From: Washington State Dairy Federation [wsdf@msn.com]
Sent: Thursday, October 27, 2005 10:26 AM
To: Hancock, Kevin; Selby, Melodie
Cc: Hennessey, Jennifer (ECY); Mena, Nora (AGR)
Subject: RE:

Melody and Kevin,

I have a couple of Concerns on the Draft Permit

1. The language below is from the Draft permit, I have a question: Is the use of "and" between these sections 1-4 an error? If it is not an error then I am curious about your logic in requiring permitted CAFO's that never had a discharge or who were never designated to first go out of business before they can request termination of coverage.

S7. TERMINATION OF COVERAGE

A. A permitted CAFO may request termination of coverage under this permit when the following conditions have been meet:

1. A facility that did not have a discharge or was not designated a CAFO requests permit termination and,

2. The facility has ceased operation and,

3. The permittee has demonstrated to the satisfaction of the Department that there is no remaining potential for a discharge of manure, litter or associated process wastewater that was generated while the operation was a CAFO, other than agricultural stormwater from land application areas and,

4. There are no outstanding fees or penalties.

3. My second question is this:

There does not seem to be any mention in this permit about Chronic or Catastrophic conditions. As you remember we had a big problem last winter in WHatcom County and our Farmers, your staff, WSDA staff and EPA staff all were stuck in a catch 22. This permit is an opportunity to have a collective dialog and establish a written understanding of when a discharge is classisifed as a violation and when it is not (under the Clean Water act).

I would certianly reccomend that this discussion is very important to most of the stakeholders, including the tribes, the agencies, the environemental community and our farmers. I know that this addition may be a significant change to the permit and require another round of hearings, but I think that five more years of uncertianty is also not a good thing. We have watched hurricane after hurricane hit the SE and I know today that without some resolution in Washington we are just waiting for a big rain or snow event to create a conflict.

HELP?

Jay Gordon

Executive Director

Washington State Dairy Federation

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CAFO Draft Permit
7:35 p.m. November 22, 2005
Public Hearing @ Cowlitz County Public Utilities District Auditorium
961 12th Ave, Longview, WA

Primary purpose of this hearing is to receive public comments regarding proposed concentrated animal feeding operating general permit. The following actions took place October 19, 2005. The legal notice of this hearing was published in the WA state register issue number 05-50-109. A copy of the draft permit fact sheet and public hearing information were posted on the ecology CAFO web page. All conservation districts were directly notified of the draft permit hearing as well as public notices being directly mailed to 1,100 interested parties and are people who either currently have permit coverage or have had permit coverage within the last 5 years. Earlier this month a notice was mailed to an additional 70 existing dairy permit holders. Ecology also mailed out information to 2500 interested parties on the USDA mailing list.

Jay Gordon
Washington Dairy Federation, Dairy Producer
PO box 1768
Elma, WA

Comments:

Reiterate the same concerns of Mr. Hayes addressed on page 7. S.1 Effluent limitations S.1.C, Transfer of Manure. Concerned that public records may be, if that information kept and retained, that may be available through a public records and recipient name and addresses is really confidential business information and it's possible that's covered under the OPR exemption that we got passed at the end of the last session, but just wanted to express some concerns on that.

Next is actually some suggested language to clarify under S.2. Permit Coverage B sub c Individual Permit Coverage page 9, first sentence. "Individual permit coverage the department may require any CAFO to apply for and obtain individual permit or apply for and obtain coverage under another more specific general permit." I think clarifying language in the form of something like in. "The Department may require any CAFO to apply for and obtain an individual permit, in lew of this General permit," would be a bit more clarity that what your trying to get at is the department may require an individual permit in lew of this general permit that we are currently discussing today.

Page 12, D subsection d Nutrient Management Plan Update sub 2
"CAFO must develop and implement an updated nutrient management plan if: the CAFO reduces or changes the field area specified in the nutrient management plan used for land application." I have some concerns about the scope of development and implemented an updated nutrient management plan. Does it mean that it's got to be developed and updated and go through an open public process again? How extensive are those, especially for something as minor as renting a field or changing field application areas and that clarification may be in the fact sheet. I did not see where that was

Environmental Monitoring. I think Chuck brought this up but it's sub C and I don't think he clarified that. It's on page 15, starts at c Environmental Monitoring. It says "1. Large CAFO's must use environmental monitoring to demonstrate…" yadayadayada. Number 2, Soil Monitoring for large CAFO's sub 3 is under that heading is "A large CAFO may choose to use ground water monitoring." It looks to me like under that heading of C Environmental Monitoring, what's labeled as number 1 is actually a description that you must, as chuck said it, you must do something. And that you have two options and so it looks like instead of it being numbered 1, 2, 3 it should be actually Environmental Monitoring, Description and then Soil Monitoring for large CAFO's, instead of being labeled 2 should be 1 and 3 should be 2. And there is a patently obviously typo that has been pointed out to department staff but because this is an official record I will delightfully point out that, S7 Termination of Coverage A.1. "A facility that did not have a discharge or was not designated a CAFO request permit termination and, to the facility a ceased operations and three, the permittee has demonstrated to the satisfaction to the department no remaining potential to discharge and there are no outstanding fees or penalties." It looks like that should be an or and I think that was a typo and I think the staff saw that and can't officially say yes or no until they've heard all the comments, but my comments are I think they are supposed to be ors because it doesn't look like you can get out of it. Die and still stuck with the permit. And I know the department needs money, but ya know, come on. On page 20, first sentence it looks like is C, is very unclear. The general category is G12 General Permit Modification and Revocation. "Permit may be modified or revoked reissued or terminated in accordance with provisions of chapter173/226." Then it says C, "When water quality management plan containing requirements applicable to CAFO is approved," and I suspect that may be like a regional water quality management plan such as a TMDL, but was very unclear to me what that means and so again don't know if that is in the fact sheet, but it seemed very vague as to what that means. And that is the extent of my comments other than I too also believe it's a pretty good permit, I think it's been a long time, we've all worked on this until we want to puke, it's time to move on and do something else.

Hearing adjourned at 7:47 p.m.

