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Department of Health and Environmental Sciences  
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.  
DIRECTOR

February 26, 1975

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City-County Planning Board, Richland County Courthouse, Sidney

FILE :

The enclosed draft environmental impact statement has been prepared regarding the proposed issuance of a waste discharge permit for Tenderloin Industry, Inc., of Sidney, Montana. This impact statement is submitted for your consideration. Comments and questions will be accepted for 30 days following issuance of the statement. An additional 15 days is available on request. All comments should be sent to the undersigned.

Very truly yours,

Steven L. Pilcher  
Agricultural Wastewater Specialist  
Water Quality Bureau  
Environmental Sciences Division

SLP:vlf  
Enclosure  
cc: Ben Wake

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ENVIRONMENTAL QUALITY  
CONTROL

A DRAFT ENVIRONMENTAL IMPACT STATEMENT  
FOR  
THE PROPOSED ISSUANCE OF A WASTE DISCHARGE PERMIT  
TO TENDERLOIN INDUSTRY,  
AN ANIMAL CONFINEMENT FACILITY NEAR SIDNEY, MONTANA

Pursuant to the Montana Environmental Policy Act, Section 69-6504(b)(3) and the act to control water pollution, Section 69-4801 through 69-4827, the following draft environmental impact statement was prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, Water Quality Bureau, concerning Tenderloin Industry, Inc. and a request by Mr. Ing Svarre, President, for a waste discharge permit for their animal confinement facility located southeast of Sidney, Montana.

Description of the Proposed Action:

MAC 16-2.14(10)-S14460, the Montana Pollutant Discharge Elimination System Rule, requires that the owner or operator of any point source discharging pollutants into state waters make application for a waste discharge permit. Animal confinement facilities are, by rule definition, a point source; and a permit is therefore required. This permit then places certain limitations on any discharge which might occur from that point source.

Tenderloin Industry, Inc. has operated an animal confinement facility at their present location since September of 1967. The facility is located approximately 1.0 mile southeast of Sidney, Montana and is situated in the SW $\frac{1}{4}$  of Sec. 3, T. 22 N., R. 59 E., of Richland County. The use of this area is primarily for agricultural purposes, but due to the proximity to the city of Sidney, there are a number of residences located between the animal confinement facility and the community itself. Very little development has taken place to the east or south of the animal confinement facility. One home is, however, located directly across the road to the south of the facility. At the time the facility was constructed there were no laws or rules in existence which would govern site selection. A check with the local planning agency revealed that there is no zoning in effect for that area at this time, and that a plan for area development has not yet been completed. The location of this animal confinement facility with reference to the community of Sidney and other geographic features is indicated on Figure 1. Figure 2 indicates in more detail the physical features of the animal confinement facility.

The animal confinement facility encompasses approximately 50 acres and has an operating capacity for approximately 5,600 beef feeder cattle. The topography of the area is relatively flat with an easterly slope of 0 to 2.0 percent. A concrete apron has been constructed along the feed bunks and under the automatic waterers, but the remainder of the feeding area has an earthen surface. The feeding operation is classified as an open lot type feeding operation as minimal shelter is provided for the livestock. Cattle are placed in the pens and fed a concentrated ration in fence line banks until they reach market weight of approximately 1,100 pounds. Feed for these animals is purchased locally and mixed at a mill located adjacent to the animal confinement facility.

The waste material which accumulates on the surface of the animal confinement facility is mixed through hoof action with soil particles and is periodically pushed into mounds within the pens. Mounding of the waste material and soil is a common waste management program in areas where natural slope is not provided. The waste material in these mounds undergoes anaerobic decomposition, thereby reducing the total volume of waste material which must be removed at a later date. The mounds also provide the livestock with a dry loafing area as surface moisture will drain from the mounds quite rapidly and the area is warmed slightly from the anaerobic decomposition process taking place within the mounds. The pens are thoroughly cleaned and the manure removed at least every 60 days. This waste material is then used by area farmers as fertilizer on their agricultural land. Many acres of such land are available for waste disposal under this type of arrangement.

