United States Environmental Protection Agency

EPA 821-B-05-001
March 2006

Compliance Guide for the Concentrated Aquatic Animal Production Point Source Category

Chapter 10: Material Storage for Flow-through, Recirculating, and Net Pen Facilities

Full document available at
http://www.epa.gov/waterscience/guide/aquaculture

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Chapter 10: Material Storage for Flow-through, Recirculating, and Net Pen Facilities 

Material Storage

It is important to properly store materials used at aquaculture facilities to protect the environment. Specifically, the ELGs require that facilities ensure proper storage of drug, pesticides, and feed in a manner designed to prevent spills that may result in a discharge of these materials to waters of the United States. The ELGs also require facilities to implement procedures for properly containing, cleaning, and disposing of any spilled materials.

Examples of Material Storage Practices

1) Use and store drugs and pesticides in a manner to prevent contamination of the environment 

Drugs and pesticides should be stored away from rearing areas, feeds, and water sources, in locations that are secure, dry, void of drains, water tight, well-ventilated, and not subject to extreme temperatures. Also consider securing the storage areas to avoid tampering or vandalism.

Refer to EPA's Office of Pesticides website on Pesticide Storage Resources (http://www.epa.gov/pesticides/regulating/storage_resources.htm) or JSA's *Guide to Drug, Vaccine, and Pesticide Use in Aquaculture* (http://aquanic.org/jsa/wgqaap/drugguide/drugguide.htm) for useful information or suggestions for ensuring proper storage or drugs, pesticides, and feed to prevent spills.

Drugs and pesticides should be used only when needed and only for the specific use indicated on the label. In some cases, drugs are used under an INAD exemption or prescribed by a veterinarian as an extralabel drug use. Use of these materials is regulated by federal and state agencies, and individuals are responsible for using these products according to label directions and disposing of containers and unused chemicals according to applicable federal and state regulations.

2) Use and store feed in a manner to prevent contamination of the environment and to protect the quality of the feed 

Feed should be stored away from rearing areas and water sources, in locations that are secure, dry, water tight, and not subject to extreme temperatures.

Storing feed properly maintains feed quality. To protect feed quality, store it to prevent insect and rodent contamination. Bacteria and fungi (mold) can destroy the nutritional value of feed and produce toxins, which may stress or kill fish. Keeping feed dry and maintaining temperatures to prevent condensation helps to minimize the growth of bacteria and molds. Follow the feed manufacturer's storage recommendations for best results.

Handle and store feed with care to prevent physical breakdown of feed into fine particles. If fines are present in feed, they should be removed and disposed of properly.

Although most currently used formulations are extruded pellets, which produce very little fines, check with your feed manufacturer to determine if they will provide a credit and take back the fines.

Figure 10.1. Feed storage area

3) Develop a spill response and prevention plan for drugs, pesticides, and feed (you can also develop these plans for petroleum products and other hazardous products that may be found at your facility)

The best way to avoid runoff contamination from spilled materials is to prevent the spill from occurring. Carefully storing materials in sound, clearly labeled containers and regular inspection and maintenance of equipment are key practices to prevent spills. Materials stored outdoors should be covered and kept on paved areas to protect them from being mobilized by wind and runoff. If not covered, storage areas should be designed to drain with a slight slope (approximately 1.5 percent) to an area that will provide treatment prior to disposal. Use secondary containment, such as berms, safety storage cabinets, or drum containment systems, when storing liquids.

State and federal laws require reporting of significant spills of many chemical products. Although the quantity of drugs and pesticides used and stored at CAAP facilities is generally small, check with state and local authorities for specific details about any chemicals that would require reporting in the event of a spill at your facility. A plan should be developed specifying response procedures, key staff, and phone numbers of regulatory authorities. All facility employees should be aware of the plan and the plan should be accessible to all employees at all times. Refer to Chapter 13 of this guidance for information about training employees in spill prevention.

Spill response and prevention plans can be used to ensure that a facility properly contains, cleans, and disposes of spilled materials. The plan should clearly state measures to stop the source of a spill, contain the spill, clean up the spill, dispose of contaminated materials, and train personnel to prevent and control future spills.

To develop the plan, first identify potential spill or source areas, such as loading and unloading, storage, and processing areas, and areas designated for waste disposal.

Provide documentation of spill response equipment and procedures to be used, ensuring that procedures are clear and concise. Give step-by-step instructions for the response to spills at a particular facility. This spill response and prevention plan can be presented as a procedural handbook or a sign. The spill response and prevention plan should:

- Identify individuals responsible for implementing the plan.
- Define safety measures to be taken with each kind of waste.

- Emphasize that spills must be cleaned up promptly.
- Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or publicly-owned treatment works for assistance.
- State procedures for containing, diverting, isolating, and cleaning up the spill.
- Describe spill response equipment to be used, including safety and cleanup equipment.

The use of water for cleanup should be strongly discouraged. Launderable or disposable shop rags should be used for small spills of non-volatile chemicals, and rags should be properly cleaned or disposed of. Larger spills should be absorbed with vermiculite, sawdust, kitty litter, or absorbent "snakes." Disposal methods depend on the hazard level of the spilled material. Nonvolatile liquids can be cleaned up with a wet/dry shop vacuum and disposed of with the rest of the facility's waste. Drains or inlets to storm sewers should be plugged during spill remediation to prevent off-site runoff/discharge of pollutants.

A spill prevention and response plan must be well planned and clearly defined so that the likelihood of accidental spills can be reduced and any spills that do occur can be dealt with quickly and effectively. Training might be necessary to ensure that all relevant personnel are knowledgeable enough to follow procedures. Equipment and materials for cleanup must be readily accessible and clearly marked for personnel to be able to follow procedures.

Remember to update the spill prevention and response plan to accommodate any changes in the site or procedures. It is also important to regularly inspect areas where spills might occur to ensure that procedures are posted and cleanup equipment is readily available.

A spill prevention and response plan can be highly effective at reducing the risk of surface and groundwater contamination. However, the plan's effectiveness is enhanced by worker training, availability of materials and equipment for cleanup, and extra time spent by management to ensure that procedures are followed.

Spill prevention and response plans are inexpensive to implement. However, extra time is needed to properly handle and dispose of spills, which results in increased labor costs.

If you want to track spills from your facility for your own record-keeping, you can use the example tracking worksheet in Appendix O.

Additional Suggestions

1) Use and store petroleum products to prevent contamination of the environment

State and federal laws require reporting of significant spills of petroleum products. A plan should be developed specifying response procedures, key staff, and phone numbers of regulatory authorities.

Petroleum leaking from storage tanks or farm equipment wastes a valuable resource and can contaminate surface or underground water supplies. Petroleum products are highly odorous and small amounts in water can produce an off-flavor in aquatic animals. Petroleum storage in above-ground and underground tanks is regulated by federal and state agencies. Information on petroleum storage regulations can be

obtained from state Departments of Commerce, state Departments of Environmental Quality or Protection, or from EPA regional offices. Aquaculturists should also implement a regular maintenance schedule for tractors, trucks, and other equipment to prevent oil and fuel leaks. Used oil should be disposed of through recycling centers.

Figure 10.2. Fuel storage

Facilities can also address spill prevention and response for petroleum products in their spill prevention and response plan, described above.