Issuance Date: _____, 2005
Effective Date: _____, 2005
Expiration Date: _____, 2010

Public Comment Draft

CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
AND STATE WASTE DISCHARGE GENERAL PERMIT

Date:_____, 2005

State of Washington
Department of Ecology
Olympia, Washington 98504
In compliance with the provisions of
Chapter 90.48 and 90.64 Revised Code of Washington as amended
and
The Federal Water Pollution Control Act as amended
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified or revoked, permittees that have properly obtained coverage by this permit are authorized to discharge to waters of the State in accordance with the special and general conditions which follow.

_____

David C. Peeler, Manager
Water Quality Program
Department of Ecology

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DEFINITIONS

1. "Animal Feeding Operation (AFO) means a lot or facility that meets both of the following conditions:

(a) It has animals (other than aquatic animals) that have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period and

(b) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility where animals are confined.

2. "Bypass" means the intentional diversion of waste streams from any portion of the collection, storage, or treatment facility. The applicable requirements of 40 CFR 122.41 apply.

3. "Concentrated Animal Feeding Operation (CAFO)" means an AFO that meets one or more of the following criteria:

- An AFO where the number of animals meets or exceeds the numbers for a Large AFO from Appendix 2, or
- An AFO where the number of animals present is in the medium range from Appendix 2 and there is a discharge to waters of the state, or
- An AFO where the number of animals present is less than that of a Large AFO and the department has designated the facility as a CAFO

4. "Designate as a CAFO" means the appropriate authority has determined that an AFO is a significant contributor of pollutants to waters of the state and issued a format designation.

5. "Department" means the state agency with Clean Water Act delegation for NPDES permits from the U.S. Environmental Protection Agency (EPA). As of the issuance date of this permit, the Washington State Department of Ecology is the delegated

agency. In the future, the Washington State Department of Agriculture (WSDA) may be the delegated agency.

6. “Equivalent best management practices” means operational, source control, treatment, or innovative practices which result in equal or better protection of surface water and ground water than the NRCS FOTG. When determining if a best management practice results in equal or better protection of water quality, all available data on the practice should be considered.
7. “Ground water” and “Underground water” means water in a saturated zone or stratum beneath the surface of land or below a surface water body.
8. “Land application area” means land under the control of a CAFO owner or operator, whether it is owned, rented, or leased, to which manure, litter or process wastewater from the production area is or may be applied.
9. “Manure” is defined to include manure, bedding, compost, and raw materials, or other materials commingled with manure or set aside for disposal.

10. “Multi-year phosphorus application” means phosphorus applied to a field in excess of the crop needs for that year. In multi-year phosphorus applications, no additional manure, litter, or process wastewater is applied to the same land in subsequent years until the applied phosphorus has been removed from the field via harvest and crop removal.
11. “New Source” means a facility that began construction after April 14, 2003.
12. “Nutrient Management Plan” means a written plan containing the minimum elements for nutrient management planning required under state law and federal regulations (as described in S3).
13. “Overflow” means the discharge of manure or process wastewater resulting from the filling of wastewater or manure storage structures beyond the point at which no more manure, process wastewater, or storm water can be contained by the structure.
14. “Process wastewater” means water directly or indirectly used in the operation of the CAFO for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing pens, barns, manure pits, or other CAFO facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Process wastewater also includes any water which comes into contact with any raw materials, products, or byproducts including manure, litter, feed, milk, eggs or bedding.
15. “Production area” means that part of a CAFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas

within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities.

16. “Setback” means a specified distance from surface waters or potential conduits to surface waters where manure, litter, and process wastewater may not be land applied. Examples of conduits to surface waters include but are not limited to: open tile line intake structures, sinkholes, and agricultural well heads.
17. “Upset” means an exceptional incident in which there is an unintentional and temporary noncompliance with technology based effluent limitations because of factors beyond the reasonable control of the CAFO. An upset does not include noncompliance to the extent caused by operational error, improperly designed storage or treatment facilities, inadequate storage or treatment facilities, lack of preventative maintenance, or careless or improper operation. The applicable requirements of 40 CFR 122.41 apply.

18. “Vegetated buffer” means a narrow, permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to the dominant slope of the field for the purposes of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients or pollutants from leaving the field and reaching surface waters.
19. “Waste storage facilities” means the physical system used for the isolation and retention of process wastewater at the operation until its ultimate utilization.
20. “Waters of the state” includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and water courses within the jurisdiction of the state of Washington.
21. “25-year, 24-hour rainfall event” means a rainfall event with a probable recurrence interval of once in twenty-five years as defined by the National Weather Service in Technical Paper Number 40, “Rainfall Frequency Atlas of the United States”, May 1961, and subsequent amendments, or equivalent regional or state rainfall probability information developed therefrom.
22. “100-year, 24-hour rainfall event” means a rainfall event with a probable recurrence interval of once in one-hundred years as defined by the National Weather Service in Technical Paper Number 40, “Rainfall Frequency Atlas of the United States”, May 1961, and subsequent amendments, or equivalent regional or state rainfall probability information developed therefrom.

SPECIAL CONDITIONS

S1. EFFLUENT LIMITATIONS

Beginning on the date that an individual facility is covered under this permit, the permittee is authorized to discharge only in accordance with the following conditions:

A. Surface Water Effluent Limitations

1. For all concentrated animal feeding operations (CAFOs), except new source swine, poultry, and veal Large CAFOs:

Discharge of manure, litter, or process wastewater into waters of the state from the production area is prohibited, except when the production area is designed, constructed, operated and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 25-year, 24-hour rainfall event and precipitation causes an overflow of manure, litter, or process wastewater.

2. For new source swine, poultry, and veal Large CAFOs:
   Discharge of manure, litter, or process wastewater into waters of the state from the production area is prohibited, except when the production area is designed, constructed, operated and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 100-year, 24-hour rainfall event and precipitation causes an overflow of manure, litter, or process wastewater.
3. Discharge of field runoff is prohibited when field applications exceed agronomic rates.

In addition, for CAFOs other than horse, sheep, and duck operations, discharge of manure, litter, or process wastewater into waters of the state from the production area is prohibited unless the CAFO complies with the permit requirements in S1.D and S4.A2a.

Discharges to waters of the state may not cause or contribute to a violation of the water quality standards in the receiving water.

Discharges to waters of the state due to upset or bypass are only authorized in accordance with applicable requirements in 40 CFR 122.41. (“CFR” is the “Code of Federal Regulations”)

In addition, if a discharge occurs, the CAFO must minimize the discharge to the extent possible.

