Site Information

A. Site Description

Bob Mondt operates a 495 head dairy in Clinton County Illinois.

The facility consists of 360 head of milking cows and 120 head of dry cows and heifers. Approximately 15 head of calves are at the facility at any given time. The cattle are housed in 4 freestall barns. The facility layout can be seen in the construction drawings in section 5 of this CNMP. The facility has a large containment for liquid from runoff and liquid portion of manure. Solid manure is stored in stacking areas and in the freestall barns. No new construction is planned at this time.

Mortalities are handled by a licensed renderer.

Approximately 413 acres are available for waste utilization. Soil test values for Phosphorus and Potassium are included with the individual basic field information for those fields which soil tests are available. Risk assessments for Phosphorus and Nitrogen are included in section 16. Recommended manure application rates are found in the Summary Table (section 18), and comply with all provisions of NRCS IL 590 Standard.

The facility is located in section 27 of the Sugar Creek Township in Clinton County.

Mondt Dairy

Waste Storage Volume Calculations

DAILY MANURE PRODUCTION	Average (1) Animal Weight (lbs)	Maximum Design Capacity # of Head	Manure (2) Production (cu.ft./day)	Total Manure Volume (cu.ft./day)
Dairy Cows (P1 Freestall - scrape)	1,400	180	349	349
Dairy Cows (E1 Freestall - scrape)	1,400	80	155	155
Dairy Cows (E3 Freestall - Bedpack)	1,400	100	194	194
Dry Cow (E5 - Bedpack)	1,400	40	78	78
Heifer (E8 - Bedpack)	900	80	100	100
Calf (E10 - Bedpack)	400	15	8	8
Totals		495.0	884.3	884.3

DAILY MISC. PRODUCTION	Bedding (3) (cu.ft./day)	Parlor Water (4) (cu.ft./day)
Dairy Cows (P1 Freestall - scrape)	126.0	63.0
Dairy Cows (E1 Freestall - scrape)	56.0	28.0
Dairy Cows (E3 Freestall - Bedpack)	98.0	35.0
Dry Cow (E5 - Bedpack)	39.2	n/a
Heifer (E8 - Bedpack)	50.4	n/a
Calf (E10 - Bedpack)	4.2	n/a
Totals	373.8	126.0

Additional Storage Area				
Storage Area	Storage Area Size	Bedpack/Solid Storage (ft^3)	Storage Area Size	Concrete Pit (liquid Storage)
Dairy Cows (P1 Freestall - scrape)		n/a		
Dairy Cows (E1 Freestall - scrape)		n/a		
Dairy Cows (E3 Freestall - Bedpack)	45x110x1.5	7,425.0		
Dry Cow (E5 - Bedpack)	24x100x1.5	3,600.0		
Heifer (E8 - Bedpack)	160x70x1.5	16,800.0	30x60x3	5,400.0
Calf (E10 - Bedpack)	16x40x1.5	960.0		
Settling Basin (P4)	31x140x5.2	13,702.0		
Settling Basin (P3)	14x58x3.5	350.0		
Totals (gallons)		326,420.8		40,392.0

Earthen Basin Volume Calculations	
See Site Map for Dimensions	
Surface Area - @ top (ft^2)	47,052
Surface Area - @ freeboard (ft^2)	37,681
Volume (ft^3) - @ freeboard	335,707
Volume (gal) - @ freeboard	2,511,263

Manure Stack Volume Calculations	
See Site Map for Dimensions	
Surface Area □ @ top (ft^2)	18,150
Surface Area □ @ freeboard (ft^2)	11,800
Volume (ft^3) □ @ freeboard	54,682
Volume (gal.) □ @ freeboard	409,053

Waste Storage Volume Calculations	
Surface Area ft^2	47,051.87
Annual Precipitation (in.) (5)	39.00
Annual Precipitation Volume (ft^3)	152,919
Annual Evaporation (in.)	37.40
Annual Evaporaiton Volume (ft^3)	117,439
Precip/Evap (ft^3)	35,479
Precip/Evap (gal)	265,404
25 Year/24 Hour Rain Event (in)	6.0
25 Year/24 Hour Rain Event (ft^3)	23,604
25 Year/24 Hour Rain Event (gal.)	176,572

