Herd and Environmental Record System – Grande Model

(HERS)

HERD AND ENVIRONMENTAL RECORD SYSTEM (HERS)

Introduction

This framework is intended to provide Alberta livestock producers with a means of managing the potential risks associated with environmental (air, water, soil, feed) contamination and their impact on animal health and the economic performance of the herd or flock. The focus of this framework is to encourage and guide producers in documenting all relevant factors in situations where livestock are potentially affected by abnormal environmental conditions.

The suggested documentation procedures are not intended to replace producers' existing record keeping systems. The purpose is to supplement existing record keeping systems and ensure sufficient documentation to properly assess poor performance. The framework encourages both proactive procedures for recording baseline information on livestock performance as well as procedures for documenting incidences of environmental contamination.

This Grande version is designed to capture very detailed elements needed for environmental documentation as well as providing a great deal of background information. Producers wishing to use a more basic format should consider the HERS Lite model.

The Organization of the Framework

This framework is intended to be a management tool that will guide livestock producers in documenting all relevant factors in both normal environmental conditions and in abnormal environmental conditions.

Abnormal environmental conditions for livestock are defined as situations where there is environmental contamination due to chemical substances in the air, water, soil or feed utilized by livestock. Abnormal environmental conditions can be described as:

1. Acute Incidents; which are defined as short-lived situations with the environmental impact occurring on a relatively large scale. The effect on the animal is immediately evident and there may be long term consequences that become apparent later in the production cycle.
2. Long-Term or chronic exposures; in which the environmental contamination is over an extended period and evidence of the impact is slow to develop.

The animal health impacts of environmental contamination will be revealed through the following effects:

1. Disease Factors.
2. Reproduction Factors.
3. Production Factors.

Use of the Framework

The following index will allow users to quickly access the relevant section of this tool in order to gain guidelines for documenting a particular factor.

Index for Proactive Procedures

2.0 LONG-TERM SITUATION

Long-term exposure of adverse environmental situations requires the development of baseline or long-term data. The causative factors will show up as trends and therefore patterns need to be developed in order to sort out the causes for poor performance. In some situations it may require that producers compare their data with existing baseline data developed in areas where environmental impact was not a consideration in animal performance

INDEX FOR RESPONSES TO LONG-TERM SITUATIONS

3.0 ACUTE INCIDENT

An acute incident can be defined as a short-lived situation with the environmental impact occurring on a relatively large scale. The information collected during and after an acute incident would be the immediate observations and in time the long-term effects that can be compared to the baseline data to provide documentation of any harmful impacts that might be associated with the particular environmental incident.

INDEX FOR RESPONSES TO ACUTE INCIDENCES

1.0 INVENTORY OF FARM RESOURCES

The purpose of the farm resource inventory is to provide an accurate overview of the farm business, resource use and management priorities. Background information about the farm resources will provide the farm manager with a written record of the farm resources, their capabilities and their historical performance.

1.01 THE LAND BASE

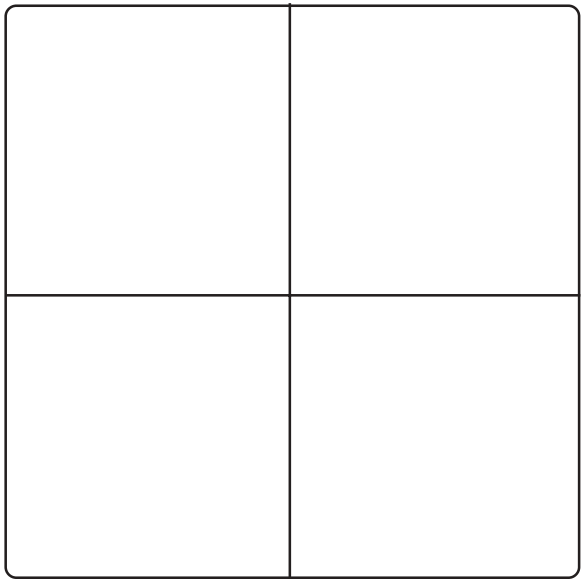
Legal Description (list home first)	Acres (#)	Cult. Acres	Soil Type

1.02 LAND USE SKETCHES

A land use assessment will include sketches of the property including fields, pastures, water supplies (wells, springs or surface), drainage, topography, farmstead, buildings, confined housing areas, waste disposal sites, etc. and industrial and other development on and around the property that may be a potential source of elements hazardous to livestock. As well, aerial photos, county maps, pictures and other visual items will be very beneficial to documenting land use and potential hazards.