B. Ground Water Effluent Limitations

The permittee must only apply manure, litter, and process wastewater to lands as specified in its nutrient management plan.

Process wastewater discharges, including seepage from waste storage facilities, may not reduce existing ground water quality except in those instances where the operator can demonstrate to the satisfaction of the Department, prior to a discharge, that:

1. An overriding consideration of the public interest will be served; and
2. All contaminants proposed for entry into said ground waters must be provided with all known, available, and reasonable methods of prevention, control and treatment prior to entry.

Discharges may not cause or contribute to a violation of the State Ground Water Quality Standards (Chapter 173-200 WAC) (“WAC” is the “Washington Administrative Code”).

Contaminant concentrations of chemicals and nutrients found in saturated soils that have been applied at agronomic rates for agricultural purposes are exempt

from all requirements of Chapter 173-200 WAC, if those contaminants will not cause pollution of any ground waters below the root zone.

C. Transfer of Manure.

All CAFOs must comply with the following requirements relating to transfer of manure or process wastewater to other persons:

Prior to transferring manure, litter or process wastewater to other persons, all CAFOs must provide the recipient of the manure, litter or process wastewater with the most current nutrient analysis. The analysis provided must be consistent with the requirements of 40 CFR part 412. CAFOs must retain for five years the records of the date, recipient name and address, and approximate amount of manure, litter and process wastewater transferred to another person. Chuck and I mentioned

D. All CAFOs except horses, sheep, and duck operations must comply with the following requirements:

1. Visual inspections. There must be routine visual inspections of the CAFO production area. At a minimum, the following must be visually inspected:
   a. Weekly inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the wastewater and manure storage and containment structure;
   b. Daily inspection of water lines, including drinking water or cooling water lines;
   c. Weekly inspections of the manure, litter, and process wastewater impoundments; the inspection will note the level in liquid impoundments as indicated by the depth marker in S1.D2.
2. Depth marker. All open surface liquid impoundments must have a depth marker which clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event, or, in the case of new sources subject to the requirements in S1.A2, the runoff and direct precipitation from a 100-year, 24-hour rainfall event. CAFOs must operate and maintain their open surface liquid impoundments to have the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event, or, in the case of new sources subject to the requirements in S1.A2, the runoff and direct precipitation from a 100-year, 24-hour rainfall event.
3. Corrective actions. Any deficiencies found as a result of these inspections must be corrected as soon as possible.
4. Mortality handling. Mortalities must not be disposed of in any liquid manure or process wastewater system, and must be handled in such

a way as to prevent the discharge of pollutants to surface water, unless alternative technologies pursuant to §412.31(a)(2) and approved by the Department are designed to handle mortalities.

E. CAFOs must take immediate action to stop and contain any unauthorized discharges. CAFOs must also clean up unauthorized discharges to the extent practical, minimize any adverse impacts to waters of the state, and correct the cause of the problem.

S2. PERMIT COVERAGE

i. Permit Applicability

This permit is applicable to:

- CAFOs that are discharging or proposing to discharge to state waters
- CAFOs that are required by federal rule to obtain permit coverage, and
- AFOs or CAFOs that seek permit coverage.

B. General Permit Coverage

1. To obtain permit coverage a facility must submit a complete permit application form and nutrient management plan to the Department. See Appendix 1 for deadlines. Unless the Department notifies the applicant in writing to the contrary, coverage under this general permit will begin on the later of the following:
   a. The thirty-first (31st) day after the Department receives the applicant's completed application for coverage,
   b. The thirty-first (31st) day after the end of the thirty (30) day public comment period required by WAC 176-226-130(4), or
   c. The effective date of the general permit.

2. This general permit does not cover activities or discharges covered by an individual National Pollutant Discharge Elimination System (NPDES) or state waste discharge permit until the individual permit has expired or been canceled. Any person conducting an activity covered by an individual permit that may be covered by this general permit may request coverage under this general permit.
3. Any CAFO covered by this general permit must, at all times, comply with all conditions of this permit.
4. This permit applies to the land application areas and production areas.
5. For new CAFOs, or for CAFOs for which an increase in volume of wastes or change in character of effluent is requested over that previously authorized, applications for coverage must also contain:
   a. A certification by the applicant that the public notice requirements of WAC 173-226-130(5) have been met; and
   b. A certification by the applicant that the applicable

State Environmental Policy Act (SEPA) requirements under chapter 197-11 WAC have been met.

C. Individual Permit Coverage

The Department may require any CAFO to apply for and obtain an individual permit**, in lieu of this general permit (Suggested added language)**, or to apply for and obtain coverage under another more specific general permit (WAC 173-226-240(2)). Coverage under this general permit will be terminated on the effective date of an individual permit. Until the individual permit is issued and effective, permit coverage will continue under the general permit.

S3. NUTRIENT MANAGEMENT PLANS

A. Nutrient Management Plan Elements.

All operations covered under this permit must have a current nutrient management plan. The nutrient management plan must be adequate for the existing number of animals.

1. The nutrient management plan must conform to the United States Department of Agriculture Natural Resources Conservation Service (NRCS) Field Office Technical Guide (FOTG) or equivalent best management practices (BMPs). Equivalent best management practices may be used by the CAFO if:
   a. the CAFO shows the practice would result in equal or better protection of surface and ground water quality and
   b. they are approved by the Washington State Department of Agriculture.
2. Requirements to develop a nutrient management plan. At a minimum, a nutrient management plan must include best management practices and procedures necessary to implement applicable effluent limitations and standards. A complete application must include a nutrient management plan. The nutrient management plan must, to the extent applicable:
   a. Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;
   b. Ensure proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;

   c. Ensure that clean water is diverted, as appropriate, from the production area;
   d. Prevent direct contact of confined animals with surface waters of the state;

e. Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants;

f. Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the state;

g. Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;

h. Establish protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater;

i. Identify specific records that will be maintained to document the implementation and management of the minimum elements described in S3.A; and

j. Include the requirements relating to environmental monitoring described in S4.C (large CAFOs only).

3. All CAFOs (except horses, sheep, and duck operations) that land apply manure, litter, or process wastewater, must do so in accordance with the following practices.

a. The CAFO must develop a nutrient management plan that incorporates the requirements of S3.A3(b)-(e) based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field and that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface and ground waters.

b. Determination of application rates. Application rates for manure, litter, and other process wastewater applied to land under the ownership or operational control of the CAFO must minimize phosphorus and nitrogen transport from the field to surface waters.

