



University of California, Cooperative Extension

Dairy News



Merced County

January 2008

A Significant Storm Event

Alejandro R. Castillo, Dairy Farm Advisor
U.C.C.E. Merced & Stanislaus Counties, CA

According to the Water Discharge Requirement General Order for Existing Milk Cow Dairies in California the waste storage area must be inspected weekly during the wet season (October 1 through May 31). It is also required to perform inspections during and after a **significant storm event**.

A **significant storm event** is defined as a precipitation event that results in continuous runoff of storm water for a minimum of one hour, or intermittent discharge of runoff for a minimum of three hours in a 12-hour period. Based on the weather report for this winter in the Central Valley of California there is a high probability of having significant storm events on our dairy farms. We must prepare and perform visual and written inspections for each significant storm event.

In these cases you should consider the following steps:

1. Daily visual inspections of storm water on containment structures for discharge, freeboard, berm integrity, cracking, slumping, erosion, excess vegetation, animal burrows, and seepage.
2. Take photos and maintain written records of any unintentional discharge. Considering a discharge the release of waste water and/or storm water to land, surface water, or ground water
3. Forms for Production Area Significant Storm Event may be found in the binder provided during the workshops under Tab 6. Visual inspection forms are also included in this newsletter.
4. All storm water discharges from the production area must be sampled. Such discharges are prohibited under the General Order.

For help in Merced, Stanislaus and San Joaquin Counties the Regional Water Board's contact person is Charlene Herbst, (916)464-4724, or you may contact your U.C. Cooperative Extension agency, U.S.D.A., N.R.C.S., trade associations, milk processors or C.D.Q.A.P. staff.

PRODUCTION AREA SIGNIFICANT STORM EVENT INSPECTION FORM

During and after each significant storm event¹ – Perform visual inspections of storm water containment structures for the conditions noted below and also note any conditions or changes that could result in discharges to surface water and/or from property under control of the Discharger. Record the date, mark the appropriate selection and provide notes as needed. A copy of this form will be needed for each significant storm event.

Date of significant storm event inspection:

Pond ID <i>(where production area storm water is stored)</i>	Discharge?	Freeboard? <i>(minimum requirement is two feet for above ground ponds and one foot for below ground ponds)</i>	Berm Integrity <i>(check any/all that are present)</i>
1. _____	[] yes [] no	<input type="checkbox"/> greater than minimum required <input type="checkbox"/> equal to minimum required <input type="checkbox"/> less than minimum required	Cracking [] yes [] no Excess Vegetation [] yes [] no Slumping [] yes [] no Animal Burrows [] yes [] no Erosion [] yes [] no Seepage [] yes [] no
2. _____	[] yes [] no	<input type="checkbox"/> greater than minimum required <input type="checkbox"/> equal to minimum required <input type="checkbox"/> less than minimum required	Cracking [] yes [] no Excess Vegetation [] yes [] no Slumping [] yes [] no Animal Burrows [] yes [] no Erosion [] yes [] no Seepage [] yes [] no
3. _____	[] yes [] no	<input type="checkbox"/> greater than minimum required <input type="checkbox"/> equal to minimum required <input type="checkbox"/> less than minimum required	Cracking [] yes [] no Excess Vegetation [] yes [] no Slumping [] yes [] no Animal Burrows [] yes [] no Erosion [] yes [] no Seepage [] yes [] no
4. _____	[] yes [] no	<input type="checkbox"/> greater than minimum required <input type="checkbox"/> equal to minimum required <input type="checkbox"/> less than minimum required	Cracking [] yes [] no Excess Vegetation [] yes [] no Slumping [] yes [] no Animal Burrows [] yes [] no Erosion [] yes [] no Seepage [] yes [] no
5. _____	[] yes [] no	<input type="checkbox"/> greater than minimum required <input type="checkbox"/> equal to minimum required <input type="checkbox"/> less than minimum required	Cracking [] yes [] no Excess Vegetation [] yes [] no Slumping [] yes [] no Animal Burrows [] yes [] no Erosion [] yes [] no Seepage [] yes [] no
6. _____	[] yes [] no	<input type="checkbox"/> greater than minimum required <input type="checkbox"/> equal to minimum required <input type="checkbox"/> less than minimum required	Cracking [] yes [] no Excess Vegetation [] yes [] no Slumping [] yes [] no Animal Burrows [] yes [] no Erosion [] yes [] no Seepage [] yes [] no

Describe any conditions or changes that could result in discharges to surface water and/or from property under the control of the discharger. If there are no such conditions/changes, indicate "None" below. Note actions taken to correct any noted deficiencies. Attach additional notes as needed.
Notes:

¹A significant storm event is defined as a storm event that results in continuous runoff of storm water for a minimum of one hour, or intermittent runoff for a minimum of three hours in a 12-hour period.

