6th International Symposium on Animal Mortality Management

A triennial symposium since 2005

June 3-7, 2018
Embassy Suites Hotel
Amarillo, Texas
animalmortmgmt.org
Agenda

Sunday, June 3, 2018
Reception and Registration

Monday, June 4, 2018
Breakfast and Registration/Load Buses

Texas Agriculture Tours
• A look at large-scale beef and dairy production and processing
• Explore Texas sized beef and dairy production with a peek into cheese processing
• Swine production and processing with a side of beef production

5:30 p.m. Reception and Dinner

Tuesday, June 5, 2018
Breakfast
Exhibitor Showcase

Welcome and Opening Remarks
• Dr. Robert DeOtte, West Texas A&M University

Welcome from the State of Texas
• Dr. T.R. Lansford, Region Director Texas Animal Health Commission

Welcome from the Region
• Dr. Brent W. Auvermann, Director Texas A&M AgriLife Research & Extension Center

Keynote Address: Mark Teachman, D.V.M., USDA

International Keynote:
Dr. Eran Raizman, Food and Agriculture Organization, United Nations

Technical Presentation Sessions:

Session 1: Optimizing Agriculture Systems/Disposition of Final Products
Facilitator: Mary Schwartz, Cornell Waste Management Institute

• Optimizing Carcass Management Implementation Using Sensitivity Analyses from Risk Assessment - Lori P. Miller, USDA APHIS
• Animal Movement in Tunisia Using Social Network Analysis – Mohamed Naceur Baccar, National Center of Zoosanitary Vigilance
• Application of Diagnostic Tests to Inform the Choice of Disposal Option for Diseases Where Animals Can Recover - Sasidhar Malladi, University of Minnesota
• Vapor Phase Peroxide for Decontamination in Agriculture - Marek Kuzma, Institute of Microbiology
Tuesday, June 5, 2018 (Continued)

Session 2:
Emerging Disease Control and Environmental Impact
Facilitator: Mark King, Maine Department of Environmental Protection
• Carcass Disposal Methods during Major Epizootics: An Overview of African Swine Fever in Nigeria – Machebe S. Ndubuisi, University of Nigeria
• In-House Composting Field Exercise for Broiler Breeders - Gary Flory, Virginia Department of Environmental Quality
• Avian Influenza Mortality Management Options, Composting and Lessons
  Josh Payne, Jones-Hamilton

Livestock Mortality Management in Response to Natural Disasters
Facilitator: Bob DeOtte, West Texas A&M University
• Eric Glave, Kansas Department of Health and Environment
• T. R. Lansford III, DVM, Assistant Executive Director, Texas Animal Health Commission
• Mike Mayes – North Carolina Department of Agriculture and Consumer Affairs
• Jeremy Seiger – Oklahoma Department of Agriculture Food and Forestry

Technical Presentations:
Session 3: Federal, State and Industry Response
Facilitator: Dean Ross, Agrosecurity Consulting
• Federal 3D Priorities Update - Lori P. Miller, USDA APHIS
• Case Study of Enteric Illness in Responder Associated with 2015 HPAI Carcass Disposal Response - Lori Miller, USDA APHIS
• AVMA Humane Endings: An Update on the Panel on Euthanasia and the Panel on Depopulation - Cia Johnson, American Veterinary Medical Association
• Role of Meat Packing Industry in Response to Livestock Disasters
  Robert DeOtte, West Texas A&M

Session 4:
Emerging Disease Control and Environmental Impact
Facilitator: Zoe McManama, Wisconsin Department of Natural Resources
• Aquatic Disease Control of Infectious Salmon Anaemia in Atlantic Canada 2013- 2015 Sonya Natasha Piercey & Edward Malek, Canadian Food Inspection Agency
• Filth Fly Activity Associated with Composted and Non-Composted Beef Cadavers and Lab Studies on Volatile Organic Compounds - Justin Talley, Oklahoma State University
• Emergency Response: Composting in a Brucellosis Suis Outbreak
  Jean Bonhotal, Cornell University
• Livestock Carcass Disposal Exposure Assessments for Natural Disasters, Chemical, Biological and Radiological Emergencies - Sandip Chattopadhyay, U.S. Environmental Protection Agency
Tuesday, June 5, 2018 (Continued)

3D Meeting for 3D Committee Members
International Dinner for International Guests

Wednesday June 6, 2018

Technical Sessions:
Session 5: Carcass Management
Facilitator: Rebecca Podgorski, Wisconsin Department of Agriculture