(i) The nutrient management plan must include a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to surface waters, and address the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters.

(ii) A CAFO has the flexibility to implement nutrient management practices to comply with the technical

standards, including consideration of multi-year phosphorus application on fields that do not have a high potential for phosphorus runoff to surface water, phased implementation of phosphorus-based nutrient management, and other components, as determined appropriate by the best management practice of S3.A1.

c. Manure and soil sampling. Manure must be analyzed a minimum of once annually for nitrogen and phosphorus content. Soil must be analyzed a minimum of once every five years for phosphorus content (for large CAFOs, see S4.C for additional environmental monitoring requirements). The results of these analyses are to be used in determining application rates for manure, litter, and other process wastewater.

d. Inspect land application equipment for leaks. The operator must periodically inspect equipment used for land application of manure, litter, or process wastewater.

e. Setback requirements. Unless the CAFO exercises one of the compliance alternatives provided for in (e)(i) or (e)(ii) of this section, manure, litter, and process wastewater may not be applied closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters.

(i) Vegetated buffer compliance alternative. As a compliance alternative, the CAFO may substitute the 100-foot setback with a 35-foot wide vegetated buffer where applications of manure, litter, or process wastewater are prohibited.

(ii) Alternative practices compliance alternative. As a compliance alternative, the CAFO may demonstrate that a setback or buffer is not necessary because implementation of alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions that would be achieved by the 100-foot setback.

4. Dairies that are CAFOs must also meet the minimum elements for nutrient management planning established by the Washington Conservation Commission under RCW 90.64.026(2) or other agency designated by the legislature.

B. Nutrient Management Plan Approval and Implementation

Coverage under this general permit constitutes initial approval of the nutrient management plan.

1. Existing CAFOs must implement their nutrient management plan within 18 months of the effective date of the permit or as required by EPA rule, which ever comes first.

2. CAFOs must submit notification to the department when implementation of their nutrient management plan is complete

3. New source CAFOs constructed after April 14, 2003 must have their nutrient management plans approved and implemented at the time production starts.

C. Nutrient Management Plan Compliance

Upon approval and certification of a nutrient management plan, any operation covered by this general permit must, at all times, comply with all the terms and conditions of that nutrient management plan. The land application and/or discharge of any process wastewater more frequently than, at a concentration in excess of, or at times not specified in the nutrient management plan shall constitute a violation of the terms and conditions of this permit.

D. Nutrient Management Plan Updates

The CAFO must develop and implement an updated nutrient management plan if:

1. facility expansions or modifications, production increases, or process modifications, pursuant to Condition S6 of this permit, will (1) result in new or increased generation of animal wastes beyond the scope of the current nutrient management plan, or (2) violate the terms and conditions of this permit;

2. the CAFO reduces or changes the field areas specified in the nutrient management plan used for land application; What Does this mean for new dirt…a totally revised plan???

3. environmental monitoring shows that water quality may be at risk (see S4.C). The updated nutrient management plan must ensure that the requirements of S1.B are met; or

4. Washington State Department of Agriculture orders changes in the nutrient management plan.

E. Nutrient Management Plan Availability

CAFOs must keep a copy of their nutrient management plan on-site. Nutrient management plans must be submitted to the Department with the permit application. All updates to the nutrient management plan must be submitted to the Department.

S4. RECORD KEEPING, REPORTING, AND ENVIRONMENTAL MONITORING

A. Record Keeping.

All CAFOs must create, maintain for five years, and make available to the Department of Ecology and the Washington State Department of Agriculture upon request, all records required by this permit.

1. For all CAFOs:

a. A copy of the CAFO's current site-specific nutrient management plan must be maintained on site and made available on site to the

Department of Ecology and the Washington State Department of Agriculture upon request.

b. For any discharge, the following records are required:

(i) A description and cause of the discharge;

(ii) The period of discharge including exact dates, times and duration of discharge;

(iii) An estimate of discharge volume and quality of the water;

(iv) Name or location of receiving water; and

(v) Corrective steps taken if appropriate, to reduce, eliminate or prevent reoccurrence of the discharge.

2. The following records are required for all CAFOs except horse, sheep, and duck operations.

a. Production Area:

(i) Records documenting the inspections required under S1.D1 (medium CAFOs and designated CAFOs are exempt from this record keeping requirement);

(ii) Weekly records of the depth of the manure and process wastewater in the liquid impoundment as indicated by the depth marker under S1.D2;

(iii) Records documenting any actions taken to correct deficiencies required under S1.D3. Deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction;

(iv) Records of mortalities management and practices used by the CAFO to meet the requirements of S1.D4; and

(v) Records documenting the current design of any manure or litter storage structures, including volume for solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity.

(vi) Records of the date, time, and estimated volume of any overflow.

b. Land Application Area:

(i) Expected crop yields;

(ii) The date(s) manure, litter, or process waste water is applied to each field;

(iii) Weather conditions at time of application and for 24 hours prior to and following application;
(iv) Test methods used to sample and analyze manure, litter, process waste water, and soil;
(v) Results from manure, litter, process waste water, and soil sampling;
(vi) Explanation of the basis for determining manure application rates;

(vii) Calculations showing the total nitrogen and phosphorus to be applied to each field, including sources other than manure, litter, or process wastewater;
(viii) Total amount of nitrogen and phosphorus actually applied to each field, including documentation of calculations for the total amount applied;
(ix) The method used to apply the manure, litter, or process wastewater; and
(x) Date(s) of manure application equipment inspection.

B. Reporting

1. If any discharge to waters of the state occurs, or if a CAFO for any reason does not comply with any of the requirements of the permit, the CAFO must notify the Washington State Department of Agriculture Livestock Nutrient Management Program as soon as possible, but no later than 24 hours after the discharge or noncompliance (the current phone number is (360) 902-1982). The CAFO must submit a written report within five (5) days to the Washington State Department of Agriculture.
   For discharges not allowed by the effluent limitation (S1.A or S1.B), the following information must be submitted in the written report:
   a. A description and cause of the discharge;
   b. The period of discharge including exact dates, times and duration of discharge;
   c. An estimate of discharge volume and quality;
   d. Name or location of receiving water;
   e. Description of the impact of the discharge on the receiving water (if available); and
   f. Corrective steps taken if appropriate, to reduce, eliminate or prevent reoccurrence of the discharge.
2. CAFOs must report to the Washington State Department of Agriculture within 24 hours of becoming aware of any significant physical failure at any time of a waste retention structure required under this permit.

