with a solid lower back door, or thick wood panel, for veterinarian safety.

Some practitioners may choose to provide sedation. If so, when the mare’s head starts to droop, it may be advisable to tie the tail up to prevent risk of the animal sitting down on the veterinarian’s arm (i.e., double half hitch, then tie tail to the bar above the animal).

Some practitioners may choose to provide a dose of long-acting progesterone to aid in IUD retention. Example dosage: 5mL of BioRelease LA Progesterone 300 mg/mL (BET labs, Lexington KY), *or* long-acting Altrenogest). No other intrauterine treatments of any kind should be administered at the time of IUD insertion.

### **Insertion Procedure:**

- Prep clean the perineal area.
- Lubricate the veterinarian’s sleeved arm and the Introducer+IUD.
- Carry the introducer (IUD-end-first) into the vagina.
- Dilate the cervix and gently move the tip of the introducer past the cervix.
- Advance the end of the 1/2” PVC pipe about 4 inches past the internal os of the cervix.
- Hold the exterior pipe in place, but push the stopper of the interior pipe forward, causing the IUD to be pushed out of the exterior pipe, into the uterus.
- Placing a finger into the cervical lumen just as the introducer tube is removed from the external os allows the veterinarian to know that the IUD is left in the uterus, and not dragged back into or past the cervix.
- Remove the introducer from the animal, untie the tail.

Mares that have received an IUD should be observed closely for signs of discharge or discomfort for 24 hours following insertion after which they may be released back to the range.