• Burial Site Assessment, Construction, and Management for Environmental Protection and Disease Control - Zoe McManama, Wisconsin Department of Natural Resources
• Equine Carcass Composting – a Commercial Composting Model for Routine Mortalities - Michelle Melaragno, Kimberly Anne May, Compassionate Composting
• An Evaluation of the Efficacy of Composting as a Management Tool to Reduce the Viability of Newcastle Disease Virus – Mark A. King, Maine Department of Environmental Protection
• Recent Demonstration Projects and the Field Application of Aboveground Burial for Carcass Disposal - Gary Flory, Virginia Department of Environmental Quality

Session 6: Carcass Treatment
Facilitator: Ken Powell, Kansas Department of Health and Environment

• Ambient Alkaline Hydrolysis and Anaerobic Digestion for Management of Poultry Mortalities - Brandon H. Gilroyed, University of Guelph
• Rapid Mortality Disposal Using Containerized Composting - Jim McNelly Renewable Carbon Management LLC
• Efficacy and Efficiency of Poultry Carcass Composting Using Different Mechanical Mixing Equipment for AI Outbreaks - Jennifer Keaten, University of Iowa
• CO2 Culling with Influenza Containment System I.C.S.: Physiological and Ethical Considerations - Abdelkader Alami and Bram Kamers, University of Lome

Global Issues in Animal Mortality Management:

Challenges, Opportunities & Lessons Learned
Host: Gary Flory, Virginia Department of Environmental Quality

International Panelists:
• Dr. Eran Raizman, Food and Agriculture Organization of the United Nations, Italy
• Machebe Ndubuisi Samuel, PhD, University of Nigeria, Nigeria
• Mohamed Naceur Baccar, DVM, National Center of Zoosanitary Vigilance, Ministry of Agriculture, Tunisia
• Duncan Worsfold, Department of Economic Development, Jobs, Transport and Resources, Australia
• Edward Malek, Canadian Food Inspection Agency, Canada
Wednesday June 6, 2018 (Continued)

Sponsored by SCARAB International

Livestock Disaster Response Exercise Prep:
Continuity of Business Operations

Presenters:
- Robert DeOtte, West Texas A&M
- Ben Weinheimer, Texas Cattle Feeders Association
- Sandy Johnson, Kansas Department of Agriculture

Prepare for Departure for Demonstrations

Assemble for departure to the demonstrations

Concept and Equipment Demonstrations

Welcome: Dr. David Brauer, Director of USDA ARS Conservation & Production Research Laboratory / ARS and Texas A&M Agrilife Research and Extension Center, Bushland TX

Return to hotel – Free Evening

Thursday, June 7, 2018

Emergency Exercise

Symposium Wrap-Up

Symposium Concluded
Thank you so much for your compassion, knowledge, skill and kindness when we were faced with difficult end of life decisions for our dear old horse, Troubles. No option seemed comfortable until we were referred to Compassionate Composting. It made perfect sense to us to choose this sustainable, earth-friendly option and your sensitivity was very much appreciated. As our alpaca herd ages I am comforted to know we have this dignified and respectful way to care for their remains when the time comes.” - Jeannine Anderson

COMPASSIONATE COMPOSTING

“Respecting your horse, you, and the environment.”

MICHELLE MELARAGNO
AUBURN, ME 04210

“An Environmentally Responsible, Economically Viable Option for Large Animal Mortality Management”

207-240-1316

whistleridge@roadrunner.com

www.compassionatecomposting.com

Dear Michelle, I can’t thank you enough for your kind help with my dear Leah. You came so quickly. I have had several horses die in the last 19 years—some died on their own in the pasture, 2 were planned euthanized based on their condition and others were emergency situations. No matter the cause each time a horse gets sick my mind races, as does everyone’s I’m sure, with so many logistical things that we all wish we did not have to think about when we only want to think about doing the best for our companions - can I get vet help, can I stay home from work, what is the likely outcome, do I have enough money to cover everything and who will I call to get help with a burial. I never had just one person I could call. I was often faced with calling to try to find someone who would bury my horse on the farm. There is little dignity in handling such a large animal and it is an awful thing to deal with. What you do is very special and you do it with great skill and competence and with such compassion. If I had the money I would gladly pay 5 times the price. Knowing that you are there when the time comes for my other horses removes a huge burden from me.

Thank you again.

~Mary
ABOUT COMPASSIONATE COMPOSTING

We specialize in the respectful and dignified pick-up, handling, transport and composting of horses and other large animals after their death. Due to numerous requests, we have recently expanded our services to include smaller companion animals. We will arrange to pick up your pet from your veterinarian or directly from your home.