3. Annual Reporting. CAFOs must submit an annual report to the Washington State Department of Agriculture. Annual reports are due on December 15 of each year, starting on December 15, 2006 The annual report must include:

a. The number and type of animals, whether in open confinement or housed under roof (beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other);

b. Estimated amount of total manure, litter and process wastewater generated by the CAFO in the previous 12 months (tons/gallons);

c. Estimated amount of total manure, litter and process wastewater transferred to another person by the CAFO in the previous 12 months (tons/gallons);

d. Total number of acres for land application covered by the nutrient management plan;

e. Total number of acres under control of the CAFO that were used for land application of manure, litter and process wastewater in the previous 12 months;

f. Summary of all manure, litter and process wastewater discharges from the production area that have occurred in the previous 12 months, including date, time, and approximate volume;

g. A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner; and

h. The results from the environmental monitoring described in S4.C (large CAFOs only);

4. The Washington State Department of Agriculture will forward copies of all reports to the Department of Ecology until the Washington State Department of Agriculture receives Clean Water Act delegation for NPDES permits from the EPA.

C. Environmental Monitoring:

1. Large CAFOs must use environmental monitoring to demonstrate if a nutrient management plan, and its implementation, is effectively treating nutrients in the soil of land application areas to protect ground water quality. Whats this Mean! Should there be an “or in here?! Or is this the Header and there are two options that follow?

2. Soil Monitoring for Large CAFOs

a. Large CAFOs must develop a soil sampling and analysis plan using appropriate NRCS Conservation Practice Standards, Technical Notes and Guidance or Extension Publications (such as Post-harvest Soil Nitrate Testing, EM8832-E, and Monitoring Soil Nutrients Using a Management Unit

Approach, PNW570-E). The sampling and analysis plan must be included in the nutrient management plan.

b. Large CAFOs must collect soil samples of land application areas annually in the fall. The samples must be analyzed for nitrate-N concentrations. Large CAFOs must collect samples prior to heavy fall rains and at least 30 days after any manure applications as described in Post-harvest Soil Nitrate Testing.

i. Large CAFOs that use cropping systems which prevent fall soil sample collection may use an alternative annual soil sampling program described in their nutrient management

plan. These CAFOs must collect soil samples annually, after crop harvest, as close to fall as is practical.

c. Samples must be collected at approximately 1 foot depth for locations west of the crest of the Cascade Mountains and approximately 2 feet depth for locations east of the crest of the Cascade Mountains.

d. Large CAFOs must report sampling results annually (see S4.B3).

3. A Large CAFO may choose to use ground water monitoring, instead of soil monitoring, to show that it meets the standards of chapter 173-200 WAC.

S5. WASTE STORAGE FACILITIES

All new or expanded waste storage facilities constructed after the issuance date of this permit must be sited, designed and constructed consistent with NRCS conservation practice standard 313 for Washington titled “Waste Storage Facility.” New lagoon liners must also have “as-built” post construction documents signed and stamped by a licensed professional engineer, who made on-site construction inspections, verifying that liners were constructed or installed as designed.

All waste storage facilities must be operated and maintained consistent with the nutrient management plan developed under S3 of this permit.

S6. PREVENTION OF SYSTEM OVERLOADING

The number of animals must not exceed the capacity of the waste storage facilities for the operation. Prior to increasing the number of animals over the maximum number identified in the existing nutrient management plan, the permittee must update its nutrient management plan consistent with S3 of this permit and update all system components identified as being in need of upgrading.

S7. TERMINATION OF COVERAGE

A. A permitted CAFO may request termination of coverage under this permit when the following conditions have been meet:

1. A facility that did not have a discharge or was not designated a CAFO requests permit termination and,Should Be "OR"
2. The facility has ceased operation and,
3. The permittee has demonstrated to the satisfaction of the Department that there is no remaining potential for a discharge of manure, litter or associated process wastewater that was generated while the operation was a CAFO, other than agricultural stormwater from land application areas and,

4. There are no outstanding fees or penalties.

B. A Medium CAFO or Designated CAFO may request that coverage under this general permit be terminated if it no longer meets the definition of a CAFO and,

(i) all facilities and best management practices have been installed and have been in operation for not less than 36 months, and

(ii) that there has not been a violation of permit condition S1 for the past 36 consecutive months, and

(iii) the facility does not propose to discharge in the future.

C. Inorder to terminate permit coverage, the permit holder must submit an Notice of Termination (NOT) to the Department. See Appendix 3. After receiving the NOT, the Department will respond to the request for termination by reviewing the permit file and having a site inspection done. The Department will then determine if coverage under this general permit should be terminated. Permit coverage is terminated when the permit holder is notified by the Department.

GENERAL CONDITIONS

G1. Discharge Violations:

All discharges, applications, and activities authorized by this general permit must be consistent with the terms and conditions of this permit. The application and/or discharge of any process wastewater more frequently than, or at a concentration in excess of that authorized by this general permit shall constitute a violation of the terms and conditions of this general permit.

G2. Proper Operation and Maintenance:

The Permittee shall at all times properly operate and maintain all facilities and systems used for process wastewater collection, storage and utilization (and related devices) which are installed or used by the Permittee for pollution control.

G3. Maintaining Compliance if System Fails:

The Permittee, in order to maintain compliance with its permit, shall control all applications and discharges upon reduction, loss or failure of the waste storage or utilization facilities and equipment. This requirement also applies where the primary source of power is reduced, lost, or fails.

G4. Right of Entry:

The Permittee shall allow an authorized representative of the Department of Ecology or Washington State Department of Agriculture, upon the presentation of credentials and such other documents as may be required by law:

a. To enter upon the property where a potential or actual discharge is located or where any records are kept under the terms and conditions of this permit;

b. To have access to and copy at reasonable times any records that must be kept under the terms of the permit;

c. To inspect at reasonable times any monitoring equipment or method of monitoring required in the permit;

d. To inspect at reasonable times any collection, treatment, pollution management, or application areas or facilities; and

e. To sample any waters of the state, areas of potential discharge, or discharge of pollutants.

