

HILL CREST DAIRY
MANURE MANAGEMENT PLAN
Illinois General NPDES Permit

IL0074705

Prepared for:

Hill Crest Dairy, L.L.C.

And

Illinois Environmental Protection Agency

Prepared by:



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July 28, 2010

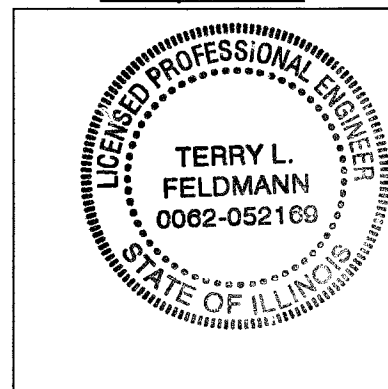
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MSI Project No. 238-09006B

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Purpose

The purpose of this manure management plan is to detail the procedures that will be followed in the operation of Hill Crest Dairy, L.L.C. of Elmwood, IL (f/k/a Inwood Dairy, New Horizons Dairy). The plan contains provisions for removal of livestock waste, and the application of these materials to crop land at agronomic rates. This plan is intended to meet or exceed the requirements of the Livestock Facilities Management Act Subpart H, Waste Management Plan.

Introduction

Hill Crest Dairy, L.L.C. is currently a 1610 cow milking facility, with plans to increase to 1970 cows. Replacement stock (heifers) and some dry cows are raised off site. The dairy has and plans to continue applying manure to crop land using similar agronomic rates as would be used with the additions of chemical fertilizers.

The facility is managed by Sam Dilsaver. Manure Systems and handling is managed by Jordan Spackman. The operation consists of three roofed freestall barns, a special needs barn and two parlors. Waste is scraped from the barns to a collection tank from which it is either land applied or will be digested. Following digestion solids are separated with a screw press prior to lagoon storage of liquids effluent. The lagoon has an operation and management plan for pumping and sludge removal. Separated solids are stored in a concrete walled stacking area until use as bedding, land applied, or sold for off-site transfer.

The future capacity of the facility is planned for 1970 cows as follows.

- 1 Freestall (Approved for Construction) with 360 stalls
- 2 Freestalls (being expanded) with 585 stalls each
- 1 Freestall with 400 stalls
- 1 Special Needs area with 40 stalls
- 1 single 8 Special Needs Parlor
- 1 double 24 Parallel Parlor

Manure nutrient content has been determined from laboratory analysis and from Table 10 of MWPS-18 Section 1 2nd Edition. Mineralization rates have been calculated according to MWPS-18 Table 10-5. Application rates will not exceed the agronomic nitrogen demand of the crops to be grown. Furthermore, manure application is not planned for fields where the Bray 1 phosphorus soil tests are more than 300 lb/acre.

Over 1002 acres are available for use by this facility for land application of manure.

Application Methods

Three methods of manure application are utilized. Solid wastes will be spread using Slinger-type manure spreaders. Liquid manure will be applied using an Aerway tool on hay, pasture, or other multi-year crops. Liquid manure will be subsurface injected on all row crop land (corn silage, soybeans, etc.)

Hill Crest Dairy, L.L.C. plans to continue to sample and lab test manure. Using historical lab test results and verifying the consistency of nutrient content to specific containments, we are planning future applications based on updated historical data.

Odor Abatement Practices

All manure is applied to land growing crops capable of up taking manure nutrients. Manure is not applied to saturated soils or allowed to stand unincorporated. Proper setback distances are observed and a defined spill contingency plan is in place.