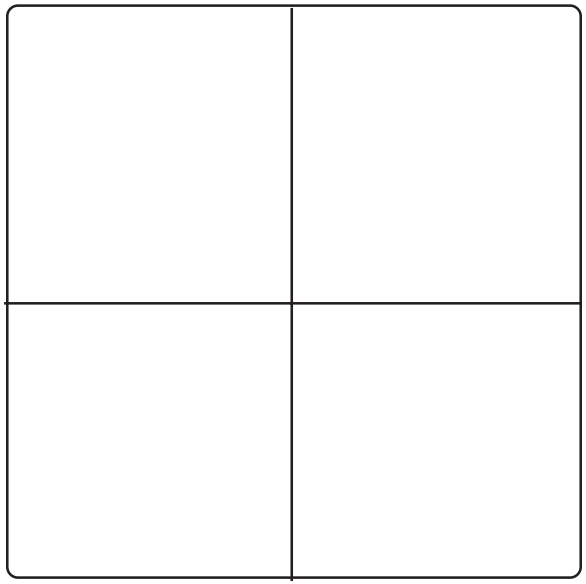
Land Description _____

NORTH



Land Description_____

NORTH



1.03 LAND USE ISSUES

Livestock managers are encouraged to document non-farm activities that may have a direct or indirect impact on the farm resources and the performance of the livestock.

Observations of Industrial Activities

Date	Type of Activity	Observations/Comments

Observations of Human Activities on the Farm Property

Date	Type of Activity	Observations/Comments

Observations of Wildlife Presence on the Farm Property

Date	Identify Species	Observations/Comments

1.04 SOIL ASSESSMENT

Livestock managers are encouraged to document an assessment of the key soil characteristics of that are considered to be necessary for a sustainable livestock enterprise.

.

Do you regularly sample soil of individual fields or soil types Yes _____ No _____

If your answer to the above question is YES, where do you keep these records?

Is soil test information and topography considered when spreading animal wastes? Yes _____ No _____

Does your soil analysis periodically include sulphur, copper, selenium, zinc, manganese and molybdenum?

Yes _____ No _____

Do you have soil compaction problems in any fields? Yes _____ No _____

If there are soil compaction problems, where are they located?

1.05 WATERSHED ASSESSMENT

Every farm is part of a watershed. Water flows onto the farm and leaves the farm. This unique process will impact on water flow and water quality which in turn can impact on livestock performance. Livestock managers are encouraged to document the following factors: (Refer to your land use sketches on Page 8)

From where does water flow onto the farm?

Where do livestock access water?

Is livestock water access controlled (eg. fenced)?

Are some areas overgrazed to the extent that water flow is excessive?

Is the vegetation adequate to allow water penetration into the soil and prevent excessive water flow?

Do you have riparian areas, with flowing water in them most of the time?

1.06 MONTHLY RAINFALL DATA

	1999	2000	2001	2002	2003	2004	2005
April							
May							
June							
July							
August							
September							
October							

1.07 COMMENT ON ANNUAL SNOW COVER

Year	Comment on Annual Snow Cover
1999	
2000	
2001	
2002	
2003	
2004	
2005	

1.08 WATER TESTING AND ANALYSIS

Livestock producers are encouraged to have a complete water analysis every five years and more frequently if environmental changes occur. Analysis for sodium and various sulphates are standard. A specific request would have to be made for the analysis of hydrocarbons.

Water Source Tested and Analyzed	Date	Where Records are Stored

1.09 FLOW TESTING OF GROUND WATER

Periodic flow testing of ground water sources is recommended. Flow testing should be undertaken more frequently when environmental changes occur. Once again, it is important for livestock producers to know where these records are kept.

Water Source Tested	Date	Where Records are Stored

1.10 ENVIRONMENTAL ISSUES

Particular attention should be given to the handling of chemicals and biological hazards. Use the following table to document how each is handled on the farm.

Date	Chemical	Handling

Date	Biological Hazard	Handling

1.11 LIVESTOCK RECORDS

Accurate and reliable information will assist in making effective decisions that contribute to the success of the livestock (farm) operation. Individual producers are expected to have basic livestock records that document type of animals, number of breeding stock and number of market stock. Including the following elements in individual livestock records will enhance the baseline data available for determining change in the performance of the livestock enterprise.

1. How are animals individually identified?

   CCIA Tags _____ Herd Tags _____ Tattoo Numbers _____ Other _____ None _____

2. Are annual year-end livestock inventories kept? Yes _____ No _____

3. Are animals regularly purchased from outside the farm? Yes _____ No _____

4. When outside animals are brought to the farm are there biosecurity procedures in place? Yes _____ No _____

5. Describe biosecurity procedures used when outside animals are brought to the farm.

1.12 FEED RESOURCES

Feed expenses can be as high as 70% of the cost of maintaining an individual animal (breeding stock) for a year. Clear documentation of the harvested forages, pasture and purchased feeds will assist livestock operators in making effective management decisions.