G5. Reporting a Cause for Modification:

A Permittee who knows or has reason to believe that any activity has occurred or will occur which would constitute cause for modification or revocation under Condition G11 or 40 CFR 122.62 shall report such plans, or such information, to the Department so that a decision can be made on whether action to modify coverage or revoke coverage under this permit will be required. The Department may then require submission of a new application for coverage under this, or another general permit, or an application for an individual permit. Submission of a new application does not relieve the Permittee of the duty to comply with all the terms and conditions of the existing permit until the new application for coverage has been approved and corresponding permit has been issued.

G6. Payment of Fees:

The Permittee shall submit payment of fees associated with this permit as assessed by the Department. The Department may revoke this permit or take enforcement, collection, or other actions, if the permit fees established under Chapter 173-224 WAC are not paid.

G7. Other Requirements of 40 CFR:

All other requirements of 40 CFR Sections 122.41 and 122.42 are incorporated in this permit by reference.

G8. Compliance with Other Laws and Statutes:

Nothing in the permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G9. Additional Monitoring:

The Department of Ecology or Washington State Department of Agriculture may establish specific monitoring requirements in addition to those contained in this permit by administrative order1 or permit modification to protect waters of the state.

G10. Duty to Reapply:

The permittee must reapply for permit renewal at least 180 days prior to the expiration date of this permit. An expired permit continues in force and effect until a new permit is issued or until the Department cancels it, but only those operations which have reapplied for coverage under this permit will continue to have permit coverage.

G11. Permit Coverage Revoked:

Pursuant with Chapter 43.21B RCW and Chapter 173-226 WAC, the Department may require any discharger authorized by this permit to apply for and obtain coverage under an individual permit or another more specific and appropriate general permit. Cases where revocation of coverage under this permit may be required include, but are not limited to, the following:

A. Violation of any term or condition of this permit;

B. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts;

C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

D. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090;

E. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations;

F. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC; or

G. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable.

Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within ninety (90) days from the time of revocation and is submitted along with a complete individual permit application form.

G12. General Permit Modification and Revocation

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification or revocation and reissuance include, but are not limited to, the following:

A. When a change which occurs in the technology or practices for control or abatement of pollutants applicable to CAFOs;

B. When effluent limitation guidelines or standards are promulgated pursuant to the Clean Water Act or Chapter 90.48 RCW, for CAFOs;

[1] A determination to issue an Order to increase monitoring is an appealable action under RCW 43.21B.310.

C. When a water quality management plan containing requirements applicable to CAFOs is approved; or What is this???? Seems unclear.

D. When information is obtained which indicates that cumulative effects on the environment from CAFOs covered under this permit are causing unacceptable pollution.

G13. Toxic Pollutants

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G14. Requests to be Excluded from Coverage Under a General Permit

Any discharger authorized by this permit may request to be excluded from coverage under the CAFO general permit by applying for an individual permit. The discharger shall submit to the Department an application as described in WAC 173-220-040 or WAC 173-216-070, whichever is applicable, with reasons supporting the request. These reasons must fully document how an individual permit will apply to the applicant in a way that the general permit cannot. The Department may make specific requests for information to support the request. The Department shall either issue an individual permit or deny the request with a statement explaining the reason for the denial. When an individual permit is issued to a discharger otherwise subject to the CAFO general permit, the applicability of the general permit to that Permittee is automatically terminated on the effective date of the individual permit.

G15. Change of Ownership or Control:

The permittee shall notify the Department in writing at least 30 days prior to a change in facility ownership or a change in the lessee control (see condition G16).

G16. Permit Transfer

Coverage under this permit is automatically transferred to a new owner or operator if:

A. The type of activities and practices are substantially unchanged;

B. A written agreement between the old and new owner or operator containing a specific date for transfer of permit responsibility, coverage, and liability is submitted to the Department;

C. A copy of this permit is provided to the new owner or operator; and

D. The Department does not notify the Permittee of the need to submit a new application for coverage under the general permit or for an individual permit pursuant to Chapters 173-216, 173-220, and 173-226 WAC.

Unless this permit is automatically transferred according to section A. above, this permit may be transferred only if it is modified to identify the new Permittee and to incorporate such other requirements as determined necessary by the Department.

G17. Penalties for Violating Permit Conditions

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars and costs of prosecution, or by imprisonment in the discretion of the court. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G18. Signatory Requirements

All applications, reports, or information submitted to the Department of Ecology or Washington State Department of Agriculture shall be signed and certified.

A. In the case of a corporation, partnership, or sole proprietorship, all permit applications shall be signed by either a principal executive officer of at least the level of vice president of a corporation, a general partner of a partnership, or the proprietor of a sole proprietorship.

B. All reports required by this permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Department.
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2 above must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

> "I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G19. Appeals

The terms and conditions of this general permit are subject to appeal. There are two different appeal categories.

A. The permit terms and conditions as they apply to the appropriate class of dischargers are subject to appeal within thirty (30) days of issuance of this

general permit in accordance with Chapter 43.21(B) RCW and Chapter 173-226 WAC; and

B. The applicability of the permit terms and conditions to an individual discharger are subject to appeal in accordance with Chapter 43.21(B) RCW within thirty (30) days of the effective date of coverage of that discharger.

Consideration of an appeal of this general permit coverage of an individual discharger is limited to the applicability or non-applicability of this general permit to that same discharger. Appeal of this permit coverage of an individual discharger will not affect any other individual dischargers. If the terms and conditions of this general permit are found to be inapplicable to any discharger(s), the matter shall be remanded to the Department for consideration of issuance of an individual permit or permits.

G20. Severability

The provisions of this permit are severable, and if any provision of this general permit or application of any provision of this general permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this general permit, shall not be affected thereby.

Appendix 1
Deadlines for Applications

CAFO status	Time frame to seek coverage under an NPDES permit	Examples
Operations that currently have a permit.	180 days prior to expiration of the current permit.	Operations with a permit.
Operations that do not currently have a permit but are now CAFOs as defined by this permit.	April 13, 2006, if the facility was entitled to the permitting exemption for discharging only in the event of a 25-year, 24-hour storm. For CAFOs with any other discharge, as soon as possible.	Operations that have a discharge.
New sources	180 days prior to the time the CAFO commences operation.	For example, a new CAFO that commences construction after April 14, 2003.