Extraneous drainage from above the animal confinement facility does not reach the feedlot itself due to the relatively flat topography of the area and the location of a county road immediately west of the facility. The only wastewater generated will then be from precipitation which falls directly on the feedlot surface. Precipitation of less than approximately 0.5 inches will be absorbed in the manure pack on the feedlot surface. Rainfall or snow-melt which results in greater amounts of precipitation on the feeding area will result in surface runoff. The soil-manure interface which is formed by the hoof action of the animals mixing the soil and the waste material will, if undisturbed, minimize percolation of this wastewater through the soil profile. Due to the relatively flat topography, the feeding area does not drain rapidly and results in ponding of the wastewater on the feedlot surface. An effort has been made to improve surface drainage and transport the contaminated surface runoff to the east out of the feeding area where it will be contained in two retention structures which have been constructed adjacent to the animal confinement facility. Retention Structure A as indicated in Figure 2, has been constructed in an abandoned channel of Lone Tree Creek. This retention structure was created by the construction of a dam at both the inlet and outlet of this abandoned channel, thereby preventing waste material from reaching the live stream. Retention Structure B as indicated on Figure 2 consists of a large retention pond which has been constructed adjacent to Lone Tree Creek. The dirt which was removed during the construction of the basin has been used to increase the height of the dike which separates the control facility from Lone Tree Creek. These control facilities provide storage in excess of the capacity required to retain all runoff which could be expected from a 10-year, 24-hour rainfall event of 2.6 inches or equivalent moisture for their locale. The effluent limitations which would be placed on the proposed permit would prohibit the discharge of process wastewater pollutants except whenever the 10-year, 24-hour rainfall event of 2.6 inches or more of rainfall occurs during any 15-day period.

#### Environmental Impact:

The issuance of a waste discharge permit for Tenderloin Industry would result in continued operation of the existing animal confinement facility. Such operation would, however, be in accordance with certain conditions which would be made a part of the permit.

The operation of any animal confinement facility such as this could affect a multitude of environment variables. Since the proposed action,

however, relates to the continued operation of an existing facility, the overall environmental impact associated with the action should not change significantly. Similarly, many of the demands which have been placed on the environmental resources have previously been made and the proposed action would have little if any input on those items.

Any animal confinement facility may exert an impact on the surrounding environment. When livestock waste is allowed to be discharged into the aquatic environment, serious damage may result. Several diseases can be transmitted through livestock waste to other animals as well as humans. Significant numbers of fecal coliform bacteria are present in the waste material and could contaminate water for other beneficial usage. The livestock waste requires excess quantities of oxygen to be stabilized in the aquatic environment. This may then result in an inadequate supply of dissolved oxygen being available for fish and other aquatic organisms. The waste material is rich in nutrients such as nitrogen and phosphorous and can result in an over fertilization of aquatic vegetation, a phenomenon known as eutrophication.

This same fact can, however, result in a beneficial environmental impact. When quantities of waste material are applied to agricultural land as fertilizer, the nutrients are utilized by crops for growth. Heavy application of livestock waste to agricultural land can result in average crop increases of 20-40 percent. This is especially true in fields where the cropping practices do not return organic material to the soil at the end of the growing season such as in ensilage production.

As with any livestock operation, there are death losses. Dead animals which are not disposed of properly can have an impact on the area. Dead animals from this facility are disposed of immediately at a local rendering service.

Odors associated with livestock production are generally related to manure handling, but other potential odor sources exist. Wet feed, if not promptly removed, makes a contribution to odors as does the decomposition of dead animals if they do not receive proper handling. Animal feeds also have various odors as they are stored and handled. However, feed odors are not generally regarded as offensive as those from the decomposition of manure.

Manure is a complex mixture of carbohydrates, fats, proteins, and their breakdown products. When manure is in a suitable environmental condition during handling, it serves as a substrate for biological growth. If this decomposition takes place in an anaerobic environment, and if the manure has a surface exposed to the atmosphere, odorous gases will escape. While more than 45 chemical compounds have been identified in odorous air from animal waste decomposition, there are a few which seem to be more significant than others. These would include ammonia, hydrogen sulfide, mercaptans and volatile organic acids. Although at extremely high concentrations certain odorous gases are known to be toxic to both humans and livestock, the primary concern is one of annoyance or nuisance to humans.