Waste Storage Volume Calculations	
Surface Area ft^2	18,150.00
Annual Precipitation (in.) (5)	39.00
Annual Precipitation Volume (ft^3)	58,988
Annual Evaporation (in.)	37.40
Annual Evaporaiton Volume (ft^3)	36,777
Precip/Evap (ft^3)	22,211
Precip/Evap (gal)	166,148
25 Year/24 Hour Rain Event (in)	6.0
25 Year/24 Hour Rain Event (ft^3)	9,105
25 Year/24 Hour Rain Event (gal.)	68,112

Feedlot Runoff Volume Calculations	
Surface Area ft^2 (6)	43,272.00
Annual Precipitation (in.) (5)	39.00
Annual Precipitation Volume (ft^3)	140,634
Annual Evaporation (in.)	0.00
Annual Evaporaiton Volume (ft^3)	0
Precip/Evap (ft^3)	140,634
Precip/Evap (gal)	1,052,013
25 Year/24 Hour Rain Event (in)	6.0
25 Year/24 Hour Rain Event (ft^3)	21,768
25 Year/24 Hour Rain Event (gal.)	162,388

Design Factors	
Storage Length - Required (days)	150
Storage Length - Actual (days)	348

Earthen Storage Basin				
	Required Volume			
	Daily Manure Volume (cu.ft.)	Daily Misc. Volume (cu.ft.)	Period (days)	Total Volume (cu.ft.)
Manure Storage Volume	884.31	499.80	150	207,617
			Required Volume (cu.ft.)	460,359
			Produced Annual Volume (gal.) (7)	3,443,721.1
			Actual Annual Storage Volume (gal.) (8)	3,281,128.5

1 - Average Animal Weight obtained from Livestock Waste Facilities Handbook, Third Edition, MWPS-18 Table 2-1
2 - Manure Storage Volume = # of head x ft^3/day total manure production Livestock Waste Facilities Handbook, Third Edition, MWPS-18 Table 2-1
- The manure production for the heifers and calves were interpolated from MWPS-18 Table 2-1
3 - Bedding Volume = Based on producer estimate of bedding used.
4 - Parlor Volume = Based on producer estimate.
5 - 5-Month precipitation and evaporation obtained from ISWS Regional Climate Data
6 - Surface area for feedlot runoff calculations includes all exposed areas indicated on the facility plot plan.
7 - Produced Volume includes 25 year/24 hour rain event & precipitation/evaporation volumes.
8 - *"As Built" Volume at freeboard elevation (two feet set aside for freeboard requirement).*

Solid Manure (ft^3/day)	Bedding (ft^3/day)	Total solid portion of waste per day (ft^3/day)	Total solid portion (ft^3/Year)	Total solid portion (Ton/Year)
112.3	373.8	486.1	177,429	1,578

Liquid manure (ft^3/day)	Parlor Water (ft^3/day)	Total Liquid Portion of waste per day (ft^3/day)	Total Liquid Portion (ft^3/year)	
772.0	126.0	898.0	327,771	
			Rainfall and Runoff (ft^3/year)	
			252,742	
			Total Liquid (ft^3/year)	Total Liquid (gal/year)
			580,513	4,342,539

Animal Unit Calculations

Bob Mondt

Per 1,000 lb Animal Unit

Type of animal	Weight	# of Animals	LMFA AU	Total LMFA AU	Total 1000# AU
Lactating Cows	1400	360	1.4	504	504
Dry Cows	1400	40	1.4	56	56
Young Dairy Stock	900	80	0.6	48	72
Young Dairy Stock	400	15	0.6	9	6
		495		**617**	**638**

SECTION 3
Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak, or Failure:

Implement the following first containment steps and where containment material is located:

a. Stop all other activities to address the spill.
b. Use skid loader or tractor with blade to contain or divert spill or leak, if possible.
c. Call for help & excavator if needed.
d. Pump waste back in lagoon or into tank and land application.
e. Complete the clean-up and repair the necessary components.
f. Assess the extent of the emergency and determine how much help is needed.