Appendix 2
Numbers of Animals for Large and Medium AFOs

An AFO is defined as a Large AFO if it stables or confines as many as or more than the numbers of animals specified in any of the following categories:

(i) 700 mature dairy cows, whether milked or dry;
(ii) 1,000 veal calves;
(iii) 1,000 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs;
(iv) 2,500 swine each weighing 55 pounds or more;
(v) 10,000 swine each weighing less than 55 pounds;
(vi) 500 horses;
(vii) 10,000 sheep or lambs;
(viii) 55,000 turkeys;
(ix) 30,000 laying hens or broilers, if the operation uses a liquid manure handling system;
(x) 125,000 chickens (other than laying hens), if the operation uses other than a liquid manure handling system;
(xi) 82,000 laying hens, if the operation uses other than a liquid manure handling system;
(xii) 30,000 ducks (if the operation uses other than a liquid manure handling system); or
(xiii) 5,000 ducks (if the operation uses a liquid manure handling system).

An AFO is defined as a Medium AFO if it stables or confines the numbers of animals specified in any of the following categories:

(i) 200 to 699 mature dairy cows, whether milked or dry;
(ii) 300 to 999 veal calves;
(iii) 300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs;
(iv) 750 to 2,499 swine each weighing 55 pounds or more;
(v) 3,000 to 9,999 swine each weighing less than 55 pounds;
(vi) 150 to 499 horses;
(vii) 3,000 to 9,999 sheep or lambs;
(viii) 16,500 to 54,999 turkeys;
(ix) 9,000 to 29,999 laying hens or broilers, if the operation uses a liquid manure handling system;
(x) 37,500 to 124,999 chickens (other than laying hens), if the operation uses other than a liquid manure handling system;
(xi) 25,000 to 81,999 laying hens, if the operation uses other than a liquid manure handling system;
(xii) 10,000 to 29,999 ducks (if the operation uses other than a liquid manure handling system); or
(xiii) 1,500 to 4,999 ducks (if the operation uses a liquid manure handling system).

Notice of Termination For CAFO General Permit No. _____

This form requests an end to permit coverage if there are no agricultural related discharges
(Please type or print in ink)

I. CONTACT PERSON

Contact Name	Phone No.	Owner's Name	Phone No.
Title			Title
Company			Company Name
Mailing Address			Mailing Address
City	State Zip + 4	City	State Zip + 4

II. OWNER / REPRESENTATIVE OF

III. SITE LOCATION / ADDRESS

IV. BILLING ADDRESS

Site Name		Contact Name	Phone No.
Street Address (or Location Description)			Company Name
City (or nearest city)	Zip + 4	Mailing Address	
County		City	State Zip + 4
Provide legal description if no address for site (attach separate sheet if necessary).			

V. Reason for Termination (Please check applicable box)

The facility requests permit coverage cancellation; did not have a discharge or was not designated a

The facility has ceased operation: (state reason)

_____

The facility can, to the satisfaction of the Department, show there is no remaining potential for a disc of manure, litter

or associated process wastewater that was generated while the operation was a CAFO, other than agricultural stormwater from

land application areas

There are no outstanding fees or penalties.

Other: (State Reason)_____

___

IV. Until notified by the Deparetment of Ecology, I understand the permit is not terminated and the p and all fees remain in effect. CERTIFICATION OF PERMITTEE (Must be signed in accordance wi Permit Condition G18. Signature Authority)

"I certify under penalty of law that all agricultural discharges that are authorized by the National Pollution Discharge Elimination System (NPDES) and State Waste Discharge general permit hav eliminated, or the site has ceased operation. I understand that by submitting this Notice of Termi that I am no longer authorized to discharge by the general permit, and that discharging pollutants waters of the State of Washington is unlawful under the Clean Water Act where the discharge is authorized by a NPDES permit. I also understand that the submittal of this Notice of Termination not release the owner (or other permittee) from liability for any violations of this permit or the Cl Water Act."

_____ _____

Owner/Operator's Printed Name and Title Date

_____ _____

Owner/Operator's Signature Date

A Discussion on Dairy Manure

From the early days of dairy farming until the mid 1970's, manure handling was different than today. Free stalls, flush systems, side-hill screens, dewatering conveyors, and mega million gallon slurry lagoons with pump systems and rain-guns were just pipe dreams. Underground slurry tanks were becoming more common in the 1960's to handle the wash-down water from the milking barn. The light liquid was mixed and pumped into "Honey Wagons" for application to fields. The typical vault was about 35-45,000 gallons and required emptying every couple of weeks depending on whether rain gutters were directed into them.

If a farmer was located in Eastern Washington, open pens usually housed 2-3 groups of milking cows and their replacements. Each group ran between 100-150 head. During milking, the cows waited in a concrete holding pen that was usually covered. Manure from this holding pen was scraped into the underground vault. The open pens with tall roofed covers had piles of bedding, usually sawdust or wheat straw. These piles were added to as needed and removed and land applied to the fields and tilled in during the spring planting season.

Western Washington farmers were more likely to use loafing sheds rather than open pens. The reason was precipitation. About 30" per year compared to 10" in Eastern Washington. These loafing sheds also used sawdust or wheat straw for bedding. The sawdust piles were scraped every week or as needed. It was stockpiled and land applied in the spring. The wheat straw was added to as needed and cleaned out and land applied in the spring.

As you can see, most of the manure was stored in a solid form and land applied once or twice a year. During the time the piles were stockpiled or being used as bedding mounds, they were also heating and composting causing the typical volume reduction and nutrient stabilization. The liquid portion was minimal, cheap, and easy to manage.

From the mid 1970's on, dairies incorporated free stalls as a way of enclosing more cattle in a smaller area. One of the ideas was, not all cattle eat and sleep at the same time. So, you could build 100 stalls for a herd of 150 in an area the fraction of the size of the old loafing shed and open pens. With concrete floors, you didn't have to worry about erosion and potholing from too many cows. However, this also changed the handling format from solids to semi-solids. There would be a scrape alley, with a bay of stalls on each side. The free stalls were bedded with anything from sawdust to ground canary grass straw to chopped corn stalks. The stalls are barely long enough for a full grown cow.