By request, we can place your horse in a private burial pile and return his or her remains to you (like getting the ashes back after a private cremation) in the form of a finished soil amendment. You can use this compost product for landscaping, flower beds or in your horse’s favorite field.

We utilize Technical Large Animal Emergency Rescue techniques and equipment to handle large animals, particularly the use of the Large Animal Rescue Glide.

* Composting is a green alternative to burial, landfill or cremation.

* Above ground burial eliminates the risk of soil contamination and ground water contamination.

Like Us On Facebook

Large Animal Rescue Glide
SCARAB machines are self-propelled; straddle type turners that will turn 6 to 27 foot windrows and can be used for any composting project. There is gear, belt, or hydraulic driven machines available with a track design that allows the machine to operate on many varieties of terrain. Various drum sizes and flail designs are available also to meet your specific needs. Our company has been designing and manufacturing SCARAB windrow turners to meet each customer’s needs for 45 years in White Deer, TX. SCARAB compost windrow turners are built to last!

Contact Richard Miller at SCARAB for more information to fit your composting needs. 806-883-7621
Methods of Disposal

It is imperative to properly manage animal carcasses on your farm or production facility. Ignoring best management practices (BMP) will result in potential soil contamination, a decline in your herd’s health (overall, negatively impacting your entire farm family), and more.

Following BMPs will prevent the spread of infectious diseases, while protecting air & water. Standard methods of carcass disposal include burning, incineration, burial, landfill, rendering, and composting.

Innovative technology providers are developing next generation treatment & methods of disposal. PlanET has implemented the BioRefinex Thermal Hydrolysis process to safely treat up to 30,000 MT of Specified Risk Material (SRM) per year.

This process not only safely offers complete pathogen kill, it also produces megawatts of renewable energy every day.

Thermal Hydrolysis (THD) uses a combination of high temperature (366°F) and high pressure (174 psi) to break tissue molecules down to their original small molecular building blocks (40 minutes processing).

THD results in a dramatic reduction in viscosity, the destruction of all infectious agents (including prion diseases, e.g. BSE) and the increase of biodegradability.

The BioRefinex THD process operating parameters are approved by the Canadian Food Inspection Agency (CFIA) for SRM prion destruction.

The World Organization for Animal Health (OIE) adopted the BioRefinex technology as a recommended process for the destruction of all transmissible spongiform encephalopathy and microbiological disease agents in May 2010. The OIE formally approved the technology for incorporation into the 2010 Terrestrial Animal Health Code.

Benefits of Thermal Hydrolysis Treatment

- Complete pathogen destruction in less than 2 hours
- No groundwater contamination risk from diseases
- Create clean, renewable biogas which can be converted to electricity or natural gas
- Proven technology with minimal material handling
PlanET Biogas: full solution provider

PlanET Biogas is a subsidiary of the PlanET Biogas Group, one of the world’s leading biogas plant suppliers. Founded in 1998, the company’s service portfolio covers all fields of biogas technology and component distribution: from planning and plant construction, to service and biological support.

While PlanET’s reach may be global, we have always taken great strides to maintain our focus on local markets and see ourselves as long term partners with each one of our customers.

Our proven and reliable technology offers high gas yields coupled with low energy consumption, while still maintaining a cost effective approach to the market. As a result, PlanET has designed and constructed more than 400 successful biogas plants worldwide, and has a workforce of over 200 employees.

At PlanET we promote biogas as a renewable energy source that will deliver business success while protecting the climate. Biogas plants are a solid, long-term investment. We are convinced that biogas plants represent both a reliable energy supply and also the perfect solution for utilization of agricultural and industrial “waste” streams. We do everything to ensure that your investment pays off quickly and reliably.

The modular design allows biogas plant operators and investors to react to new developments in the feedstock and energy market at any time.

Safely Handle Your Animal Mortalities

Ask us how.

United States
5937 State Route 11
Homer, NY, 13077

T: + 1-877-266-0994
contact-usa@planet-biogas.com

Canada
56-113 Cushman Road
St. Catharines, ON L2M 6S9

T: + 1-905-935-1969
info@planet-biogas.ca

www.PlanET-Biogas.com
New Development

PlanET partnered with ECB Enviro North America in 2011 to build a multi-megawatt anaerobic digestion facility in Southern Alberta, Canada.

Funding was available to help and with a total project value of over $35M, a grant was provided from the Climate Change and Emissions Management Corporation (CCEMC) of $8.2M.