SECTION I. GENERAL INFORMATION**Owner Information**

Site Name	Hill Crest Dairy
Owner Name	Hill Crest Dairy, L.L.C.
Address	23318 W. Taggart Rd.
City, State, Zip	Elmwood, IL 61529
Phone #	309-742-2040

Manager/Operator Information

Site Manager	John Dilsaver, Sam Dilsaver
Certification #	LM1436836
Address	23318 W. Taggart Rd.
City, State, Zip	Elmwood, IL 61529
Phone #	309-922-2041

Facility Information

Address	23318 W. Taggart Rd. Elmwood, IL 61529
Plat Location	W 2 of the NW 1/4 - Section 19 T9N R5E - 4 th P.M.
Directions from nearest post office	Highway 78 South out of Elmwood approx. 2 miles. Turn Left onto Taggart Road, and the dairy is at the dead end.
Phone #	309-742-2040

Emergency Contacts

State Agency	IEPA thru IL Emergency Management
Phone #	1-800-782-7860
Spill Recovery Personnel	Sam Dilsaver
Phone #	309-742-2040 / cell 309-922-4021
Spill Recovery Personnel	Jordan Spackman
Phone #	309-742-2040 / cell 309-251-9187
Spill Recovery Personnel	John Dilsaver
Phone #	309-742-2040 / Cell 309-922-4022

Section 3. Site Specific Information

Manure Containment Information

Site Identification	Hill Crest Dairy
Number of Buildings/Lots	4
Primary storage type	Treatment lagoon
Primary storage volume (ft ³)	2,250,400 ft ³ (16,826,241 gals)
Secondary storage type	Concrete stack pad under separator
Secondary storage volume (ft ³)	158,000 ft ³ Plus Ag Bags ft
Temporary storage volume(ft ³)	3,800,000 gal - (being removed from service and filled in)
Total Site Manure Storage (ft ³)	2,408,400 ft ³ plus Ag Bags (excluding stack pile)
Separation equipment	FAN - Screw presses

Manure Volumes and Nutrient Production Information

Site identification	Hill Crest Dairy - Lagoon
Storage duration (days)	180 to 270 days
Pumping interval (days/mts./annual)	9 Months
Site Identification	Stacking
Storage Duration (days)	180
Hauling Interval (days/mts./annual)	6 months

Type	Quantity	Weight lb	M a n u r e V o l u m e		Annual Manure Nutrients		
			Daily cu ft	Annual cu ft	Nitrogen lb	P2O5 lb	K2O lb
Dairy Cattle – Lactating	1,570	1,400	3,925	1,432,625	578,780	297,986	326,638
Dairy Cattle – Dry Cow	300	1,400	345	125,925	45,990	16,425	36,135
Dairy Cattle – Heifers	100	1,000	93	33,945	10,950	3,650	11,315
Totals	1,970		4,363	1,592,495	635,720	318,061	374,088

* The values are the values presented in Table 6 of MWPS 18 Section 1 Second Edition.

** Nutrient calculations are derived from Table 6 of MWPS 18 Section 1 Second Edition.

*** The real nutrient content of manure is affected by nutritional programs and feed and water wastage due to management practices. Manure should be sampled and tested bi-annually or more.

Estimated Land Application Requirements

Nitrogen production values, Nitrogen storage losses, Ammonia nitrogen losses, and organic nitrogen mineralization factors are taken from ASAE D384.2 MAR2005 table 1.b sec 3, MWPS 10-1, 10-2, and 10-5, respectively.

The following assumptions apply to all calculations:

Nitrogen uptake for corn is 1.2 lb/bushel

The average corn yield used is 135 bushels/acre

Total organic nitrogen available assumes continuous corn on corn fields.