The idea here is, the cow will actually defecate into the scrape alley because their tail-ends are sticking out over a curb…a little uncomfortable but functional for manure recovery. After herding the cows into the holding pens for milking, workers remove additional manure from the free stalls using a fork and drop it in the scrape alley. The manure in the alley is scraped into a pit where it is mixed with wash-water and pumped, or gravity drained, into a manure slurry lagoon. Many farms have used separators to

remove the undigested grass portion of the manure and the bedding material in the free stalls. The extra benefit here is prevent the manure lagoon from filling with solids requiring expensive solids removal in order to recover valuable storage space.

With lagoons large enough to hold 5 million gallons of liquid, the days of hauling manure to the fields in 1,000 gallon "Honey Wagons" are long gone. In their place, you will find pump systems with big rain gun sprinklers (formerly used in irrigation) shooting a giant green arch. With the ability to apply 1,000 gallons per minute, these systems lack the finesse enjoyed by the old wagons. Perhaps the most objectionable aspect of these rain guns, are the odors generated as the anaerobic manure is atomized in the high pressure arch. It is difficult to understand how a composting facility generating lesser odors can be shut down and/or fined, and the dairies using rain guns are exempt from state clean air regulations. In towns like Enumclaw Washington, dairies with rain guns surround the town. At times, the smell of anaerobic manure hangs in the town for days.

In recent years dairy farmers have started using wastewater technology to handle manure. Anaerobic digesters have been built and operated to stabilize the manure and capture methane for digester heating and use in farm equipment. Aerobic digesters are used to freshen and suspend solids before being pumped over screens sitting at a 45* angle. The screen allows the solids to roll down and into a set of rollers to remove excess liquid. Most of liquid manure falls through the screen and runs off to the lagoon. One project used coagulants and polymers to flocculate the manure before running it through a belt press. The liquid was fairly clear with an excellent reduction in nutrients.

Quite a few of the manure handling projects mentioned in this paper were the result of grants provided by state and federal agencies, and conservation districts. A significant problem with advancement in manure handling technology is the enormous expense. A regular size dairy of 300-400 milking cows have little in the way of capitol for a anaerobic digester or a belt press. In fact, these advancements in manure technology have drawn attention away from technology that all dairies can afford….large and small.

The bottom line is, there is too much liquid manure produced by the modern dairy. New manure technology seems to sanction and exacerbate this problem. Perhaps the time has come to take a step back in dairy history and try some of the methods of earlier farmers. The following is a suggestion for modifying the typical free stall barn into a loafing shed for producing a more solid manure product and handling the manure solids for best benefit:

Most free stall dividers are manufactured from 2" tube iron and mounted in sleeves placed in a concrete wall. The dividers are removable to accommodate removal of sick animals. Simple remove the dividers and store.

Six inch curbs are usually installed to hold the bedding back from the scrape alley. It is recommended these curbs be removed to allow easy removal of bedding in the loafing shed.

Any type of bedding may be used in the loafing shed. Sawdust is easy to maintain as it can be scrapped to a holding area and piled. Other alternatives are straw, low quality grass hay such as canary grass, and even corn stubble. Sand could be used but limits the options for manure composting. (One farm beds their stalls with sand and recovers the sand in a shallow settling pond for reuse. Good idea, but the end result is still a lagoon full of manure slurry.) How the loafing shed is cleaned is up to the individual farmer. Continued applications of bedding like straw will require removal one to two times a year if not scraped.

*Special Note. All rain gutters must be removed from the manure handling system. Rain water can be captured and used for wash-down in the milking barn, but as a rule, should not be allowed to enter any mixing vault or lagoon.

Manure solids need to be stockpiled in an easy access area. Once the pile is established, composting will begin and requires occasional turning. This may require a substantial amount of area, but when you think of area used for the liquid handling, the space may of equal size. While composting, temperatures should be monitored and piles turned when excessive heat is observed (>160*F). As the piles mature, moisture will be lost, but can be added using liquid from the wash-water from the milking barn. Other solids may be added to the compost piles such as weathered straw and hay bales, silage waste, dairy calf raising solid wastes, and feedlot wastes.

The composting can be maintained in a fairly informal manner by any farmer. Some may simply choose to stockpile the manure solids and land apply in the spring or fall. However, composting is highly desired and can accomplish a number of important goals such as volume reduction, nutrient uptake and stabilization, and a reduction in non-point source pollution.

Milking barns liquid waste can also be cleaned up before impounding to a storage lagoon. A filter can be constructed from ecology blocks and filled partially with sawdust or other bedding material. Liquid manure from the mixing pit can be pumped to the filter where solids are captured and removed as needed to the compost piles. The filtrate can be re-circulated back to the mixing pit, used as barn wash-down water, or wasted to the lagoon. (An expanded version of this filter could be used to remove and bulk-up manure solids before filtrate is impounded to the lagoon in free stall barn applications. Composting is still the desired method for handling the solids.)

In conclusion, you can see the technology is proven, cheap, and available to all size dairy farms. Years of handling dairy manure as a slurry has caused regulating, monitoring, permitting, and a number of large fines levied against the farmer. This trend will only continue if serious changes are not made to the current management options. With local and state political climates changing to more urban values, the clean air law exemptions for dairies will be eliminated. If this happens, any farmer with a rain gun for applying manure faces stiff retaliation from near-by communities. If this should happen, and it will eventually, all the current infrastructure for handling manure slurry will be useless.

Having spent my first thirty years in the dairy industry, I have seen firsthand the changes mentioned in this paper. When I started doing wastewater treatment, I was excited by the possible use of biosolids handling technology to help the dairy industry. But, as I did my own research using polymer to flocculate manure slurry and remove the solids it started crossing my mind that biosolids technology is also very expensive.

As I did more literature searches on manure projects, I noticed that most of them had been subsidized by local, state, and federal government. Additionally, many of these projects were replicated in other states using the same types of funding. The question came to mind about how many times you have to re-invent the wheel. Funding, as usual, is given to innovative and technologically advanced projects. This bias seems to have blinded us to the merits of how our fathers and grandfathers managed their farms with only a fraction of the equipment we enjoy today. By no means am I saying we should hitch-up the horses to the manure spreader, on the contrary.

The modern dairy has all the equipment needed to accommodate changing their liquid manure handling format to a solid format. No anaerobic digesters, flush systems, free stalls, rain guns, or separators are needed which means a substantial savings to new dairies or those who wish to upgrade to a solids system. Funding for research and pilot projects on this methodology should be generous.

For more discussion on this matter feel free to contact me by e-mail at solutions39@msn.com.

Thank you,

Joe Schons