Feed Purchase Records should provide clear documentation of all individual loads of purchased feed including the type of feed, the quantity, the sources and the concentration of the various elements. The most important requirement of feed purchase records is the capacity to trace back to the source of an individual load of feed.

Harvested Forages and Grains Records should provide documentation of the quantity and source (field) of each type of harvested forage or grain. A critical factor to include in the harvested feed records is if the crops have been under some type of stress.

1.13 PASTURE RECORDS

Pasture Records focus on the dates when stock are moved onto and off of individual pasture areas. These records are kept to assist producers in matching the available pasture forages with the needs of the animals. There are two alternative approaches to recording this information. One would be to number the pastures (on page 17) and maintain the following records.

Year	Pasture ID	Date In	Date Out	Animal Unit Days	Comments
		Total Animal Unit Days for the Year			

Pasture Records (Continued)

The second approach would be to maintain the following type of records using one page per each year for each pasture

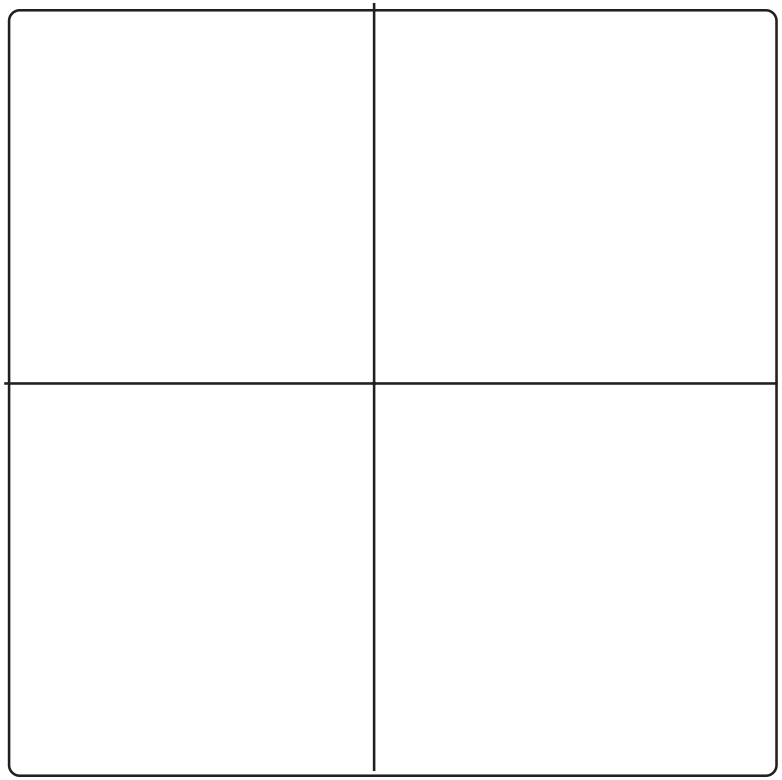
Pasture ID _____

Number of Animals on Pasture _____

Date In _____ Date Out _____

Total AUM's for the pasture _____

NORTH



1.14 NUTRITION MANAGEMENT/FEED ANALYSIS

A good nutrition program will allow a producer to avoid potential problems. For example, many reproductive problems involve poor nutrition during some period of the year. Nutrition management requires a well-designed program that ensures an adequate supply of feed throughout the year and matches the feed with the nutritional requirements of the livestock. Routine assessment of feeding programs can assist managers in evaluating how well feeding programs are working and how feed resources should be managed. Records should be kept on the minerals that are fed and any feed aditives used. Key components of nutrition management include a knowledge of feed resources, proper feed analysis, ration formulation and the use of scoring.

Do you regularly analyze your livestock feeds? Yes _____ No _____

If your answer to the above question is YES, where do you keep your records?

Is assistance used in formulating rations? Yes _____ No _____ Who _____

Are trace minerals analyzed for and supplemented Yes _____ No _____

Are minerals fed year-round? Yes _____ No _____

Are feed additives used? Yes _____ No _____

Are growth implants used? Yes _____ No _____ Type _____

Do you keep an annual year-end feed inventory? Yes _____ No _____

1.15 BODY CONDITION SCORING

Body condition scoring is a means of score for body fatness.

Are you using the NRC's 9 point body scoring system? Yes _____ No _____

Who is doing the scoring? _____

Is there someone who can validate the scores that have been recorded? Yes _____ No _____

Are you regularly taking photographs to document the overall condition of the herd? Yes _____ No _____

If photographs have been taken where are they located? _____

If using photographs be sure that they are date stamped or recorded on the back.

1.16 ANIMAL HEALTH PROGRAM

Effective animal health programs will assist individual livestock producers in both the prevention and treatment of disease problems. Supplemental information to include in these records could include:

Is a veternarian used in the animal health program?	Yes _____	No _____
Are Post-Mortems conducted?	Yes _____	No _____
Are tissue sample submitted for laboratory analysis?	Yes _____	No _____
Does a renderer pick up dead animals?	Yes _____	No _____

Good herd health and performance records are essential for achieving effective animal health programs.