Lagoon Estimated Land Requirement: (85% of Total N to Lagoon)

Assume organic nitrogen = 25%

Assume ammonia nitrogen = 75%

Storage loss = 80%

Ammonia application loss = 2% (injection)

Organic nitrogen mineralization factor = 0.30

					Nitrogen	
Nitrogen Losses					%	Total N/yr
To Lagoon %					85%	540,360
Available N (80% loss)					20%	108,070
Available Ammonia Nitrogen					75%	81,050
Organic Nitrogen					25%	27,020
Available Ammonia Nitrogen after 2% application loss					98%	79,430
First Year Organic Nitrogen (30% Mineralization)					30%	8,110
Total Available Organic Nitrogen (4 Years Mineralization)						16,220
Total Plant Available Annually (After 4 Years)						95,650
Land Required for 135 bu/ac corn (1.2lb. N/bu.) Nitrogen Based)						590

Solid/Compost Manure Estimated Land Requirement: (15% of Total N to Solids)

Assume organic nitrogen = 50%

Assume ammonia nitrogen = 50%

Storage loss = 35%

Ammonia application loss = 5% (broadcast with incorporation within 5 days)

Organic nitrogen mineralization factor = 0.35

		Nitrogen	
Nitrogen Losses		%	Total N/yr
To Solids %		15%	95360
Available N (35 % storage loss)		65%	61980
Available Ammonia Nitrogen		50%	30990
Organic Nitrogen		50%	30990
Available Ammonia Nitrogen after 5% application loss		95%	29440
First Year Organic Nitrogen (35% Mineralization)		35%	10845
Total Available Organic Nitrogen (4 Years Mineralization)			21690
Total Plant Available Annually (After 4 Years)			51130
Land Required for 135 bu/ac corn (1.2lb. N/bu.) Nitrogen Based)			315

Total Estimated Land Required for Application For Liquid & Solids:

Total = 590 Acres + 315 Acres = **905 Acres**

Provisions for Waste Application

All fields upon which waste will be applied are operated by Hill Crest Dairy, L.L.C. or upon fields for which a manure spreading agreement has been obtained. A listing of the fields is attached with the application rate calculations for each source type. No manure will be applied on fields unless the soil phosphorus test (Bray 1 or Mechlich) is 300 lb/acre or less.

The provisions of 35 IAC 506.303 (o) through (u) shall be met or exceeded when applying waste. These restrictions are identified on the attached aerial photos or other field maps.

- o) Waste applied within 1320' of any residence not owned by Hill Crest Dairy, L.L.C. shall be injected or incorporated on the day of application.
- p) Waste shall not be applied within:
 - 1. 200' of surface water unless the water is up-gradient or there is adequate diking to prevent runoff, and
 - 2. 150' of a potable water supply well.
- q) Waste shall not be applied in a 10-year flood plain unless the injection or incorporation method of application is used.
- r) Livestock waste shall not be applied in waterways.
- s) Waste that is spread on frozen or snow-covered land shall be limited to areas which:
 - 1. Land slope is 5% or less, or
 - 2. Adequate erosion control practices exist
- t) The certified livestock manager shall inspect all berm tops, exterior sides, non-submerged interior sides for evidence of erosion, burrowing animal activity, and other indications of berm degradation at least every two weeks and keep a record of inspections.
- u) Livestock waste shall not be applied during a rainfall or to saturated soil and conservative application rates shall be used in the case of a high water table or shallow earth cover to fractured bedrock. Caution shall be exercised in applying livestock waste, particularly on porous soils, so as not to cause contamination of the groundwater.
- v) Dairy management and employees or professional waste applicators retained by the Defendant shall handle all wastes. For sections 19, 30 and 31 Elmwood Township, liquids shall be injected and solid wastes shall be incorporated within 3 hours after application and all in a manner that prevents runoff and odor. Alternative application methods may be used when approved by the Illinois EPA in writing prior to such practice. In Section 30, the Defendant shall not apply waste within 1/4 mile of Route 78. In Section 19, the Defendant shall not apply waste within 900 feet of Route 78 and within 1/4 mile of the intersection of Route 78 and Taggart Road. All land application of waste shall be performed in a manner that prevents runoff and odor and in accordance with all applicable regulations and NPDES Permit.

Waste Application Records

Records of waste application shall be kept and include all of the information on the attached forms including:

1. Field I.D.
2. Date of application
3. Waste source and type
4. Method of application
5. Application rate
6. Total acres applied to
7. Total amount of waste applied
8. Important notes or comments
9. Identification of application areas on field maps.