In Case of an Emergency Land Application Manure/Waste Discharge

Implement the following first containment steps and where containment material is located:

a. Stop all other activities to deal with the emergency.
b. Call for help if needed.
c. Contain the spill or runoff from entering the stream or waterway using straw bales, saw dust, or soil material.
d. Assess the extent of the emergency and determine how much help is needed.
e. Properly land apply.

1. Emergency Contacts:

Department / Agency	Phone
~~Carroll~~ County Sheriff	911
Fire Department	911
Ambulance & Rescue	911
Electric Company –	1-800-755-5000
Natural Gas Company -	
Propane Company –	618 224-7466 224 7489
Electrician – Litchen Electric	618 228-9037 228-7211
Rendering Company – ~~National By-Products~~ Darling	1-800-535-8190
Emergency Response Contacts:	
1st Robert Mondt	618-228-7305 406 2625
2nd David Mondt	618 406-2602
3rd Sandy Mondt	618 401-1912

2. Available equipment/supplies for responding to emergency:

Equipment Type	Contact Person	Phone Number
Backhoe, bulldozer, dump trucks, scraper	Charles Diekmann	618-594-3953
Backhoe, bulldozer, dump trucks, scraper	Paul Hirsch	618-224-7171
Backhoe, bulldozer, dump trucks, scraper		
Manure tank	Robert Mondt	618-228-7305

3. Contacts to be made by farm's Owner or Operator as Soon As Possible within 24 hours:

Organization	Phone
Natural Resources Conservation Service-Clinton Co.	618-526-8021
Health Department Office – Clinton Co.	618-594-2723
Illinois Emergency Management Agency (IEMA)	1-800-782-7860 217-782-7860
County Sheriff's Office	(218-594-4455
Illinois EPA	217-782-3397
Illinois Department of Agriculture	217-785-2427
~~Meade Stutz, Inc. – Engineers (Terry Feldmann, PE or Carrie Tengman)~~ Chris West E.E	~~[illegible]~~ 1-217-487-7686

Provide the following information:

a. Your Name Mondt Dairy Farm - Robert D. Mondt
b. Farm Identification and directions from nearest town Facility ID # LF0270730000

Clinton County – NE ¼ NE ¼ of Section 27 T2N, R5W, Sugar Creek Township

From Aviston travel South on Hwy 8 about ½ - 1 mile, turn west (right) on Rock Ford Road for about 1 – 1 ¼ miles. *The farm is on the north (right) side of the road*

c. Description of emergency
d. Estimate of the amounts, area covered, and distance traveled.
e. Has manure reached surface waters or major field drains?
f. Is there any obvious damage: employee injury, fish kill, or property damage?
g. What is currently in progress to contain situation?

4. Additional containment measures, corrective measures, or property restoration measures.

Nutrient Production

Bob Mondt

Nutrient Production
Per 1,000 Gal

Type of animal	Gallons or Ton Produced *	Total N	P2O5	K2O	Total N Produced Per Year	Total P2O5 Produced Per Year	Total K2O Produced Per Year
Dairy Liquid	4,342,539	4	3	4	17,370	13,028	17,370
Dairy Solid	1,578	9	3	6	14,202	4,734	9,468
Whole Farm					**31,572**	**17,762**	**26,838**

* From Waste volume calculation page

Crop Nutrient Need
Per Acre

Crop	Yield	N lbs/ac	P2O5 lbs/ac	K2O lbs/ac	Acres needed based on N produced**	Acres needed based on P2O5 produced***
Corn (continuous)	110.0	132	47	31	239	378
Corn (bean rotation)	110.0	92	47	31	343	378
Corn Silage	23.0	132	61	161	239	291
Beans	40.0	0	34	52	N/A	522
Wheat	50.0	50	45	15	631	395
Alfalfa Hay	4.5	0	54	225	N/A	329
Grass	3.0	150	36	150	210	493

***Total N produced/N needed per acre*

****Total P produced/P needed per acre*

Current crop rotation			
Crop	Acres	N needed	P2O5 needed
Corn (continuous)	51	6,695	2,384
Corn (bean rotation)	71	6,571	3,357
Corn Silage	98	12,936	5,978
Beans	70	0	2,377
Wheat	13	654	589
Alfalfa Hay	110	0	5,929
Grass	0	60	14
Total	**413**	**26,916**	**20,627**

Calculations do not take into account nutrient losses from application of waste.