In the past, inadequate surface drainage within the feeding area has resulted in excessive ponding on the lot surface. Such areas provide the anaerobic environment which is so conducive to the production of odors, such

as those previously discussed. The magnitude of these odors appears to be directly related to the amount of area which is allowed to remain in an anaerobic state. Likewise, the amount of waste material present on the feedlot surface and therefore subject to decomposition under anaerobic conditions may directly determine the magnitude of odors. Excessive accumulations of waste material and ponding of surface runoff within the feeding area can result not only in direct odor emissions, but results in dirty, manure-covered animals. The warm body of an animal, when covered with wet manure, makes an area of accelerated bacterial growth and odor production. Once produced, the odorous by-products of manure decomposition are quickly vaporized into the air by animal heat. It is therefore essential to frequently remove the waste material and provide adequate surface drainage.

Complaints of odors have been received from several persons residing in the area. While records indicate that the most prevalent wind direction for the area is from the west-northwest which would carry odors away from most nearby occupied dwellings, wind direction is variable and can drive the odors in almost any direction.

Montana Administrative Code 16-2.14(1)-S1480 relating to Control of Odors states that no person shall cause, suffer, or allow any emissions of gases, vapors or odors beyond the property line in such a manner as to create a public nuisance. From complaints which have been received, it would appear that odors do emanate from this facility and may therefore be in violation of Montana's administrative code.

While all livestock manures will attract and/or produce flies, proper management of these wastes coupled with a concerted fly control program should reduce fly production on cattle feedlots. In the absence of proper management of agricultural solid wastes and adequate facilities and control programs in this industry, excessive populations of vectors (flies, mosquitoes, rodents, etc.) may occur. Excessive vectors are those which: (1) occur in numbers considerably exceeding those of surrounding areas; (2) are associated with the design, layout and management of the operation; (3) spread widely from the area; and (4) can cause detrimental effects on the public health and well-being.

Excessive vectors (flies) were found to be associated with the Tenderloin Industry Feedlot near Sidney, as indicated below. In July 1974 fly traps were set out at three sites: (A) about 80 yards from the feedlot, (B) about one-half mile from the lot, and (C) in Sidney. There were 2,620 flies taken at Site A and only 35 and 20 at Sites B and C.

Classification of 143 specimens collected at Site A revealed the following species distribution: Musca domestica (house flies) - 5; Sarcophaga sp. (flesh flies) - 6; Fannia sp. (lesser house flies) - 1; Muscina sp. (false stable flies) - 122; blue bottle flies - 4, and green bottle flies - 5.

Extensive amounts of wet manure with standing water on some areas of the feedlot provided an extensive breeding medium for fly species in the area. For example, false stable flies (representing 85% of those collected at Site A) lay their eggs on decaying organic matter including human excrement and rotting cow dung. Conversation with the foreman confirmed that extensive breeding was taking place.

House fly dispersal is usually limited to 0.5 to 2 miles. Flies may migrate in large numbers from 1 to 4 miles. Smaller numbers may move 20 miles. Bottle flies are also known to move 10 miles in a few days.

The house fly is regarded by the Center for Disease Control, United States Public Health Service as the species of greatest public health significance because of its close association with man and its ability to transmit disease. The false stable flies are known to frequently enter houses and are attracted to human foods. It is a vector of intestinal disease organisms and may cause intestinal myiasis. Blue bottle flies and green bottle flies may cause sores on animals and may cause intestinal myiasis. Lesser house flies and flesh flies are of lesser importance in transmitting human diseases but may cause intestinal myiasis.

Flies in the feedlot vicinity were also observed to be a serious problem and to constitute an adverse effect on the well-being of neighbors. For example, one house had been moved from the area. Fly specks had extensively defaced another preexisting home and necessitated frequent repainting. Large numbers of flies resting on the screens and surfaces of the house make it impossible for residents to enter without also admitting large numbers of flies.

The proposed action should have little effect on the wildlife which frequent the area or the wildlife habitat of that same area. As stated earlier, any discharge of waste material to Lone Tree Creek might have a temporary effect on the aquatic ecosystem. The terrestrial ecosystem should not, however, be affected. Lone Tree Creek supports a resident population of Eastern Brook Trout (*Salvelinus fontinalis*) and Largemouth Bass (*Micropterus salmoides*) in the area upstream from Sidney. Channel alterations and underground flow in the lower reaches of the stream have limited the fishery in that area. A more diverse population of fish is present in the Yellowstone River, but impact on that body of water should be minimal due to the dilution effect and the distance between the animal confinement facility and the Yellowstone River. There may be some movement of fish between the area above Sidney and the Yellowstone River, and it would be these individuals that would be affected by any discharge from the animal confinement facility.