Manure Application Equipment and Practices

Applicator Name (self/custom)	CUSTOM & SELF
Custom Applicator Name	Walter & Son Waste Hauling LLC
Address	N 3368 State Road 14
City, State, Zip	Darien, WI 53114
Phone #	262-882-7867
Agitation equipment	Houle Prop Pump
Transport equipment	Drag Hose - Houle tank with shank injection
Incorporation equipment	Aerway, Shank toolbar & field cultivator
Irrigation equipment	none
Odor abatement practices	injection & incorporation
Crop Fertility Advisor	Illinois Nutrient Planners
Phone #	309-678-2395

Section 3. Emergency Spill Recovery Plan and Reporting Protocol

Emergency Response Personnel

Name	Home Phone	Cell Phone	Pager
Sam Dilsaver	309-922-4021	309-922-4021	N/A
Jordan Spackman	309-251-9187	309-251-9187	N/A
John Dilsaver	309-922-4022	309-922-4022	N/A

Recovery equipment

Equipment	Location
Limestone	On site
Backhoe	
IT loader	On site
Excavator	
Fire Department	Elmwood FPD
Doda pump	On site
Pit Pal pumps & Houle pump	On site
Houle tank	
Sand bags	On site

Emergency Plan

Spills From Containment Breaches or Structure Failures

1. Construct earthen dike to contain or divert spill away from tiles, watercourses, roadways, and water of the state.
2. Relieve containment of manure sufficient to cease the unplanned release of manure.
3. Setup equipment and procedures to secure the containment from further uncontrolled releases until proper repairs are made.
4. Remove spill from diked area with vacuum tank.

Spills During Pumping Operations

1. Shut off all pumping equipment
2. Build a sand bag dike to contain or divert spills away from tiles, watercourses, and roadways
3. Use absorbent pads to stop leaks in dike
4. Remove spill from diked area with vacuum tank
5. If larger dike is necessary use backhoe to reinforce with soil barrier.

Spills During Transportation on Public Roadways

1. Coordinate efforts with local law enforcement and emergency personnel.
2. Contain spill or divert manure away from watercourses and roadways.
3. Wash manure from roadways and public use areas into the containment or diversion structure.
4. Remove spill from diked area with vacuum tank.

Clean-up Spill Area

1. Break down dike
2. Dry out sand bags
3. Discard any absorbent pads used
4. Level any soil disturbance and incorporate residue
5. Replace any discarded or damaged equipment

Spill Reporting

If there is a release of more than 25 gallons or if waste **HAS ENTERED** surface or ground water, notify the Illinois Emergency Management Agency within 24 hours by calling **800-782-7860 or 217-782-7860**.

Also notify the following persons ASAP.

Name	Office	Cell Phone	Pager/Mob.
Sam Dilsaver	309-742-2040	309-922-4021	N/A
Jordan Spackman	309-742-2040	309-251-9187	N/A
John Dilsaver	309-742-2040	309-922-4022	N/A
Terry Feldmann	309-693-7615	309-251-6962	N/A

Attached Maps

1. Locations of all supply lines used to transport manure to fields
2. Local road map showing all routes used to transport manure on public use roadways.

Custom Applicator

"I have received and agree to follow this emergency spill recovery plan and reporting protocol. I will land apply the manure from this facility using Best Management Practices. I agree to monitor all application equipment and prevent runoff due to the application process. In the event of a spill I will follow the procedures outlined by this plan."

Custom Applicator_____

Date_____

Owner/Operator_____

Date_____

Written Reports

All spills must be reported to management personnel and include the following information.

