Livestock Siting Technical Expert Committee
Engineering Subcommittee
Meeting Notes September 14, 2010

Attendance: All engineering subcommittee members attended. The meeting was called to order at 9:10 am. and adjourned at 2:00 pm. when the subcommittee joined with the Odor Subcommittee to discuss setbacks until 3:00 pm. The notes from the setback discussion are included in the Odor Subcommittee notes.

1. **Review assignment questions and discuss progress**. Questions available at: http://www.datcp.state.wi.us/arm/agriculture/land-water/livestock_siting/technical_expert_committee.jsp

The committee reviewed the conclusions reached at the last meeting. All agreed that the notes reflected the intent of the subcommittee though refinement would continue until the recommendations are forwarded to the full technical committee.

2. **Existing animal lot evaluation tools** (discussion continued from 8/31 meeting):
    - Review sample scenarios comparing BARNY and BERT
    - Develop final recommendation

Dennis ran seven iterations of each of four scenarios selected last week (see attachment 1); then he ran several BARNY iterations using the same parameters; and finally he ran five iterations of BERT using the same parameters as a BARNY run that was either just under or just over the 15 pounds of phosphorus limit in the BARNY model (see Attachment 2). The models produced similar outcomes for most scenarios but for some examples BERT results appeared to be in error. It appears that BERT is not sensitive to buffer width in those cases. Ed Odgers will contact Scott Mueller, NRCS, to determine what is going on within the BERT model that is interfering with the length and width parameters, or clarify why those parameters are set as they are.

The subcommittee is still interested in the BERT model due to the precision, flexibility, and tech support it affords, however, the problem discussed above will need to be resolved if it is to be considered further. One conclusion from our discussion is that, regardless of model used, a printout of the model inputs and outputs should be included in the application so that permit reviewers can assess the inputs used. Further, the group suggested that if the BARNY model continues to be cited, there should be additional guidance or directions for its use. A final recommendation was deferred until the next meeting.

3. **Existing manure storage evaluation** (discussion continued from 8/31 meeting):
    - Discuss potential addition of clarifying conditions to worksheet 4.
    - Discuss potential incorporation of transfer system to worksheet 4.

At the last meeting the group concluded that worksheet 4 lacks specificity and should be amended to assist the evaluator in drawing consistent and accurate conclusions. Several committee members sent Dennis additional criteria that would support the selection of the various checkboxes in the worksheet. Upon discussing those submittals the subcommittee agreed that the worksheet should be accompanied by a compilation of the following baseline information on the facility:

-Storage facility identifier such as unit name or number
-Description of the type of facility (tank, pit, above or below ground etc.)
-Liner type (selected from tables 1 thru 5 in 313)
-Dimensions and volume
-Any existing designs and as-built documentation
-Date the facility was constructed
-Date of inspection
-Level of manure at inspection

The remainder of the discussion focused on criteria needed to evaluate the condition of the existing manure storage facility. The subcommittee acknowledged that the facilities and the methods necessary for evaluating them will be unique and inevitably will rely on the judgment and professionalism of the evaluator. Nonetheless, the subcommittee felt that there are criteria that universally apply. One is that liner types more prone to damage (compacted clay, geomembrane, geosynthetic) could not be credibly evaluated without visually inspecting a significant portion of the liner surface and need to be inspected when the facility is as empty as practical, or within two feet of the bottom. The subcommittee explored if and how the permit process could move ahead despite an inconclusive storage evaluation, because of a delay in documenting the facility's liner or conducting a soils investigation. No conclusions were made on this difficult question. It was recognized that applicants will have to plan ahead and that this requirement will preclude evaluations of some facilities during winter.

Another suggestion that was not fully discussed was to use the NRCS CNMP soils evaluation criteria to provide support for selecting the fourth check box of worksheet 4 (soils and separation distances meet Table 1, 313). This concept will be pursued at the next meeting.

Other conclusions by the subcommittee were that confirming the adequacy of transfer systems should be included in the worksheet and that a safety fence needs to be in place to qualify an existing storage for continued use or will need to be installed as a condition of the permit.

4. **Feed storage leachate & runoff control** (discussion continued from 8/31 meeting):
    - Discuss size of feed pads for possible exemption.
    - Develop language for reference to NRCS Standard 629.

At the last subcommittee meeting it was concluded that NRCS Standard 629 should be cited for new and substantially altered feed storage. That standard was under development when ATCP 51 was being drafted. Discussion ensued on the ongoing effort to revise 629, initiated on September 8, 2010 by NRCS and a Standards Oversight Committee (SOC) team of agency and industry experts. The group discussed the timing of that effort in relation to potential revisions to ATCP 51 and expressed the desire to cite the updated 629. They were informed that the revised 629 standard would need to be available in advance of the public hearings of the draft ATCP 51 rule.

The subcommittee considered the size cutoffs for adherence to the Feed Storage portion of Worksheet 5. For existing feed storage areas, Worksheet 5, Feed Storage, 2. (b), applies to feed storage areas over one acre in size. The subcommittee will recommend that the "one acre"

threshold be replace with an operation size of 500 Animal Units or more. It was also concluded that all (no size exemption) new and substantially altered feed storage be required to meet the NRCS 629. It was noted that the worksheet requires all outdoor feed storage, regardless of size, divert clean water and meet the Nonpoint Pollution Standards listed at the end of the worksheet.

A draft of recommended revisions will be reviewed at the next meeting.