The area around Lethbridge, Alberta has the largest density of Intensive Livestock Operations (ILOs) in Canada, offering a wide variety of substrates to feed into the biogas plant. Currently the plant is processing dairy, hog & poultry manure, cheese whey, DAF /peptone from hog and poultry processing, residues from the processing of potatoes and grain, as well as mixed organic food waste.

The plant uses much of PlanET’s patented technology to process their substrates and achieve optimal biogas production.

Of the electricity produced at Lethbridge Biogas, 5-10% is used for the parasitic load of the plant, with the balance feeding directly into the Alberta electrical grid.

The Lethbridge project is registered in the Alberta Offset System, and has the potential to reduce GHG emissions up to 225,000t of CO₂ by 2021.

Lethbridge Biogas was commissioned in late 2013, followed by an expansion in 2017 which comprised of a feedstock crusher and thermal hydrolysis unit. This equipment is able to safely process up to 30,000 tonnes annually of animal-by-products including deadstock.

The ultimate build-out of this plant will include additional digesters, a fertilizer processing unit and renewable natural gas injection.

Project Details

Location: Lethbridge, Alberta, Canada

- Commissioning: December 2013
- Input material: Dairy, hog, poultry manure, cheese whey, residues from potato, mixed food waste, SRM, slaughterhouse wastes, deadstock
- Solids charging system: PlanET Vario, PlanET eco® flow
- Pre-Storage Tanks: 2 x 325,195 gal.
- Digester: 3x tanks 1,037,404 gal. each.
- Wall & floor heating, submersible agitators, double membrane roof
- Gas-tight effluent storage tank: 1,493,893 gal. gross volume; 3x submersible agitators, eco cover® plus
- CHP: 2x 2G 1.425 MW engines
- capacity of up to 30,000 MT/yr (3 shifts)
- CFIA permit issued April 2017
- THD commissioned in Q2 2017
- approximately 2,500 tonnes of SRM processed in Q3/Q4 2017; mainly deadstock
Who We Are

The AVMA is the nation's leading advocate for the veterinary profession. Representing more than 91,000 members, we protect, promote and advance the needs of all veterinarians and those they serve.

Our commitment is to advance the shared interests, values and goals of our membership, through a variety of avenues:

- We develop positions on key issues and advocate for veterinarians, advancing their ability to provide crucial veterinary services.
- We provide educational accreditation and certification programs that protect and elevate the quality of veterinary care.
- We provide timely and relevant products and services to our members that enhance their opportunities for success and service, and support them in protecting the health and welfare of animals in their care.
- We educate the public on the important and varied types of work that veterinarians do to advance both animal and human health.

Our Core Values

The AVMA is:

- Ethical
- Inclusive
- Science-based
- Animal-focused
- Member-centric
- Supportive
- Fiscally responsible
- Efficient
- Innovative

We are a diverse and passionate group of professionals, all striving to improve the health and well-being of animals, humans and the environment we share.
History of the AVMA

Correspondence among practitioners along the East Coast led to a national convention of veterinary surgeons in 1863 in New York. The first meeting was attended by 40 delegates representing seven states: New York, Massachusetts, New Jersey, Pennsylvania, Maine, Ohio and Delaware.

Elected officers included the French-trained Dr. Alexandre Liautard, who headed the American Veterinary College in New York and was a dominant voice in the profession during this period. Under the direction of Liautard, New York became the unofficial headquarters of the USVMA and the American Veterinary Review was founded to be the voice of the profession. The USVMA was renamed the American Veterinary Medical Association (AVMA) in 1898.

In 1900, Liautard returned to France and the American Veterinary Review changed its name to the Journal of the American Veterinary Medical Association (JAVMA); it featured contributions from noted veterinary practitioners in what was rapidly becoming a recognized medical profession. By 1913, the AVMA had grown to 1,650 members. Membership requirements were revised so that being a graduate of a three-year, accredited veterinary school became mandatory (prior to this, self-proclaimed practitioners could be members of the association).

Four women graduated from U.S. Veterinary schools in 1915 and began practicing.

The American Journal of Veterinary Research joined JAVMA in 1940 and the publication evolved to become the primary forum for veterinarians to publish basic and clinical research studies.

Today, the American Veterinary Medical Association has more than 91,000 members. These professionals use their skills to care for the health and well being of humans, animals, and the environment.

In addition to caring for the nation’s more than 70 million dogs, 80 million cats, 11 million birds, 7 million pet horses, and millions of other companion animals, veterinarians serve in medical research, prevention of bio- and agroterrorism, and food safety and contribute greatly to scientific breakthroughs throughout the world.
Vision, Mission and Values

Vision

The American Veterinary Medical Association's vision is to be the trusted leader in protecting, promoting and advancing a strong, unified veterinary profession that meets the needs of society.