The waste areas around the perimeter of the animal confinement facility normally develop excessive vegetative cover which provides excellent habitat for game birds and small animals known to frequent the area. Many birds, including game birds, visit the area during the winter months as the grain used for animal feed provides readily available food. The availability of food draws large numbers of local and migrating birds to the area. While it is normally not a problem, a potential for disease transmission does exist.

The practice of confining animals in a relatively small area which results in an accumulation of waste material within that enclosure is found to be aesthetically unpleasant. Montana is, however, primarily an agricultural state and most of the residents are familiar with livestock operations.

When this animal confinement facility was constructed in 1967, it did result in agricultural land being taken out of production. The proposed action would not, however, result in additional production loss since no expansion is proposed and no additional land would be required.

The animal confinement facility currently has a substantial impact on the economic environment of the Sidney area. The firm employs approximately 10 persons with an annual payroll of approximately \$75,000. Other operational expenses including taxes paid on the facility amount to approximately \$100,000. Approximately 15,000 head of cattle are handled each year through the facility. The majority of these cattle are purchased in Glendive and Sidney, in Montana, and in Williston, North Dakota. While it is difficult to place an average value on the animals due to varying weights and market values, it is apparent that the yearly dollar value would be substantial. These animals will consume in excess of \$1,600,000 in feed materials each year. Most of the grain and silage necessary to feed the animals is purchased in the surrounding area. Local trucking firms are employed to transport the raw materials to the animal confinement facility and to transport the finished animals to market. These vehicles may cause temporary traffic congestion and cause dust and wear on the roads of the area, but also pay substantial taxes and fees.

Adverse Environmental Impacts Which Cannot Be Avoided:

As mentioned earlier in this statement, complete odor elimination from animal confinement facilities is not currently within technical and economic limits. There will be days when the combination of environmental conditions is such that odors will exist. The cleaning of the pens and removal of waste material will in itself create a temporary increase in odor levels as the manure pack is disturbed. Wind direction and velocity would then determine if area residents would be affected. If a good waste management program is not strictly adhered to, the odors will be much more severe and will occur much more frequently.

Periodic increases in fly population throughout the area might likewise be experienced during the fly season. While an increase in fly numbers might be experienced even with an adequate control program, the numbers should not be expected to create a health problem or nuisance conditions. Again, however, without a good control program, the fly problem could become significant and create hardship for the area residents.

Under extended dry weather conditions the movement of animals may result in fine particulate matter being discharged into the air. Air movement may then carry this particulate matter to the surrounding residences.

Although the waste control facilities provide more storage than would be required to retain the surface runoff which could be expected from a 10-year, 24-hour rainfall event, it is possible that a freak storm could result in enough rainfall in a relatively short period of time to create more runoff than could be contained in the control facility. This would then result in a discharge of livestock waste to Lone Tree Creek. Such a discharge could result in temporary violations of the Montana Water Quality Standards but would occur at a time when there was significant surface runoff from surrounding land.

Noises associated with this type of operation could not be avoided. New cattle in the animal confinement facility may bawl until adjusted. The operation of equipment to process the livestock feed and the trucks to dispose the feed will also add to the noise levels.

Since most of the raw materials and the finished products are transported by trucks, temporary traffic congestion and road dust cannot be avoided.

Alternative Actions:

The following alternatives would be available with regard to the proposed action:

(1) Deny the permit request - Montana law through the Montana Pollutant Discharge Elimination System Rule, requires that the owner or operator of any point source discharging pollutants into state waters shall make application for waste discharge permit. By denying the request for a permit, any discharge from this animal confinement facility to Lone Tree Creek would be in violation of state law and subject the owners and/or operators to the penalty provisions of Montana law regarding water pollution.

(2) Relocation of the existing facility - While this animal confinement facility is located at what would now be considered an unacceptable site for a new facility, there were no regulations or guidelines available for site selection at the time this facility was constructed. To date, zoning regulations do not exist for Richland County. The movement of this facility to an alternate site would result in a significant financial loss to the owners. These facilities would be valued at several hundred thousand dollars and a large percentage of the facilities could not be reused at an alternate site. While a site further removed from the community of Sidney might be located, it would be difficult to select a site which was not reasonably close to occupied residences. In order to be an acceptable site for an animal confinement facility, the location must be easily accessible with good roads, must be near land capable of producing grain and silage, must have a good supply of fresh clean water, and must be near electrical service lines. While proper site selection can minimize the adverse environmental impact, it can by no means eliminate it. A good waste management program would be required at almost any site to make the facility environmentally acceptable. If, at an alternate site, a possibility for discharge of pollutants to state waters still existed, a waste discharge permit would be required.