1.17 VACCINATION PROGRAMS

Livestock producers are encouraged to address the following issues in their production record keeping system.

1. What is the vaccination program being implemented?

2. What diseases are being vaccinated against?

3. What are the products being used, the date of the vaccination, the dosages and the frequency of the vaccinations?

4. What are the type and age of the animals being vaccinated?

1.18 PARASITE CONTROL

Livestock producers are encouraged to include documentation of their parasite control programs in their production records. This documentation should address the following questions:

1. What parasite control programs are being implemented?

2. What specific parasites are being controlled?

3. What are the products being used, the date of the treatment, the dosages and the frequency of the treatment?

4. What are the type and age of the animals being treated?

2.01 KEY PRODUCTION FACTORS

Documentation of key production factors is an important management activity. The livestock manager generally determines the historical and key factors to document which could include measures of rates of gain, feed conversion as well as measures of units of output (eggs, milk, fibre) produced per unit of input.

Year	Production Factor	Measure	Measurement Process	Notes

2.02 KEY REPRODUCTION FACTORS

Documentation of key reproductive factors and specific reproduction problems is also an important management activity. The livestock manager generally determines the factors to document, which could include birth weights, weaning % and conception performance.

Year	Reproduction Factor	Measure	Measurement Process	Notes

2.03 CRITICAL LIVESTOCK REPRODUCTION ISSUES

ABORTIONS

Date	Apparent Abortions	Fetuses Found	Suspected Causes

Date	Laboratory Submissions	Report #	Reported Causes

STILL BIRTHS

Date	Number	Suspected Causes

Laboratory Submissions	Report #	Reported Causes

2.03 CRITICAL LIVESTOCK REPRODUCTION ISSUES (Continued)

PREMATURE BIRTHS

Number	Date	Estimated New Born Weight	New Born Viability

BIRTH DEFECTS

Number	Date	Description

NEW BORN WITH CONTRACTED TENDONS

Number	Date	Description

2.03 CRITICAL LIVESTOCK REPRODUCTION ISSUES (Continued)

UTERINE INERTIA DURING PARTURITION

Number	Date	Description

RETAINED PLACENTAS

Number	Date	Description

POST PARTURITION DISCHARGE

Number	Date	Description

2.04 CRITICAL BREEDING/RE-BREEDING ISSUES

For cattle producers in particular acceptable targets for breeding performance are to have 70% of their cows calve in the 1st 21 days (of calving), 21% in the 2nd 21 days and 9% calving in the 3rd 21 day period.

REBREEDING

Year	% of Females Birthing in 1st 21 Days	% of Females Birthing in 2nd t 21 Days	% of Females Birthing in 3rd 21 Days

AVERAGE DAYS POST BIRTHING FOR FIRST HEAT

Year	% of Females Showing First Heat in Less than 35 days	% of Females Showing First Heat in 35 to 55 days	% of Females Showing First Heat in greater than 55 days

2.05 NEW BORN VIABILITY

Year	Weaning %	Birth Weight of Females	Birth Weight of Males	Average Time from Birth to Nursing (minutes)

Year	Incidence of Assisted Births (%)	Incidence of Weak Newborns %	Incidence of Dumb Newborns (%)

2.05 NEW BORN VIABILITY (Continued)

Incidence of newborns that appeared normal only to be weak within a few hours, become recumbent, paddle with head thrown back and then die.

Year	Number of Newborn	Laboratory Submissions	Report #	Reported Causes

Other Comments and Observations Relating to Reproduction Issues

2.06 NEO-NATAL DISEASE PROBLEMS

INCIDENCE OF DIARRHEA

Year	Number of Young	Average age of Young	Treatment	Response to Treatment	Recovered Animals that Become Chronic Poor Doers

DEATH LOSSES DUE TO DIARRHEA

Year	Post Mortems Conducted	Laboratory Submissions	Report #	Reported Causes

2.06 NEO-NATAL DISEASE PROBLEMS (continued)

INCIDENCE OF PNEUMONIA

Year	Number of Young	Average age of Young	Treatment	Response to Treatment	Recovered Animals that Become Chronic Poor Doers

DEATH LOSSES DUE TO PNEUMONIA

Year	Post Mortems Conducted	Laboratory Submissions	Report #	Reported Causes

2.06 NEO-NATAL DISEASE PROBLEMS (Continued)

INCIDENCE OF NAVEL INFECTIONS

Year	Number of Young	Average age of Young	Treatment	Response to Treatment	Recovered Animals that Become Chronic Poor Doers

INCIDENCE OF WEAK YOUNG OR YOUNG UNABLE TO STAND

Year	Number of Young	Average age of Young	Treatment	Response to Treatment	Recovered Animals that Become Chronic Poor Doers