Mission Statement

The mission of the Association is to lead the profession by advocating for its members and advancing the science and practice of veterinary medicine to improve animal and human health.

Core Values

Our core values focus the AVMA to be:

• **Ethical:** We act with integrity, honesty and respect.

• **Inclusive:** We represent and support a diverse community of veterinarians with unique perspectives.

• **Science-based:** We lead with science, providing trusted and evidence-based information, and promote research to improve the health and well-being of animals and humans.

• **Animal-focused:** We support veterinarians in their stewardship of animal health and welfare and their role in promoting public health.

• **Member-centric:** We are accountable to the needs of our members.

• **Supportive:** We invest in the development of our staff and volunteer leaders.

• **Fiscally responsible:** We practice prudent financial decision-making and accountability.

• **Efficient:** We continuously assess and improve our delivery of products and services.

• **Innovative:** We promote creativity and embrace change.

Goal

The association’s goal is focused squarely on our efforts to grow member value by increasing member satisfaction and market share across all segments of the profession.
Ecodrum™ is the leading supplier of in-vessel mortality composting equipment. Since 2007, poultry producers have relied on Ecodrum™ composters to dispose of their mortality in a cost-effective and environmentally sensitive manner.

Benefits:
• No Expensive Electric Bills
• No Invasive Trucks
• Neighbor Friendly
• True Bio-Security

Contact us:
(701) 446-6139
/ecodrumcomposter
www.ecodrumcomposter.com
What is alkaline hydrolysis?
Alkaline hydrolysis is a process by which animal tissues are broken down into their basic building blocks. This naturally-occurring process is accelerated in the Bio.Liquidator system, producing a sterile solution of amino acids, small peptides, sugars, nutrients, and soap, along with the mineral ash of the bones and teeth (calcium phosphate).

Benefits of the process?
- Low energy consumption
- No emissions of harmful greenhouse gasses
- 1/10 the carbon footprint of cremation
- Destruction of chemicals (including euthanasia chemicals)
- Sterilization of pathogens
- Operation is less costly and cleaner than cremation/incineration
- Creation of a useful byproduct as natural fertilizer

Why the Bio-Response system?
- We have over 18 years’ experience with alkaline hydrolysis
- Affordable, reliable, small footprint, and easy to install
- Available in stationary or mobile configurations

Specific uses for this technology:
Animal Shelters / Veterinary Facilities / Animal Crematory
- Processing of deceased animals as an alternative to costly cremation/incineration
- Process which sterilizes any chemicals/pathogens
- Option of recovering bone ash for pet owners by use of specialized containment bags to ensure the return of the proper remains
- Large capacity to accommodate deceased horses and/or large volumes of pet mortalities

Universities / Medical Research Institutions
- Disposal of necropsy or research animals, sterilization of any chemicals and pathogens
- Operation is less costly than incineration
- Equipment for emergency disease response programs

Meat Processing Plant / Abattoir / Rendering Facility
- Disposal of on-site Specified Risk Materials (SRM): skulls, brains, spinal columns, and other parts that if infected would be high-titre for prion material
- Creation of a usable fertilizer byproduct

Farms / Co-Ops / Agricultural Applications
- Rapid disposal of animal carcasses for on-site processing to eliminate dependence on renderer services, unattractive disposal operations, costly incineration, and time consuming decomposition processes
- Immediate disposal of diseased animal carcasses to prevent further outbreak
- Creation of a usable fertilizer byproduct

Highway Departments / Towns and Municipalities
- Routine disposal of road kill, particularly diseased animals or species prone to carrying disease (for example, rabies and prion diseases)
- As an integral part of a disease prevention and response plan
## BioLiquidator System Features and Specs

**Models Available**
- **S2500, S4000:** Stationary models for permanent indoor installation
- **M2500, M4000:** Mobile models on a trailer to be pulled by a pickup truck

**Capacity (min-max)**
- **S2500, M2500:** 500-2500 pounds (227-1134 kg)
- **S4000, M4000:** 750-4000 pounds (334-1814 kg)

**Operating Temperature**
- 199-205°F (93-96°C); User-Selected

**Turnaround Time**
- 18-20 hours for typical installation and use (from start of one cycle to the start of the next)
- One cycle per day is standard, however special accommodations can reduce cycle times for some applications (please inquire for details)
- For Emergency Disease Response:
  - Poultry (chicken, turkeys): 2 hours turnaround
  - Medium (pigs, deer): 6-8 hours turnaround
  - Large animal (equine, bovine): 12 hours turnaround