5. Review how **process waste water** is addressed in NR 243 for CAFOs (new topic):
Tom Bauman provided a brief overview of changes to the performance standards in NR 151 and how process waste water is addressed in the CAFO permits. It was noted that that Worksheet 5 cites the performance standards and should be amended to reflect changes to NR 151. Further it was concluded that the applicable sources of process wastewater are now being addressed in the worksheets with the exception of milking center waste. For most moderate and larger sized dairy farms this waste stream is appropriately addressed by storing and handling it with the manure, but for those operations without storage this can be a significant source of pollution. The subcommittee will recommend that milking center waste control be included in Worksheet 5, Runoff Management. NRCS 629 includes criteria for appropriate treatment of milking center waste and should be cited.

6. Discuss **facility closure** procedures and costs (new topic)
    - Overview by John Roach

The subcommittee ran out of time and deferred this topic to the next meeting.

Meeting adjourned at 2:00 pm. The next meeting will be on 12 October 2010 at 9:00 am at the Department of Agriculture, Trade and Consumer Protection building (2811 Agriculture Drive), Room 172 (Fishbowl).

Attachment 1: Scenarios to run in Barnyard Evaluation Rating Tool

Parameter	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Paved lot	8000	20,000		
Earthen lot	0	0	20,000	108,000
Settling basin y/n	n	n	n	n
% time on lot	50	50	50	50
Lot scraped?	y	y	n	n
Animals on lot	75	75	75	500
Type ½	1	1	1	1
Avg weight	1400	1400	1400	1400
Tributary area	0	0	0	0
RCN				
Roof area	0	0	0	0
Vegetated downstream	Y	Y	Y	Y
Runoff across vegetated	Y	Y	Y	Y
Cover type	Run various	Run various	Run various	Run various
Length	Run various	Run various	Run various	Run various
Width	Run various	Run various	Run various	Run various
Slope	2	2	2	2
Distance to blue line	1001	1001	1001	1001
Distance to lake, wetland, pond	1001	1001	1001	1001
Manure solids leaving	Y and n	Y and n	Y and n	Y and n
Operating condition	good	good	good	good
Edge of lot BERT:	122	213	233	1257
End of buffer BERT	38-56, depending on parameter	7-55, depending on parameter	8-107, depending on parameter	3-194, depending on parameter

Attachment 2: Comments on comparisons between five BARNY/BERT runs

Background: I ran seven iterations in the BERT program of each of the four scenarios we agree to at our 31 August meeting. I also ran three iterations of the four scenarios in BARNY to allow some comparison between the two programs. After consulting with Ed, I ran an additional five scenarios in BERT, using the same inputs that I ran for the BARNY model in cases where the model either barely met the maximum P output, or slightly exceeded that maximum.

Scenario BARNY 1c [variable parameters were "fair managed grazing, buffer length 100 feet, width 120 feet] was very close to BERT scenario 1f [variable parameters were "fair managed grazing, buffer length 150 feet, width 100 feet]

Parameter	BERT 1f	BARNY 1c	**BERT/BARNY**
Cover type: fair managed grazing			
Paved lot/head	8000/75	8000/75	**8000/75**
Buffer length	150	100	**100**
Buffer width	100	120	**120**
Edge of lot P		46.5	
Edge of lot BERT	122		**122**
End of buffer P		16.2	
End of buffer BERT	39 (concern no)		**50 (concern yes)**

Scenario BARNY 3b [variable parameters were "well managed grazing, buffer length 200 feet, width 100 feet] was very close to BERT scenario 3c [variable parameters were "fair managed grazing, buffer length 400 feet, width 100 feet]

Parameter	BERT 3c	BARNY 3b	**BERT/BARNY**
Cover type:	**well managed grazing**	**well managed grazing**	**fair managed grazing**
Earthen lot/head	20,000/75	20,000/75	**20,000/75**
Buffer length	400	200	**200**
Buffer width	100	100	**100**
Edge of lot P		59.3	
Edge of lot BERT	233		**233**
End of buffer P		15.5	
End of buffer BERT	8 (concern no)		**43 (concern yes)**

Scenario BARNY 3c [variable parameters were "fair managed grazing, buffer length 200 feet, width 150 feet] was very close to BERT scenario 3e [variable parameters were "fair managed grazing, buffer length 250 feet, width 200 feet]

Parameter	BERT 3e	BARNY 3c	**BERT/BARNY**
Cover type: fair managed grazing			
Earthen lot/head	20,000/75	20,000/75	**20,000/75**
Buffer length	250	200	**200**
Buffer width	200	150	**150**
Edge of lot P		59.3	
Edge of lot BERT	233		**233**
End of buffer P		14.7	
End of buffer BERT	49 (concern yes		**61 (concern yes)**

Scenario BARNY 4b [variable parameters were "well managed grazing, buffer length 330 feet, width 330 feet] was very close to BERT scenario 4c [variable parameters were "well managed grazing, buffer length 400 feet, width 100 feet]

Parameter	BERT 4c	BARNY 4b	**BERT/BARNY**
Cover type: well managed grazing			
Earthen lot/head	108,000/500	108,000/500	**108,000/500**
Buffer length	400	330	**330**
Buffer width	100	330	**330**
Edge of lot P		320.4	
Edge of lot BERT	1257		**1257**
End of buffer P		23.7	
End of buffer BERT	41 (concern yes)		**94 (concern yes)**

Scenario BARNY 4c [variable parameters were "fair managed grazing, buffer length 100 feet, width 120 feet] was very close to BERT scenario 1f [variable parameters were "fair managed grazing, buffer length 150 feet, width 100 feet]

Parameter	BERT 4e	BARNY 4c	**BERT/BARNY**
Cover type: fair managed grazing			
Paved lot/head	108,000/500	108,000/500	**108,000/500**
Buffer length	600	600	**600**
Buffer width	100	300	**300**
Edge of lot P		320.4	
Edge of lot BERT	1257		**1257**
End of buffer P		12.7	
End of buffer BERT	25 (concern no)		**25 (concern no)**