(3) Discontinue feeding - The elimination of livestock to eliminate problems caused by the livestock wastes would be an effective solution to the problems which exist but would not appear very practicable. Such action would also result in significant loss of income to people in the Sidney area.

(4) Issue short-term waste discharge permit - The issuance of a waste discharge permit would specify the conditions under which a discharge of waste material to state waters would be permitted. This permit would also contain other requirements relative to the waste management program, waste disposal practices and fly control program. The applicant would be required to improve and maintain surface drainage within the feeding area in order to keep the pen surface as dry as possible. This would not only reduce odors, but would minimize the areas conducive to fly breeding. The cost associated with this requirement should not increase significantly over present cleaning costs.

A concerted effort would be required to establish and continue a fly control program. The purchase of an adequate mist blower would be recommended.

A specific fly control program consisting of baiting and spraying would be established and approved by the Department of Health and Environmental Sciences prior to the coming fly season. The cost of the spraying equipment and chemicals used should not, however, work a consequential economic hardship on the operations of this facility. A high stocking rate in the pens would also help to control flies as the larvae are milled by the hoof action of the livestock. The permit could be issued for a period of one year to determine if the specified waste management programs were providing adequate environmental protection.

Relationship Between Local Short-term Uses of the Environment and the Maintenance and Enhancement of Long-term Effects:

In the short-term, the land is most economically valuable to the owners for continued operation of an animal confinement facility. The proposed action would be a recommitment of resources which were originally committed at the time the facility was constructed. Commitment of resources for an animal confinement facility may well be the best short-term use. The resources involved, such as land, would not be used up in the short-term and could be converted to another use if at a later date an alternate use to improve long-term productivity should become apparent. The short-term use should not then produce any irreversible long-term effects.

Irreversible Commitments of Environmental Resources:

Since the proposed action relates to the issuance of a waste discharge permit for an existing facility, there would be very little additional irreversible commitments of environmental resources. The land which was originally taken out of agricultural production for the purpose of constructing the animal confinement facility would continue to be used for that purpose and would be unavailable for agricultural production. Since no expansion of the animal confinement facility is proposed, the energy consumption associated with the facility should remain at or below its existing level. The proposed action should result in a reduction in both the severity and frequency of odors and significantly reduce the frequency of discharges of waste material to state waters. In general, the proposed action should result in a reduction of environmental resource commitments below the levels which have existed for this facility in the past.

Public Objection to the Proposed Action:

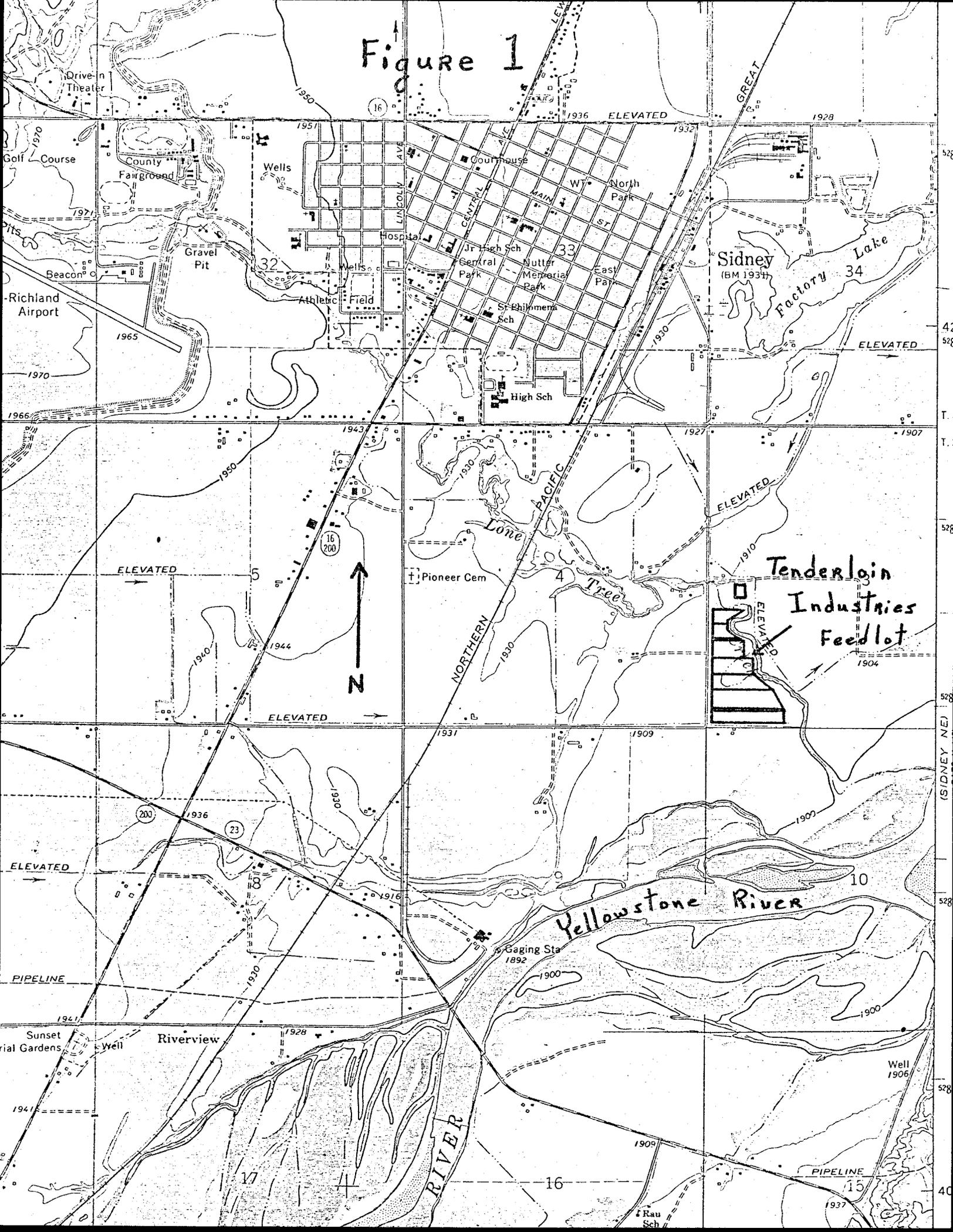
The Department of Health and Environmental Sciences in accordance with the Montana Pollutant Discharge Elimination System Rule prepared and circulated a public notice regarding the proposed action. Following the circulation and posting of this public notice, our office received a number of letters in opposition to the proposed action and commenting on environmental problems caused by this animal confinement facility. A petition bearing the signatures of approximately 100 local residents was also received following the circulation of the public notice. This petition protested the proposed issuance of a waste discharge permit and requested that a public hearing be held to discuss the apparent problems.

We hope that many of these questions have been answered in this draft environmental impact statement, but to allow for full public participation,

a hearing will be held in Sidney to allow for a thorough discussion of the existing problems and our proposed action. A copy of this notice of hearing is attached.