Facility Operation and Management

1. Check backfill areas around facilities often for excessive settlement. Determine if settlement is caused by consolidation, piping or failure of the structure walls or floor. Necessary repairs must be made. Refer to safety items.

2. Check walls and floor often for cracks and/or separations and make needed repairs. Check earth berms and embankments for sloughing, erosion or settlement. Maintain embankment and backfill elevations as specified in the design. Check a minimum of two times a year and when the facility is empty. Maintain design elevation of berms and fill.

3. Outlets of foundation drains should be checked frequently and kept open. The outflow from these drains should be checked periodically when the storage facility is being used to determine if there is leakage from the facility into these drains. Leakage may be detected by the color and smell of the outflowing liquid, by lush dark green growth of vegetation around the outlet, by the growth of algae in the surface ditch or by the vegetation being killed by the outflowing liquid. If leakage is detected, repairs should be planned and made to prevent the possible contamination of groundwater. Refer to safety items when planning and making repairs. Quarterly samples should be collected from foundation drains as required by the Livestock Management Facilities Act.

4. Divert surface water away from the storage facility. Check the channels and berms of the clean water diversions around the barnyard, buildings and storage facility frequently. Channels must be protected from erosion and berms must be maintained at proper height so the diversion channels have adequate capacity. These channels and berms should not be used as haul roads unless they were designed and constructed as haul roads.

5. Check frequently for burrowing animals around buildings, structures, berms and backfill. Remove them and repair any damage.

6. Inspect haul roads and approaches to and from the storage facility frequently to determine the need for stone, gravel or other stabilizing material.

7. Do not allow runoff from loading areas and/or spills to flow into streams or road ditches.

8. Install and maintain a marking or gauge post that clearly shows the design, one-half, and full levels of the facility.

9. Repair or replace any rusted or damaged metal and paint.

10. A good vegetative cover of recommended grasses should be maintained on earth berms and embankments. If the vegetative cover is damaged, it should be reseeded as soon as possible. The vegetative cover should be mowed at least twice a year to control weeds, encourage vigorous growth and discourage rodent activity.

11. Immediately repair any vandalism, vehicular or livestock damage to the facility, the surrounding area, or any appurtenances.

12. Pump-out shall commence when the deep pit facilities are approximately 1' from the bottom of the slats and should continue until the depth is reduced to approximately 1'.

Earthen Storage/Lagoon – Operation & Maintenance

1. Earthen slopes shall be checked for rills and gullies. Seeding shall be as necessary to maintain a grass cover. Weeds shall be controlled. The top of dam and outside slopes shall be mowed annually to discourage weed growth and allow closer examination of the earth embankment. Quickly remove woody vegetation that begins to grow on the embankment to prevent root establishment.

2. Earthen slopes shall be checked for soft or damp/wet areas that may be a sign of potential leakage. Burrowing animals in the slopes shall be controlled. Animals shall be immediately removed and the burrow holes filled.

3. Fencing/gates shall be maintained around the structure to exclude animals and humans at all times.

4. Safety equipment (life buoys, ropes) and warning signs shall be maintained and checked periodically for wear.

5. High traffic areas, such as pump access areas, should be lined with aggregate or concrete if vegetative cover cannot be maintained.

6. Where dedicated agitation areas are established, inspect the bottom for scour holes. Where holes develop, fill with compacted clay, and line the surface with concrete to prevent further scouring. If this does occur, please contact the local NRCS office or a licensed professional engineer for assistance.

7. The maximum operating level in the facility is 2 feet below the low point in the existing embankment that contains the manure and runoff. When this elevation is reached, pump-out should commence as long as soil conditions exist that will allow for infiltration of the manure liquids. Pump-out is not to occur in December, January, or February. Pump-out should not be scheduled if severe or wet weather is a threat. The elevation at which pump-out is to occur shall be marked with a post or other suitable device.