2.06 NEO-NATAL DISEASE PROBLEMS (Continued)

DEATH LOSS OF WEAK YOUNG

Year	Vet Consultations	Post Mortems Conducted	Laboratory Submissions	Report #

OTHER NEO-NATAL PROBLEMS

Year	Number of Young	Average Age of Young (Days)	Describe Treatment	Response to Treatment

OTHER NEO-NATAL DEATHS

Year	Number of Young	Average Age of Young (Days)	Describe Treatment	Response to Treatment

3.01 IDENTIFY POSSIBLE ENVIRONMENTAL CONTAMINANTS

In the event of an acute incident, livestock producers are encouraged to immediately observe, identify and document all possible sources of contamination

Describe the suspected source of the contaminants_____

_____

_____

_____

3.02 CRITICAL FACTORS TO BE MONTITORED AND DOCUMENTED AT THE TIME OF THE INCIDENT

In the event of an acute incident, documenting the following factors will assist in establishing a link between the event and any impacts on the livestock.

Date	Time	Direction from Incidence	Distance from Incidence	Duration	Description

3.03 CRITICAL DOCUMENTATION RELATING TO LIVESTOCK EXPOSURE TO THE INCIDENT

In the event of an acute incident, producers are encouraged to document all situations where livestock are exposed to the incident.

Date	Time	Type of Animal	Age & Sex of Animals	Number of Animals	Location of Exposed Animals (refer to diagram on page 39)

3.04 CRITICAL DOCUMENTATION OF ELEMENTS OF CHANGE OCCURRING OVER TIME

In the event of an acute incident, producers are encouraged to document all elements of change in the environment that might have an impact on the environmental impacts.

Date	Time	Atmospheric Conditions	Air Temperature	Relative Humidity	Barometric Pressure	Wind Direction	Estimated Wind Velocity

Date	Time	Atmospheric Conditions	Air Temperature	Relative Humidity	Barometric Pressure	Wind Direction	Estimated Wind Velocity

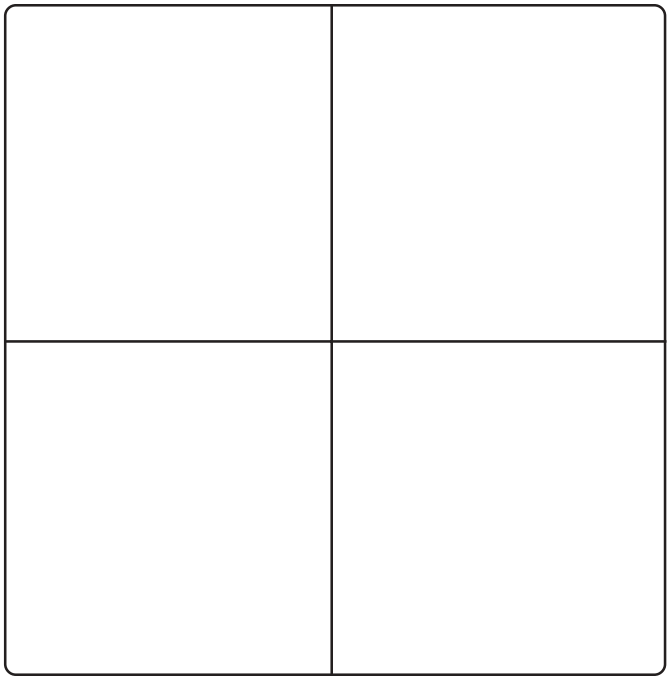
Date	Time	Atmospheric Conditions	Air Temperature	Relative Humidity	Barometric Pressure	Wind Direction	Estimated Wind Velocity

3.05 PROPERTY SKETCHES TO DOCUMENT ACUTE INCIDENT

Property sketches are an effective means of documenting the impact of an acute incident on the environment and on livestock.