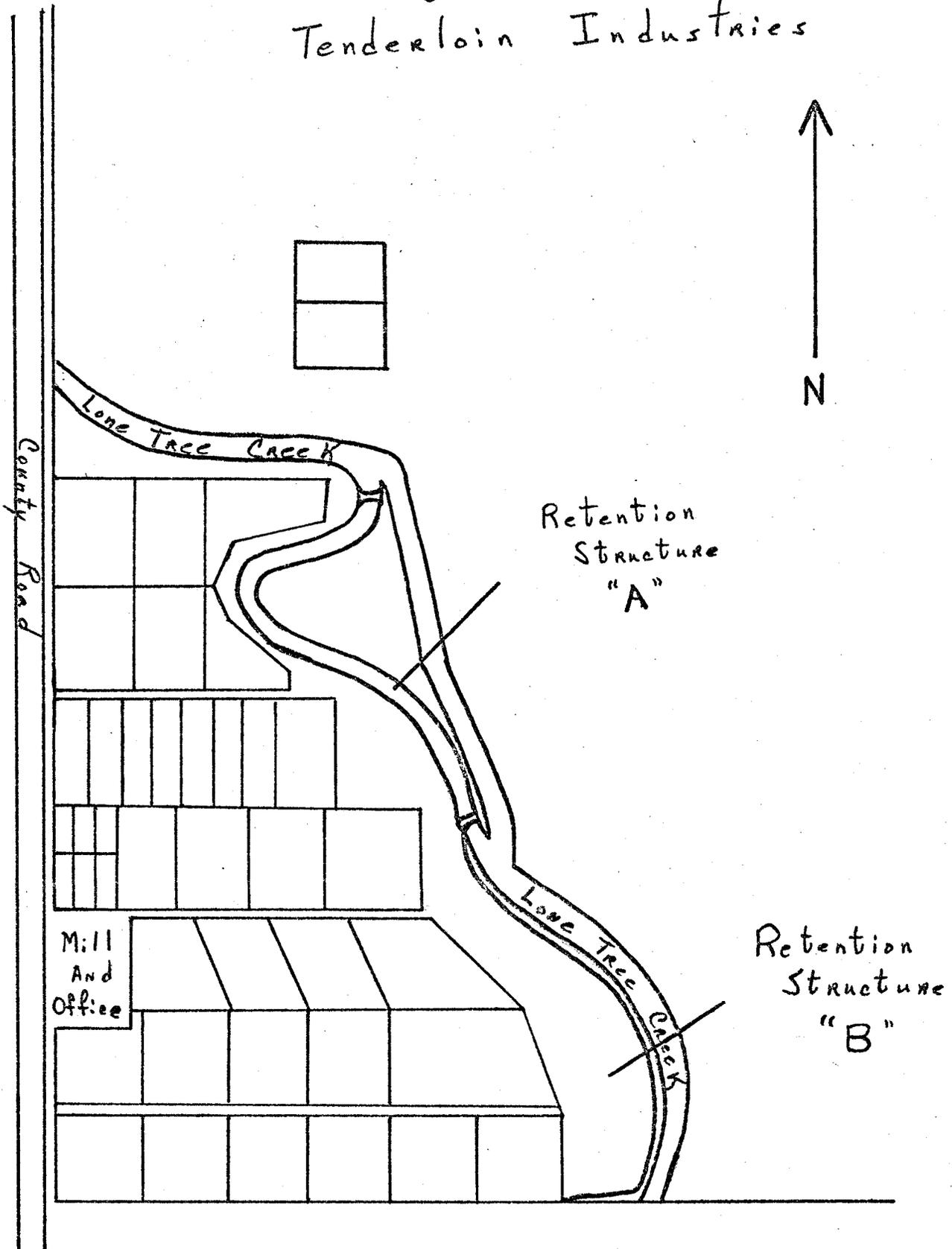
This statement was prepared by Steven L. Pilcher, Agricultural Wastewater Specialist for the Montana Department of Health and Environmental Sciences, Water Quality Bureau, with assistance from Kenneth L. Quickenden, Ph.D., R.S., Vector Control Specialist, Environmental Services Bureau, with information furnished by Tenderloin Industry, Inc.

# Figure 1



# Figure 2

## Tenderloin Industries



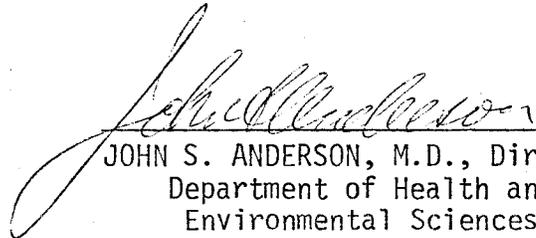
NOTICE OF INTENT FOR A PUBLIC HEARING  
BEFORE THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

February 26, 1975

In accordance with the Montana Pollutant Discharge Elimination System Rule, MAC 16-2.14(10)-S14460, Tenderloin Industry, Inc. has made application for a waste discharge permit for their animal confinement facility located approximately 1.0 mile southeast of Sidney, Montana. This is an open lot type facility having capacity for approximately 5,600 beef steers and heifers. The posting and circulation of a public notice regarding the proposed issuance of a permit brought to light several environmental issues associated with this facility. Due to comments which were received, it was determined that an environmental impact statement should be prepared.

A public hearing regarding this impact statement and the proposed permit issuance has been scheduled by the Department of Health and Environmental Sciences for 7:30 p.m. March 26, 1975 in the Moose Lodge meeting room in Sidney, Montana.

Interested parties are invited to be present or to be represented to express their views regarding the proposed action. Copies of the draft environmental impact statement may be obtained from the Department of Health and Environmental Sciences, Cogswell Building, Helena, Montana 59601 upon request.

  
JOHN S. ANDERSON, M.D., Director,  
Department of Health and  
Environmental Sciences