8. If possible, thoroughly agitate the storage facility one hour before pump-out and during pump-out to ensure uniform distribution of nutrients in manure.

9. Domestic and industrial waste from toilets shall not be discharged into the storage facility (s).

10. In the event of closure or shutdown, where there is no longer a need to manage manure and runoff from this operation, follow a closure plan according to state regulations. Contact the local NRCS office or a licensed professional engineer for assistance.

Nutrient Application Equipment Calibration

Commercial Fertilizer Application Equipment Calibration:
The nitrogen applicator, the commercial broadcast spreaders, and corn planter will be set per the manufacturers recommendations then filled with a known amount and checked over known acreage. Adjustments will be made to achieve the planned rates.

Manure Spreader/Tanker Calibration
There are several methods that can be used to calibrate the application rate of a manure spreader. The two best methods are the load-area method and the plastic sheet method. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to establish a more accurate calibration.

Before calibrating a manure spreader, the spreader settings such as splash plates should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the spreader than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating application rates when overlapping is involved requires measuring the width of two spreads and dividing by two to get the effective spread width.

Calibration should take place annually or whenever manure is being applied from a different source or consistency.

Load-Area Method
The load-area method is the most accurate and can be used for most types of manure handling. This method consists of determining the amount (volume or weight) of manure in a spreader and the total area over which it is applied. The most accurate method to determine the amount of manure in a spreader is to weigh the spreader when it is full of manure and again when it is empty (portable pad scales work well for this). The difference is the quantity of manure applied over the area covered. Spreader capacities listed by the manufacturers can be used to determine the amount of manure in the spreader. However care must be taken when using manufactures spreader capacities. Heaped loads, loading methods and manure type may vary considerably from what is listed by manufacturers of box and side delivery manure spreaders. Spreader capacities for liquid tankers are accurate provided the tanker is filled to the manufactures recommended levels, and no foam is present in the tank.

The area of spread is determined from measuring the length and width of the spread pattern. Measuring can be done with a measuring wheel, measuring tape or by pacing.

The application rate is calculated using the following formula:

Spreader capacity (tons or gallons) X 43560 sq. ft/acre = Application Rate tons or Gallons/Acre Distance traveled X Spreading width

Plastic Sheet Method

The plastic sheet method can only be used with solid or semi-solid manure. This method of calibrating spreader application rates involves 1) cutting a plastic sheet to the specified dimensions (56 inches X 56 inches), 2) weighing the clean plastic sheet, 3) laying out the plastic sheet on the ground and driving the manure spreader (applying manure at a recorded speed and spreader setting) over the sheet, 4) weighing the plastic sheet with the manure on it, and 4) determine the net weight of the manure on the sheet (weight of manure and sheet - weight of the clean sheet), and 5) the net pounds of manure equals tons per acre applied.

When calibrating manure spreaders, all details regarding tractor speed and manure spreader settings and date(s) of each calibration should be recorded with manure application information, and directly on the equipment. Mark equipment to ensure a known application rate is applied each time the referenced tractor speed and spreader settings are used. Manure spreader settings can include such things as: fast and slow settings on some box spreaders, gate position on side delivery spreaders and splash plate position and fill levels on liquid tankers.

Facility Safety Recommendations

1. Waste storage facilities must be considered "High Hazard Areas". The biodegradation of waste forms noxious gases such as methane (CH), Hydrogen sulfide (H_2S), ammonia (NH_3) and carbon dioxide (CO_2). This can be fatal to both animals and human beings.

   - **HYDROGEN SULFIDE PARALYZES THE DIAPHRAGM AND THE VICTIM WILL NOT START BREATHING AGAIN WITHOUT ARTIFICIAL RESPIRATION, EVEN AFTER BEING REMOVED FROM THE NOXIOUS GASSES.**

2. Some of these gases can be explosive with the proper gas to air ratio. Use caution with open flames, welding torches and arcs, electrical motors with brushes that spark (skillsaws, electric drills, shop vacs, etc.) when working near waste storage facilities. Be sure the work area is well ventilated.