**Drain Procedure**
- Standard draining is initiated by the user via the PLC; a cool water co-flush is optional
- Discharge temperature control is available as an option

**pH Control (Optional Feature)**
- Optional pH reduction system

**Heating Source**
- Stationary units—natural gas, propane, steam, diesel, and electric available
- Mobile units—on-board propane is standard (connection to a larger off-board propane source is possible); diesel configuration is available as an option (please inquire)

**Required Utilities**
- Water Supply: Minimum 40 psi hose connection
- Power Supply:
  - Stationary units—220V Single Phase 50/60Hz (other voltages available)
  - Mobile units—Onboard propane generator or local electricity (see above)

**Suggested Ancillary Equipment**
- Weighing device/scale
- PPE and compliant wash station (portable units available for mobile systems)
- Optional for pet crematories:
  - Specialized baskets with individual pet compartments
  - Drying method for final bone remains
  - Remains Processor (to process final bone remains into a returnable ash)

**Dry Weight**
- **Stationary:** S2500 6000 lb (2722 kg)  S4000 6500 lb (2948 kg)
- **Mobile:** M2500 8300 lb (3765 kg)  M4000 8800 lb (3992 kg)
- **Crane attachment adds 750 lb (340 kg); contact us for operating weights**

**Dimensions**
- **Stationary Models:** 184"L x 81"W x 81"H (467cm x 206cm x 206cm)
  (includes tank and all necessary components)
- **Mobile Models:** 232"L x 95"W x 100"H (589cm x 241cm x 254cm)
  (includes trailer, tank, and all other necessary components)

**Additional Options**
- Crane Hoist with attachment for lifting and loading animals
- Effluent Receiving/Transfer Trailer (1000 gal/3785L)
- Liquid Chemical Feed Kit (pump and chemical metering system for liquid chemical); Note: *Dry chemical is added manually and does not require a chemical tank or injection system*
- Field Operation Package (mobile units only)
  - Includes a self-priming pump and pond water siphon hose kit with mobile unit; generator comes standard with mobile units
- Highway Department Package (mobile units only)
  - Includes traffic arrow and crane; generator comes standard with mobile units
- Onboard Propane Electric Generator 115/230V (standard on mobile unit)
- Custom plaque with choice of labeling and/or graphics

**Notable Benefits**
- Not a pressurized system—operates at atmospheric pressure
- No need for a boiler or other complex components common with pressurized systems
- No submerged pump seals
- Dual auto-variable agitation provides optimal circulation of solution
- Hydraulically-tipping tank tilts to accommodate a variety of loading equipment
- Operator does not need to be present during operation
- Substantially lower operating cost than incineration/cremation
- Low equipment cost, simple operation, and reliability
- All parts available locally; all components serviceable locally
- Mobile units allow for shared location operation, on-site emergency disease response, in increased containment for disease mitigation
- High ground clearance of mobile units allows access to rugged and remote areas
- Byproducts are valuable fertilizers

*Bio-Response Solutions, Inc. • 200 Collins Ct., Danville, IN 46122 • 317-386-3500 • Info@bioresponsesolutions.com • www.bioliquidator.com*

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June 2018 | Amarillo, Texas
Routine Mortality Management and Emergency Disease Response

1. Easy to Dispatch & Transport to Site

Units have high ground clearance and pull nicely with a standard pickup truck; fifth-wheel configuration available.

2. Easy to Load System

The unit tips hydraulically via remote control to accommodate any loading method.

3. Run a Cycle Anywhere

Units are completely self-contained with onboard propane and generator, alkali is available everywhere, and any water source can be utilized.
4. Easy to Empty / Sterile Remains

Units tip hydraulically for simple and FAST cycle turnaround. The final bone remains are sterile. Unit is easy to decon before transport away from the disease site.

4. Safe and Valuable Byproducts

The sterile effluent has dozens of options for disposal and/or recycling, and every operating site will have multiple options. Effluent may be applied to compost windrows or directly land applied (via injection or top-dressing). Systems may also be discharged to the sanitary sewer, anaerobic or aerobic digesters, manure pits or lagoons for later application, or holding tanks for temporary storage.