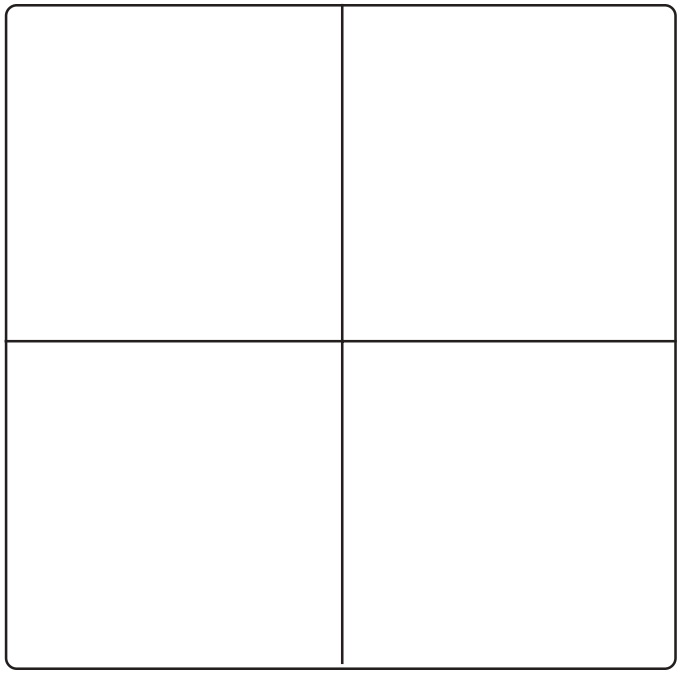
Land Description _____

NORTH



Land Description_____

NORTH



3.06 CRITICAL ANIMAL HEALTH DOCUMENTATION

Environmental contaminants generally affect animals by direct toxicity, suppression of the immune system and or interfering with the availability, absorption and utilization of essential items such as trace minerals. Livestock producers are encouraged to comment on the overall appearance of the livestock as well as document specific health matters such as pneumonia, pulmonary emphysema, mastitis, eye infections, lameness, foot rot, cracked hooves, nutritional imbalances, intestinal disorders, fertility problems and sudden deaths. Good herd health records will assist in determining whether there has been an increase in the incidence of disease. Involvement of a veterinarian can contribute significantly to disease investigation and documentation.

3.07 GENERAL COMMENTS ON THE APPEARANCE OF LIVESTOCK AFTER AN ACUTE INCIDENT.

Comment on whether your livestock appear to be thrifty, contented and performing to your satisfaction.

Days after the Incident	General Comments on Overall Appearance of Livestock
Day 1	
Day 2	
Day 3	
Day 4	
Day 5	
Day 6	
Day 7	
Day 8	
Day 9	
Day 10	

3.08 SPECIFIC COMMENTS ON EYE IRRITATIONS AFTER AN ACUTE INCIDENT

INCREASED LACRIMATION

Date	Yes	No	Comments

REDDENING OF THE MEMBRANES

Date	Yes	No	Comments

PHOTOPHOBIA

Date	Yes	No	Comments

3.08 SPECIFIC COMMENTS ON EYE IRRITATIONS AFTER AN ACUTE INCIDENT (continued)

MUCCOPURULENT OCULAR DISCHARGE

Date	Yes	No	Comments

CLOUDING OF THE CORNEA

Date	Yes	No	Comments

Other Comments and Observations Relating to Eye Irritations

3.09 SPECIFIC COMMENTS ON RESPIRATORY PROBLEMS AFTER AN ACUTE INCIDENT

NASAL DISCHARGE

Date	Yes	No	Comments

MUCCOPURULENT NASAL DISCHARGE

Date	Yes	No	Comments

BLOOD FROM THE NOSE

Date	Yes	No	Comments

3.09 SPECIFIC COMMENTS ON RESPIRATORY PROBLEMS AFTER AN ACUTE INCIDENT (Continued)

COUGHING WITH IRRITATION IN THE UPPER RESPIRATORY TRACT

Date	Yes	No	Comments

COUGHING WITH PRODUCTION OF THICK MUCUS

Date	Yes	No	Comments

RESPIRATORY DIFFICULTY

Date	Yes	No	Comments

INCREASED RESPIRATORY RATE

Date	Yes	No	Comments

3.09 SPECIFIC COMMENTS ON RESPIRATORY PROBLEMS AFTER AN ACUTE INCIDENT (Continued)

LABOURED BREATHING ON INSPIRATION

Date	Yes	No	Comments

LABOURED BREATHING ON EXPIRATION

Date	Yes	No	Comments

BLOOD IN THICK MUCUS

Date	Yes	No	Comments

Other Comments and Observations Relating to Respiratory Problems

3.10 SPECIFIC COMMENTS ON INTESTINAL PROBLEMS AFTER AN ACUTE INCIDENT

DROOLING FROM THE MOUTH

Date	Yes	No	Comments

SMACKING OF THE LIPS

Date	Yes	No	Comments

DIFFICULTY IN SWALLOWING

Date	Yes	No	Comments

3.10 SPECIFIC COMMENTS ON INTESTINAL PROBLEMS AFTER AN ACUTE INCIDENT (continued)

LOSS OF APPETITE

Date	Yes	No	Comments

EVIDENCE OF BLOAT

Date	Yes	No	Comments

ABDOMINAL PAIN

Date	Yes	No	Comments

3.10 SPECIFIC COMMENTS ON INTESTINAL PROBLEMS AFTER AN ACUTE INCIDENT (continued)

DIARRHEA

Date	Yes	No	Comments

Describe the consistency, color and odor of fecal material including mucous, blood and other material