1. Spill Reporter Name and phone number
2. Date, time, and duration of release
3. Location of spill (County, distance and direction from the nearest town, village or municipality)
4. Estimate of the quantity in gallons of the release and the flow rate in gallons per minute if the release is ongoing
5. Area to which the release occurred (field, ditch, stream, or other description) and description of the apparent environmental impacts
6. Names and phone numbers of those who may be contacted for further information
7. Dangers to health or the environment resulting from the release
8. What action was taken to respond to, contain, and mitigate the release?
9. Name and mailing address of the facility.

Section 4. Production Site

General Appearance

- 1.) Production site should be free of weeds and trash
- 2.) Building perimeter and driveways should be free of spilled or leaking manure
- 3.) Production site should be free of spilled feed.
- 4.) Insects and rodents should be controlled.
- 5.) Wind breaks and visual barriers should be in place and maintained.

Perimeter Drains and Surface Drainage

- 1.) All subsurface drainage should be open and operating.
- 2.) Subsurface drainage and field tiles should be free of manure.
- 3.) Water diversion ditches and secondary spillways should be properly vegetated and not eroding.
- 4.) All sink holes and open tile heads should be well protected and maintained.
- 5.) Building roof water should be properly diverted and drained.

Building Foundations and Pit Walls

- 1.) Foundations and pit walls should be free of cracks and seepage.
- 2.) Pump-outs should be properly covered and maintained.
- 3.) Gravel strips 2-3' wide should line the perimeter of the buildings.
- 4.) Rodent deterrent trim should be in place.
- 5.) Landscaping around buildings should be properly graded to drain surface water away from buildings.

Section 5. Containment Management

- 1.) Observe Freeboard requirements on all open containments.
- 2.) Inspect and maintain all earthen structures, dikes, and piping annually.
- 3.) Plan pumping windows to avoid inopportune hauling.
- 4.) Avoid full containments during early spring.
- 5.) Size removal equipment to complete pumping in as few days as possible.
- 6.) Agitate containments during all hauling events.
- 7.) Observe all safety rules when agitating and hauling manure.
- 8.) Do not pump containments intermittently -- start and finish as quick as possible. One week maximum for recharge systems.
- 9.) Apply highest nutrient content manure to the furthest site.
- 10.) Schedule custom applications well in advance.
- 11.) Enforce all application, records, and testing protocols.
- 12.) Install wind breaks and maintain a well manicured farmstead appearance.
- 13.) Observe and maintain all containment dilution and treatment volumes.
- 14.) Pump storage/lagoon before or when pumpdown stake is reached.
- 15.) Never leave pumping operations unattended.
- 16.) Fill lagoons with fresh water to minimum treatment volume. Add at least two feet of fresh water to earthen storage after construction.
- 17.) Observe perimeter drain inspection ports for evidence of containment seepage.
- 18.) Be sure exposed pit walls are not cracked and leaking.
- 19.) Assure all pump-out covers are in good repair and in place at all times.
- 20.) No evidence of medical waste should be found in manure storage containments.
(Rubber gloves, pipettes, bottles, needle holders, etc.)

Section 6. Land Application

- 1.) Observe all setback application distances.
 - A. Inject or incorporate within 24 hrs. manure applied within 1/4 mile of any residence.
 - B. Do not apply manure within 150' of any well.
 - C. Do not apply manure within 200' of undiked and/or down gradient surface water.
 - D. Manure applied in a 10-year flood plain must be injected or incorporated.
 - E. Manure may not be applied in waterways.
- 2.) Use good neighbor policies when applying manure.
- 3.) Define a spill contingency plan.
- 4.) Do not apply manure to frozen soil.
- 5.) Avoid manure application to saturated soils.
- 6.) Use subsurface or incorporation application equipment when possible.
- 7.) Use flow-meter equipped pumping equipment.
- 8.) Apply manure uniformly with calibrated application equipment.
- 9.) Use proper rate planning protocols.
- 10.) Use nitrification inhibitors for all summer and fall applications.
- 11.) Reduce chemical fertilizer by corresponding manure nutrient amounts.
- 12.) Use realistic yield goals and **Do Not** over apply manure.
- 13.) Rotate fields and application starting points within those fields.
- 14.) Require all custom operators follow the above protocols.
- 15.) Never leave application equipment and supply lines unattended.