2016 Mobile Models | 2500 and 4000 lb Capacities
PHOS-CHEK® WD881
Class A Foam Concentrate

Description
Phos-Chek WD881 Class A Foam concentrate is specially formulated to make water more effective for fire fighting. The unique combination of surfactants in WD881 significantly reduces water’s surface tension and, when mixed with air, creates a superior foam blanket that surrounds fuels with a thick layer of water. This creates a barrier between the fuel and the fire, knocking down the fire faster than water alone, and allow fire fighters to see the areas of application. Making the water more effective reduces the amount of water needed to extinguish the fire, reduces water damage and increases fire fighter safety through quicker knockdown and reduced mop-up/overhaul requirements.

WD881 is highly effective for fighting Class A fires when mixed with water at use rates of 0.1% to 1.0%. It has proven effectiveness in many applications including Compressed Air Foam Systems (CAFS), structural firefighting, forest fire suppression and prescribed burning, mine fires, industrial Class A fires, and for extinguishing hydrocarbon spill fires.

Phos-Chek WD881 is the most concentrated Class A foam product available today. Other products contain significantly more water in the concentrate. This extra water means higher use rates will be required to achieve expected results.

WD881 does not contain fluorinated surfactants such as PFOS/PFOA. Fluorinated surfactants are used in Class B foam concentrates and are necessary to form a film on flammable liquid fires. Class B foams should not be used on Class A fires. Never mix Class A and Class B foam concentrates.

Qualifications and Uses
WD881 is fully tested and qualified for use by the USDA Forest Service under Specification 5100-307a for all application methods including ground engines, Canadair water scooper aircraft, and fixed tank helicopters. WD881 is compatible with fresh water, sea water and long-term retardant. Foam characteristics are not affected by freeze-thaw.

WD881 is a UL listed wetting agent at only 0.1%, contains NO HAZARDOUS INGREDIENTS, is readily biodegradable, and has no flash point, making it safe to use near open flames. WD881 meets the requirements of NFPA 1150.

Use Rates
- Wetting Agent: 0.1%
- Direct attack: 0.3% to 0.5%
- Mop Up/Overhaul: 0.1% to 0.3%
- Exposure Protection: 1.0%
- Brush (Pre-Treatment): 0.7% to 1.0%

Packaging
Phos-Chek WD881 is available in bulk trucks, 260 and 330 gal. semi-bulk tote bins, 30 and 55 gal. drums, 5 gal. jerry cans and 4 oz. bottles. Special package sizes available.

Product Characteristics

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<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Color/Odor</td>
<td>Tan liquid with a hint of orange blossom</td>
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<tr>
<td>Viscosity</td>
<td>41 centipoise (cP) at 75°F (24°C)</td>
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<tr>
<td>Density</td>
<td>8.55 lbs/US gallon</td>
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<td></td>
<td>1.027 kg/liter</td>
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<tr>
<td>pH</td>
<td>7.0-8.0 (cP); typically 7.5</td>
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<tr>
<td>Surface Tension</td>
<td>29.6 dynes/cm² @ 0.3%</td>
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<tr>
<td>Flash/Fire Point</td>
<td>None (Closed Cup)</td>
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<td></td>
<td>260°F (127°C) Flash (Open Cup)</td>
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<tr>
<td></td>
<td>268°F (131°C) Fire (Open Cup)</td>
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www.phoschek.com
PHOS-CHEK® WD881
Class A Foam Concentrate

Always use the right tool for the job

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<th>Application</th>
<th>Long-Term Retardant</th>
<th>Gel</th>
<th>Class A Foam</th>
<th>Water</th>
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<tbody>
<tr>
<td>Indirect Attack</td>
<td>⚫⚫⚫⚫</td>
<td>⚫⚫</td>
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</tr>
<tr>
<td>Direct/Parallel Attack</td>
<td>⚫⚫⚫⚫</td>
<td>⚫⚫</td>
<td>⚫</td>
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<tr>
<td>Interior Structure Attack</td>
<td>⚫⚫</td>
<td>⚫⚫</td>
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<tr>
<td>Structure Protection-Indirect Application</td>
<td>⚫⚫⚫⚫</td>
<td>⚫⚫</td>
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<tr>
<td>Structure Protection-Direct Application</td>
<td>⚫⚫⚫⚫</td>
<td>⚫⚫</td>
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<tr>
<td>Mop Up</td>
<td>⚫⚫</td>
<td>⚫⚫</td>
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<tr>
<td>Prescribed Burn Control</td>
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<td>⚫⚫</td>
<td>⚫</td>
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</tr>
</tbody>
</table>

- ⚫⚫⚫⚫ – Superior Effectiveness
- ⚫⚫⚫ – Excellent Effectiveness
- ⚫⚫ – Good Effectiveness
- ⚫ – Baseline Effectiveness