Date	Description of Fecal Material

3.11 SPECIFIC COMMENTS ON CHANGES TO THE NERVOUS SYSTEM AFTER AN ACUTE INCIDENT

ANIMALS LETHARGIC

Date	Yes	No	Comments

ANIMALS EXCITED

Date	Yes	No	Comments

ANIMALS AGGRESSIVE

Date	Yes	No	Comments

3.11 SPECIFIC COMMENTS ON CHANGES TO THE NERVOUS SYSTEM AFTER AN ACUTE INCIDENT (continued)

MUSCLE TREMORS

Date	Yes	No	Comments

CONVULSIONS AND/OR SEIZURES

Date	Yes	No	Comments

IMPAIRED VISION

Date	Yes	No	Comments

ALTERATION IN GAIT

Date	Yes	No	Comments

3.12 SPECIFIC COMMENTS ON LOCOMOTION AFTER AN ACUTE INCIDENT

ANIMALS MOVE IN A NORMAL MANNER

Date	Yes	No	Comments

ANIMAL UNABLE TO MOVE

Date	Yes	No	Comments

MUSCLE WEAKNESS

Date	Yes	No	Comments

3.12 SPECIFIC COMMENTS ON LOCOMOTION AFTER AN ACUTE INCIDENT (Continued)

COORDINATION DIFFICULTY

Date	Yes	No	Comments

LAMENESS

Date	Yes	No	Comments

3.13 SUDDEN DEATHS

Date	Vet Consulted (Y/N)	Postmortems Conducted (Y/N)	Tissue Submitted to Lab (Y/N)	Lab Report #	Cause

Animal Health Glossary

Abortion - premature expulsion of the fetus (well before normal term)
Abcess - a localized collection of pus in a cavity
Acute - short, severe course of a disease, having a rapid onset with pronounced symptoms
Anemia - a condition in which the blood is deficient either in quantity or quality of red blood cells to enhance immunity
Animal unit - common denominator for measuring animal feed requirements where one animal unit is equivalent to the feed requirement for a 1,000-lb mature beef cow.
AUM (Animal Unit Month) - amount of feed or forage required to maintain one animal unit (e.g., a 1,000-lb cow and calf) for one month.
Ante mortem: examination before death or slaughter.
Antibiotic - Product produced by living organisms such as yeast that destroys or inhibits the growth of other organisms, especially bacteria.
Artificial insemination (AI) — The technique of placing semen from the male in the reproductive tract of the female by means other than natural service.
Atrophy - reduction in size of a tissue; usually in a muscle mass
Autopsy - the systematic examination of a body after death
Average daily gain - pounds of liveweight gained per day.
Biological hazards - biological substances that can cause problems such as fecal (manure) material, unused vaccines or improperly disposed carcasses.
Biosecurity - measures taken to prevent the introduction of diseases or other biological hazards to a farm.
Birth weight (BW) - the weight of a calf taken within 24 hours after birth. Heavy birth weights tend to be correlated with calving problems, but the conformation of the calf and the cow are contributing factors.
Bloat - an excessive accumulation of gas in the stomach.
Brucellosis - contagious bacterial disease of cattle, swine, goats, and dogs that results in abortion; also called Bang's disease.
Calving difficulty (Dystocia) — Abnormal or difficult labor, causing difficulty in delivering the fetus and/or placenta.
Calving season — The season(s) of the year when the calves are born. Limiting calving seasons is the first step to performance testing the whole herd, accurate records and consolidated management practices.
Chronic - disease that develops and heals slowly and is usually not fatal.
Clinical - disease that shows outward signs.
Colic - term used to describe abdominal pain and associated signs resulting from numerous disorders in the digestive tract.
Communicable - a disease that can pass on from on animal to another by direct contact.

Conception -the act of becoming pregnant; the fertilization of the ovum, or egg.
Congenital - a condition found at birth acquired during prenatal life, often used in the context of congenital (birth) defects.
Contagious - the degree of power of a disease to spread from one individual to another.
Culling - the process of eliminating less productive or less desirable individuals from a herd.
Dam - the female parent.
Diagnosis: identification of a disease.
Diarrhea - watery feces resulting from gastro-intestinal (gi) disorders, often related to bacterial infections.
Disease: any deviation from the normal state of health.
Dysentery - bloody diarrhea.
Dystocia - difficulty during parturition (birth); difficulty in delivering the fetus and/or placenta.