3. Agitation of liquid manure can release large volumes of these noxious gases. Special care must be taken to provide adequate ventilation during agitation and emptying of the storage facility. If there is a question regarding the adequacy of ventilation, the livestock should be evacuated from the building and the operator should wear an oxygen mask.

4. Operators should avoid working alone during agitating and emptying the facility.

5. A reception pit, tank or other storage facility that has contained liquid/slurry manure should not be entered because gases may remain in the structure. When it is necessary for someone to enter one of the structures for repairs, the following precautions must be taken:

   a. The reception pit shall be ventilated by the use of fans, blowers, etc.

   b. There should be at least two people; one to remain on the outside and one to enter the facility.

   c. The one entering the structure must have a safety line attached so that the "outside" person can pull the victim to safety without entering the facility.

   d. The one entering must have an air mask, which furnishes outside air through an airline and compressor, scuba equipment with air tanks or other means of positively furnished outside air.

e. Gas masks must not be used because they operate on the principle of chemically removing unwanted gases from air so the wearer can breathe safely. In manure facilities, the air has been displaced by the noxious gases and when the gases are removed by the gas mask, the wearer will suffocate because there is no air to breathe.

6. All lids, gates, hatch covers, shields and safety grates to prevent unauthorized entry by people or livestock must be securely in place when tanks and pit openings are left unattended and must be repair immediately when damaged.

7. Never leave a ladder that stands against an above ground waste storage facility unattended.

8. All waste storage facilities must be posted with signs with the following or similar warning:

DANGER - KEEP OUT

THIS IS A WASTE STORAGE FACILITY AND PROLONGED EXPOSURE MAY BE HAZARDOUS TO YOUR HEALTH.

9. Inspect and repair/replace, as needed, all warning and hazard signs.

Odor and Pathogen Management

It may not be practical or feasible to eliminate all odor emissions from the operation, but it is possible to manage or mitigate the odor. Some variables that affect odor are:

- Type of operation
- Ventilation method
- Animal diets
- Season
- Management skill or effort
- Building design
- Animal numbers
- Manure treatment system
- Topography

1. Animal Cleanliness

a. Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.

b. Animal stress can also be correlated to an increase in odor production. Ventilation and environmental controls for the buildings must be properly designed and maintained to keep the animals healthy.

2. Minimize Dust

a. It has been established that there is a correlation between dust and odor emission. Dust particles adsorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.

b. Therefore, minimizing dust will reduce odor. Most farm dust comes from feed, fecal matter and, in the case of poultry, from feathers and litter. Dust also comes from animal skin, insects, and other sources.

c. Buildings should be cleaned of all dust between batches of animals (including fans, shutters, and screens).

3. Waste Storage Facility

To reduce emissions of greenhouse gases, ammonia, volatile organic compounds, and odor:

- If odors from the facility become a concern, consideration can be given to alternatives and additional practices including but not limited to covered anaerobic digesters, and composting facilities.

- Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.

- Consideration should also be given to the separation of the solids from the waste mixture. This will dilute the liquid waste product being treated in the lagoon and cause less odor. The solid separated material can be composted and sold or land applied.

4. Animal diets

Diets can also be manipulated to produce less manure production and odors from the manure. Much of the odors from manure are from nitrogen, sulfur and carbohydrate containing volatile compounds. Balancing the diet with the proper amounts and forms of protein and reducing excess protein in the diet will reduce nitrogen excretion and odor emissions from the manure.

5. Proper Disposal of Mortality

Normal mortality for the animal feeding operation must be properly handled for both odor control and biological security of the operation. Composting, incineration, and rendering are acceptable methods for mortality disposal.

6. Good Fly and Rodent Control Programs

These programs must be a continuous process on the farm. When feed and waste products are properly handled, these problems are minimized. Fly and rodent bait stations and/or boxes should also be utilized to control populations. Check all bait stations regularly and replace when necessary.

Manure Sampling

1. Collecting the Sample

When collecting a manure sample from a storage facility, the most important thin to keep in mind is to collect a sample representative of what will be land applied to the crop. If a livestock operation has more than one storage facility (e.g., a holding pond and a drystack) each unit should be sampled separately (e.g., the producer will need to collect two samples, one to represent each manure type, liquid sample, and a solid sample).