NOTE: This record must be maintained on-site for a period of five years after it is created.

MANURE MANAGEMENT HELPS CONTROL PREVALENCE OF ANTIBIOTIC RESISTANCE GENES, STUDY SAYS
(COLORADO STATE UNIVERSITY, News & Information, December 18, 2007)

Amy Pruden-Bagchi, an assistant professor in the Department of Civil and Environmental Engineering who has received national accolades for her work on antibiotic resistance genes, found that adding organic material such as alfalfa and leaf compost and watering and turning (e.g., composting) reduced the proliferation of the genes. Based on the findings, a treatment time of two to three months is recommended prior to land application to reduce the spread of resistance genes.

The study was reported in a fall issue of the Journal of Environmental Quality. Other Colorado State authors of the paper included Kenneth Carlson, civil engineering professor; Jessica Davis, professor in the Department of Soil and Crop Sciences; and students Heather Storteboom, Sung-Chul Kim and Kathy Doesken.

"More studies are required, but this is a successful first step in determining how we can keep reduce the spread of this new class of contaminant," said Pruden-Bagchi, who was recognized by President Bush in November with a Presidential Early Career Award. "My research focuses on how antibiotic resistance genes spread and how we can develop ways to treat them since there are currently no standard practices for removing them from water supplies."

Pruden-Bagchi's research has demonstrated that drug-resistant DNA itself is an environmental contaminant. This is based in part on the fact that, even if cells carrying the genes have been killed, the DNA still winds up in the environment and may get transferred to other cells.

Her most recent field studies on manure tested the genes' reactions to high-intensity management such as composting and low-intensity management such as stockpiling. With high-intensity management, researchers added materials to the manure, watered it and turned it. They found that all three antibiotics tested - chlortetracycline, tylosin and monensin - dissipated more rapidly under the high-intensity management conditions. Tetracycline and sulfonamide are commonly used antibiotics in people and animals.

Antibiotic resistance genes are not regulated; there is growing interest in understanding and documenting if there are indeed human health effects from antibiotic resistance in water. They would likely have to exceed the background levels of resistance that are already present in humans and correspond to antibiotics that are critical to fighting antibiotic resistant diseases in humans.

Pruden-Bagchi has done previous studies on the occurrence of tetracycline and sulfonamide antibiotic resistance genes in sampling sites along the Poudre River. As expected, they found higher concentrations in more populated or heavily farmed areas, but still detected low levels of antibiotic resistance genes in pristine areas as well. Pruden-Bagchi found that treated water and wastewater also carried the genes.

"Microbes carrying these antibiotic resistance genes are not effectively killed by antibiotics, and the presence of these drugs in the environment may stimulate them to proliferate," Pruden-Bagchi said.

Pruden-Bagchi received the Presidential Early Career Award through a nomination by the National Science Foundation for research using molecular biology to investigate the pathways, mitigation and treatment of antibiotic-resistant genes in the environment. In 2006, Pruden-Bagchi was awarded the NSF CAREER award; her research was presented in the January 2007 issue of Scientific American magazine.

Dairy Calf & Heifer Association Profit Seminars

Don't Miss it!

Join managers, producers, owners, and leading experts in the dairy calf and heifer industry for the DCHA Profit Seminars.

Visit www.calfandheifer.org for more information.

January 29 Sioux Falls, South Dakota
January 31 Lansing, Michigan
February 4 Modesto, California
February 6 Phoenix, Arizona
February 8 Tillamook, Oregon
March 11 Gainesville, Florida
March 13 Hagerstown, Maryland

*Growing Your
Dairy's Future*



Dairy Calf & Heifer Association (DCHA)

16020 Swingley Ridge Road Phone: 877-434-3377
Suite 200 Fax: 636-449-5851
Chesterfield, MO 63017 E-mail: rcv@drakeco.com