Embryo — A fertilized ovum, or egg, in the earlier stages of prenatal development, usually prior to development of body parts.
Embryo transfer — Removing fertilized ova, or embryos, from one female (donor dam) and placing these embryos into other females (host females), usually accompanied by hormone-induced superovulation of the donor dam. More young can be obtained from females of superior breeding value by this technique. Only proven producers should become donor dams.
Endemic - disease that is present in an area.
Environment - all external, or non-genetic, conditions that influence the reproduction, production and carcass merit of livestock.
Estrus (heat) - the recurrent, restricted period of sexual receptivity in females. Non-pregnant females usually come into heat 18 to 21 days following their previous estrus.
Feed conversion (feed efficiency) — Units of feed consumed per unit of weight gained. Also the production (meat, milk) per unit of feed consumed.
Fetus - unborn young.
Frame score - a score based on subjective evaluation of height and fat cover over the loin area.
Hemorrhage – bleeding.
Infection - invasion of pathogenic organisms into body tissue.
Lactate - milk production.
Latent - concealed, hidden.
Mange - contagious disease, also called scabies, scab, or itch, characterized by loss of hair, thickening of skin and scab formation as a result of mites.
Mastitis - bacterial inflammation of the mammary gland.
Membrane - a layer of tissue covering a surface or dividing a space or organ.
Metabolic disease - non-infectious disease caused by nutritional imbalance.

Morbidity - ratio of diseased animals to the whole group.
Neonatal - period after birth.
Open - term commonly used to indicate a non-pregnant female.
Palpation - examination by feeling.
Paralysis - partial or complete loss of body functions.
Parasite - organism or animal that lives on another living animal (hosts) for the purpose of food, shelter, and reproduction.
Parturition - the act of giving birth; calving, foaling.
Pathogen - disease producing organism.
Performance data - the record of the individual animal for reproduction, production and possibly carcass merit. Traits included would be birth, weaning and yearling weights, calving ease, calving interval, milk production, etc.
Photophobia - abnormally sensitive to light.
Poison - a toxic substance.
Polyvalent - vaccine that prevents more than one disease.
Post mortem - examination after death (autopsy).
Pneumonia - inflammation of lung tissue.
Prevalence - incidence or how many cases of a disease occur.
Prognosis - forecast of the outcome of a disease.
Purulent - containing pus.
Roughage - feed that is high in fiber, low in digestible nutrients, and low in energy (e.g., hay, straw, silage, and pasture).
Rumen – a compartment of the ruminant stomach that is similar to a large fermentation pouch where bacteria and protozoa break down fibrous plant material swallowed by the animal.
Ruminant - mammal whose stomach has four parts; cattle, sheep, goats, deer, and elk are ruminants.
Symptom - sign or indication of disease.
Syndrome - group of symptoms, constituting together a specific disease.
Toxin - a poison
Trauma - disorders caused by wounds or injuries.
Vaccine - substance administered to animal to stimulate its defence mechanism, usually a preparation of microorganisms to produce active immunity by the formation of antibodies.
Vaccination - administration of a vaccine.
Virulent - very infectious.
Weaning (wean) - separating young animals from their dams so that the offspring can no longer suckle.

APPENDIX

The following resources are available to assist livestock producers in dealing with issues related to environmental contamination.

Record Keeping Programs

A number of computer based record keeping systems are available for livestock producers to use in the management of their operations. Among these are the following:

1. CowSense Herd Management Software

http://www.midwestmicro.com

2. CowChip$ Computer Software

http://www.agric.gov.ab.ca/ruraldev/homestudy/cowchip$.html

3. Pro Cow

http://www.softpro.ab.ca

4. Cow Profit$

http://www.agric.gov.ab.ca/ruraldev/homestudy/cowchip$.html

Agencies

Alberta Environment

Information Centre	Phone (780)-944-0313 Weekdays, 8:15 am to 4:30 pm. Fax (780) 427-4407
Mail	Alberta Environment Information Centre Main floor, 9920-108 Street Edmonton Alberta T5K 2G8
WEBSITE	http://www3.gov.ab.ca/env/info/infocentre/index.cfm

Alberta Cattle Commission

Phone (403) 275-4400
Fax (403) 274-0007

Mail Alberta Cattle Commission
#216, 6715 – 8th Street NE
Calgary Alberta T2E 7H7

Website http://www.cattle.ca

Alberta Energy & Utilities Board

Phone (403) 297-8311

Website http://www.eub.gov.ab.ca/BBS/default.htm

Email eub.infoservices@gov.ab.ca

Alberta Environmentally Sustainable Agriculture

Website http://www.aesa.ca

Farm Based Component

Phone (780) 422-4385

Mail #206, 7000 - 113 Street
Edmonton, AB T6H 5T6

Environmental Farm Plan

Website http://www.agric.gov.ab.ca/sustain/acc/gm0202a.html

Clean Air Strategic Alliance

Phone	(780) 427-9793
Fax	(780) 422-3127
Mail	Clean Air Strategic Alliance 10035 108 St. NW Floor 10 Edmonton, Alberta T5J 3E1
Website	http://www.casahome.org

Parkland Airshed Management Zone

Phone	(403) 862-7046
Fax	(403) 238-6604
Website	http://www.pamz.org