Section 7. Record Keeping and Testing

- 1.) Obtain composite manure samples and test prior to all application events.
**If manure testing is mandated to point of application; use these sampling suggestions
 1. Irrigation applications should be collected within the application area several times during the application event. These samples should be combined, mixed and tested as representative of the containment.
 2. Tank applied manure should be sampled several times during the hauling event and combined as a representative sample of the containment.
 3. Dry box applied manure should be sampled by placing a clean 8' by 8' section of visqueen in the path of the spreader. Collect the discharged manure and mix together for a representative sample of the manure mass.
- 1.) Request a full nutrient profile on all manure samples.
- 2.) Test soils every three years -- (annually is optimum)
- 3.) Maintain field maps to scale for all application sites.
- 4.) Keep daily application logs of all application events.
- 5.) Monitor and record weather conditions during application events.
- 6.) Maintain soil and cropping records for each field manure is applied to.
- 7.) Secure landowner agreements for all non-owned application sites.
- 8.) Record final application event information.
- 9.) Supply landowners and farming tenants with application summaries.
- 10.) Use pre side-dress nitrate testing to verify plant available nitrogen.
- 11.) Require custom applicators adhere to the above protocols.

Section 8. Dead Animal Disposal

- 1.) Dead animals should be removed from building perimeters and not be visible to the occasional viewer.
- 2.) Pickup sites should be properly fenced.
- 3.) Refrigerated drop-off facilities should be properly maintained.
- 4.) Dead animals should not remain in the pickup sites for more than 48 hours.
- 5.) Carcass burners should be properly and regularly maintained.
- 6.) Composting sites should be free of leachate and properly drained.
- 7.) Composting facilities should be properly constructed and covered.
- 8.) All dead animal facilities should be free of scavenger activity and insect infestations.
- 9.) ***No evidence should be found of dead animals disposed of in manure storage containments.***
- 10.) Present Dead animal disposal is by Darlington International

Medical Waste Disposal

Medical waste is picked up by Stericycle Service weekly.

Section 9. Containment Inspection and Maintenance Protocols

Annual Check List

1. Maintain all pumps and motors per manufacturer recommendations
2. Check all hoses and lines for leaks and excessive wear
3. Clean all sumps and settling tanks and remove debris
4. Service all application equipment and inspect for wear
5. Review all records and reports; update as needed
6. Plan next years application windows

Bi-Weekly Check List

1. Inspect all building foundations for leaks and cracks
2. Inspect all earthen dikes for channeling and seepage
3. Eliminate all rodent activity from buildings and containments
4. Remove or spray all weeds and shrub trees from dikes and perimeters
5. Assure good vegetative cover on dike slopes and tops and mow as needed
6. Be sure all pump-out covers are in place
7. Assure all containments have freeboard space available
8. Clean and check all manure transfer pumps and recycle lines
9. Clean and check all separation equipment
10. Be sure all security covers and fences are in place
11. Maintain all warning placards
12. Review all spill contingency plans
13. Check location and readiness of all spill recovery equipment
14. Check condition of all surface water diversion structures
15. Repair and report on all incidents of deterioration

Section 10. Manure Sampling Procedures

Accurate determination of manure nutrients depends on accurate sampling procedures. Sampling can be approached two ways:

- I. Before application
- II. During application

Sampling before application lets you plan efficient nutrient use. Sampling after application only lets you verify an application rate, right or wrong.

Regardless of the sampling method, always remember to:

1. Obtain samples that are representative of the source from which they were taken.
2. Be sure collected samples are thoroughly mixed and poured immediately into lab sample container.
3. Refrigerate the sample before sending it to the lab.

I. Pre-application Sampling

Procedure for using a COLIWASA core sampling instrument.