Handling Precautions

- For detailed safety information, please refer to the MSDS.
- WD881 concentrate is moderately irritating to eyes and slightly irritating to skin. Prolonged or repeated contact with the concentrate may produce skin irritation and inhalation of its mist may irritate the nose and upper respiratory system.
- Eye Protection: Goggles are recommended when handling concentrate. If in the eyes, flush immediately with plenty of water for at least 15 minutes.
- Skin Protection: Wear protective clothing and chemical resistant gloves when handling concentrate. Exposed skin should be washed as soon as possible.
- Respiratory Protection: None required. Avoid breathing mist or vapor.
- Other Precautions: Keep container closed. Use with adequate ventilation.
- These precautions and practices are similar to those used with any heavy-duty detergent.
- Water solutions of WD881 at use levels (0.1%-1.0%) are only minimally irritating but should be washed from the skin as soon as practical, as drying and chapping could result from prolonged exposure.
- For complete MSDS, visit www.phoschek.com.

For more information, contact any of our worldwide ICL Fire Safety offices.

**United States**
ICL Performance Products
10667 Jersey Blvd.
Rancho Cucamonga, CA 91730
Tel: (800) 687-3626
(909) 983-0772
24 Hrs: (909) 946-7371
Fax: (909) 984-4770

**Canada**
ICL Performance Products Canada Ltd.
3060 Airport Road
Kamloops, BC
Canada, V2C 7V2
Tel: (800) 665-2535
(250) 844-3530
Fax: (250) 554-7788

**Europe**
ICL Biogama SAS
415, rue Armand-Pole d'Activités
F-13852 Aix-en-Provence Cedex 3
France
Tel: +33 (0) 4 42 24 45 08
Fax: +33 (0) 4 42 24 29 99

**Australia**
PC Australasia Pty Ltd.
46 Hudson Crescent
Alberta New South Wales 2661
Australia
Tel: +61 2 6040 5900
Fax: +61 2 6040 5001

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Captive Bolt Euthanasia

True Stunning Technology
Our devices produce a stun in < 5 milliseconds. The central nervous system requires 150 milliseconds to respond to a stimulus; therefore, with true stunning technology, the animal is immediately unconscious and insensible to pain!

Captive Bolt Devices
The modern captive bolt device and a conventional automobile engine have a similar means of transferring potential energy: the piston. The piston is connected to the bolt. The piston-bolt assembly is held “captive” in the cylinder and cycles from one end of the cylinder to the other with each firing (1-2-3). The kinetic energy is carried by the moving piston-bolt assembly and transferred to the animal by contact with the bolt. The energy impulse from the exposed bolt causes an instant irreversible-stun!

Bock Industries, Inc.
156 Bock Lane
Philipsburg, PA 16866
United States
814-777-3890
randall@bock-industries.com

For more information:
www.bock-industries.com

Euthanasia and Mass Depopulation of smaller livestock on the farm
www.bock-industries.com
Our Company
Bock Industries designs and manufactures captive bolt tools for euthanasia and mass depopulation of livestock on the farm.

Our Motivation
Quality euthanasia and humane slaughter represent important aspects of animal welfare. Our captive bolt technology helps large and small agricultural producers achieve their respective animal welfare goals by delivering scientifically tested products that support:
- AVMA Guidelines on the Euthanasia of Animals
- Animal welfare audit programs
- The market requirements of retailers worldwide

Our Design Priorities
- Preserving human safety
- Supporting humane animal euthanasia
- Developing novel tools based on science

Euthanasia
The term *euthanasia* is derived from the Greek terms *eu*, meaning *good*, and *thanatos*, meaning *death*. A "good death" would be one that occurs with minimal pain and distress.

Animal Euthanasia
Animal euthanasia is the act of inducing humane death in animals; no pain is felt.

Classification:
Nonpenetrating Captive Bolt Cordless Device

Power Source:
Mini-propane Canister (On-board)

Primary Application:
Euthanasia
Mass Depopulation

Key Features:
Operator Safety
Instant Irreversible-insensibility

Subjects:
Turkeys, Broilers, Layers, "Bobby" Goats

Classification:
Nonpenetrating Captive Bolt Hose-connected Device

Power Source:
Compressed Air or CO₂ (120 psi)

Primary Application:
Euthanasia
Boutique Slaughter & Processing Backup

Key Features:
Operator Safety
Instant Irreversible-insensibility

Subjects:
Turkeys, Broilers, Layers, Piglets, Rabbits

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