2. Pit Storage Structures (Below Building) Above Ground Storage Structures (Slurrystore)

Manure samples can be samples prior to applications, after the structure has been agitated to assure a homogenous sample. If agitation cannot be performed, because of gas production and animal welfare, a sample can be obtained from the application equipment or the outlet line on the pump. Three to six samples should be collected from different loads and mixed together to form one composite sample. If it is not possible to collect a sample from the previous two methods, samples should be collected directly from the structure. A sample should be collected at the top, middle, and bottom of the land application event. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottle works well. Consult with the lab directly for specific instructions.

3. Drystacks

The sample sent to the lab from a drystack should be a composite of several sub-samples. Sub-samples should be obtained from about 10 locations within the drystack. The sample locations should vary by depth (from 1 ft. deep to 3 inches from the bottom) and by position (from the front, back, and sides). After collecting the sub-samples, the material should be mixed in one container to make a homogeneous composite sample. The composite sample sent to the lab should be about one pint. It should be sent in a well-sealed container. Sealable plastic bags work well for relatively dry material, wide mouthed plastic bottles are better for wetter material.

4. Earthen Storages/Holding Ponds

Storages should be sampled immediately before or during land application. The condition of the storage during sample collection should reflect the condition of the storage during land application. If the storage is agitated during land application and is well mixed, one sample will be representative of the entire facility. The agitation time required for the storage facility to become well mixed is dependent on its size and shape and the agitation equipment. Small facilities are usually well agitated after one to two hours. If the facility is not agitated during land application, it will not be well mixed. In this case three samples should be collected; a sample should be collected at the beginning, middle, and end of the land application event. Storage facility samples can be collected from the storage itself, the outlet line on the pump or from the application equipment. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottled works well. Consult with the lab directly for specific instructions.

5. Lagoons

Anaerobic lagoons should be sampled immediately before or during land application. The condition of the lagoon during sample collection should reflect the condition of the lagoon during land application. A minimum of three samples should be collected; a sample should be collected at the beginning, middle, and end of the land application event. Lagoon samples can be collected from the lagoon itself, the outlet line on the pump or from the application equipment. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottle works well. Consult with the lab directly for specific instructions.

6. Sample Transfer

The sample should be mailed or delivered to the lab the day of collection to reduce sample degradation with time. Do not send samples that will not be delivered within one to two business days. For example, do not send on a Thursday and allow it to set in the post office or mail box during a weekend. The sample should be analyzed for total nitrogen, ammonia nitrogen, phosphorus, potassium and total solids. Contact the lab prior to sending in a sample to receive a sample analysis form to mail in with your sample.

Soil Testing Procedures

Soil samples for soil tests should not represent more than 2.5 acres per sample and should be done at least every 3-4 years. Any field not sampled at 2.5 acre frequency should be re-sampled at 2.5 acres grids on the next scheduled soil testing cycle.

Soil sampling depth for P and K shall be 7 inches. Under no-till conditions pH can be tested using the top 4 inches only.

Soil samples shall be collected and prepared according to The Illinois Agronomy Handbook. Soil samples should be taken prior to manure or fertilizer applications. Since manure will typically be applied to soybean stubble during the fall previous to planting corn in the spring, soil tests should be taken in soybean stubble prior to manure application. Wait 9 months after manure or fertilizer applications before soil testing so that unabsorbed nutrients do not affect the results.

The minimum soil analysis for CNMP's should include the following parameters:

- *soil pH,*
- *phosphorus (P as indicated by Bray P1 test)*
- *potassium, (K)*

In addition, Cation Exchange Capacity (CEC), and soil organic matter should be tested to help determine liming and fertilizer recommendations. Soil testing should include analysis for any nutrients for which specific information is needed to develop the nutrient plan.

Soil sample lab reports are filed under each field's individual information.

Future Wells

When installing new wells, springs or other potable water sources, due consideration must be given to the distance, grade and location of the waste storage facility to the new water source. The Department of Health, Department of Agriculture and/or Natural Resources Conservation Service should be consulted as to installing new potable water supplies in relation to the waste storage facility.