1. Assemble the COLIWASA according to the instructions provided.
2. Open the bottom port of the sampler.
3. Advance the open sampler **slowly** hand over hand into the manure mass, letting the manure fill the tube.
4. Continue to advance the sampler until the sinking action of the sampler stops.
5. Gently shake the outer tube of the sampler while pulling up on the plunger rod knob to seat the plunger into the bottom port.
6. Remove the closed sampler from the manure mass.
7. Place the bottom of the sampler into a clean pail and release the captured manure.
8. Collect samples from several locations to represent the entire containment.
9. When sampling earthen structures, be sure to take samples as far from the inner dike slopes as can be reached.
10. Manure solids settle quickly, so be sure to vigorously mix the core samples collected and pour immediately into the lab sample containers.
11. Refrigerate the sample before sending it to the lab.

Pre-application Sampling

Using a COLIWASA to sample a de-watering layer.

1. Assemble the base section of the COLIWASA according to the instructions provided..
2. Close the bottom port of the sampler.
3. Advance the closed end of the sampler into the upper liquid manure layer.
4. Using the etched graduation marks on the outside of the clear tube to position the sampler midway between the top liquid level and the expected lowered liquid level.
5. Push down on the plunger knob to open the bottom port.
6. Hold the sampler at the desired depth and allow the manure to flow into the sampler.
7. Close the bottom port by pulling up on the plunger control knob.
8. Remove the filled sampler from the containment and release into a clean pail.
9. Multiple samples may be taken but are not necessary to represent the liquid layer.
10. Test the sample with an on-site Nitrogen kit or refrigerate and send the sample to a lab.

Identifying Stratification

Using the COLIWASA to identify and qualify stratified layers of manure in a containment.

1. Assemble the COLIWASA according to the instructions provided.
2. Open the bottom port of the sampler.
3. Advance the open sampler slowly hand over hand into the manure mass letting the manure fill the tube.
4. Continue to advance the sampler until the sinking action of the sampler stops.
5. Gently shake the outer tube of the sampler while pulling up on the plunger rod knob to seat the plunger into bottom port.
6. Remove the closed sampler from the manure mass.
7. Place the sampler between you and a light source.
8. Record the stratified layer locations using the etched graduations on the outside of the sampler tube.
9. Each 1" of graduation of column contains 2 oz of manure liquid.
10. The identified stratification layers can now be sampled specifically for nutrient content of each layer.
11. Advance the closed sampler to the middle of the stratified layer.
12. Push down on the plunger knob to open the bottom port of the sampler.
13. Hold the sampler at the desired depth and allow the manure to flow into the sampler.
14. Close the bottom port by pulling up on the plunger control knob.
15. Remove the filled sampler from the containment and release into a clean pail.
16. Multiple samples may be taken but are not necessary to represent the stratified layer.
17. Refrigerate the sample before sending it to the lab.

Sampling During Application

Catch sampling at point of application.

Irrigation

1. Irrigation liquid should be collected several times during the application procedure.
2. Place a clean pail in the path of the irrigation discharge.
3. Allow the irrigation equipment to move past the sample container.
4. Repeat this collection procedure several times as the containment is emptied.
5. Manure solids settle quickly, so be sure to vigorously mix the collected samples and pour immediately into the lab sample containers.
6. Refrigerate the sample before sending it to the lab.

Tank Transport and Application

1. Tank applied manure should be sampled several times during the hauling event and combined to provide a representative of the containment.
2. Collect samples from the discharge of the tank.
3. Manure solids settle quickly, so be sure to vigorously mix the collected samples and pour immediately into the lab sample containers.
4. Refrigerate the sample before sending it to the lab.

Dry Box Application

1. Manure applied by dry box should be sampled by placing a clean 8' by 8' (or larger) sheet of plastic in the path of the spreader.
2. Collect the discharged manure and mix together for a representative sample.
3. Place in sample container and refrigerate before sending to a lab.