COMPOST OPERATION STAKEHOLDER ADVISORY GROUP MEETING

DWM BUILDING – RALEIGH, NC

MEETING MINUTES

WEDNESDAY, JUNE 2, 2010

IN ATTENDANCE

ALLEN HARDISON	NCACC	BRIAN ROSA	DPPEA
STACEY SMITH	SMITH & GARNER	MICHAEL SCOTT	DENR – DWM
DAVID GOODRICH	NCDWQ	BOB RUBIN	NCSU
JIM LANIER	NCSTA	LIZ PATTERSON	DENR – DWM
BILLY DUNHAM	NC DUMPER GROUP	JASON WATKINS	DENR – DWM
SCOTT MOUW	NCAPPEA	SERGEI CHERNIKOV	DENR – DWQ
SCOTT CARPENTER	NCWWA-WEA	BETHANY GEORGOULIZS	DENR – DWQ
ED MUSSIER	DWM – SOLID WASTE	ERIN WYNIA	NC LEAGUE OF MUNI.
FRANK FRANCIOSI	NCCC	KEN PICKLE	DENR – DWQ
JERYL COVINGTON	NCSWANA.	DAVID HALLEY	FACILITATOR
NOEL LYONS	MCGILL ENVIRONMENTAL	BRADLEY BENNETT	DWQ
JOE HACK	MECKLENBURG COUNTY		

1:00 PM WELCOME: DAVID HALLEY – FACILITATOR

1:15 PM REVIEW OF LAST MEETING AND PREVIEW OF MEETING

The Steering committee – which includes Frank Franciosi, Ken Pickle, Scott Mouw, Bethany Georgoulias and Michael Scott have been meeting regularly to put together a series of proposals for the group to work on. These detailed proposals are a product of discoveries, discussions and informal proposals presented during the stakeholder process. It also involves several conference calls with other states on how they are running their compost permitting process, both with regulators and compost facilities. Currently they have created seventeen draft proposal. Six will be presented today. We will discuss each and then try to reach consensus on approving each one. The definition of consensus is “it is not the position I started with, but one I can support”. Dave reintroduced the consensus card (green, yellow and red card) technique and asked all the stake holders to use the card during the discussion to help the group reach consensus.

The Monitoring Subcommittee – which includes Joe Hack (chairman), Frank Franciosi, Craig Coker, Jeryl Covington, Steve Larson, Bob Rubin, Ken Pickle, and Ryan Smith have also been meeting regularly to prepare a proposal for monitoring parameters. They have not completed their draft proposal but plan to share what they are currently working on to get some feedback from the group.

1:20 PM REVIEW PROPOSALS

The following proposals were discussed and the final draft of accepted proposal with edits is contained in these minutes:

1. **Finished Product (1)**
2. **Naming Waters (2)**
3. **Monitoring Parameters (3)**
4. **Extraordinary Storm Events (4)**
5. **General Permits for Large Type 1 and Large Type 2 Facilities (5)**
6. **No Exposure Options for Small Type 2 and Small Type 3 Facilities (6)**

Consensus was reached on each one with some minor changes (note edits) to original draft proposal.

It was noted that we need to draft a proposal for Small Type 2's and Type 3 facilities that have exposure and no discharge

We propose the following new component to the Compost Permitting Process:

Proposed New Component (#6: Finished Product): We propose a new classification system that will determine material as finished product. The determination of finished compost material will be dependent on several scientifically supported factors. First, the heavy metal, pathogen and inert levels must all be below established thresholds (15A NCAC 13B .1407 tables 1 and 2 (need to add DWQ tables)) for solid waste facilities. Once that is achieved, the proposed new system outlined below will measure and establish three thresholds for stability and maturity that will define finished compost product. We propose that this new classification system for finished product be available for DWM Type 1 - Type 4, and DWQ Residual Compost Facilities. Once material is classified as finished product (mature) in these facilities, the flows off these piles, as long as they do not comingle with flows from unfinished product, can be treated as stormwater and can be managed under a Stormwater Permit. Monitoring data must support that stormwater BMP implementation is effective.

Steering Committee Consensus: Yes

Process: The classification of a material as finished compost is dependent on several factors. The heavy metal (not required for Type I), pathogen and inert levels must all be below the established thresholds (for solid waste facilities: as listed in 15A NCAC 13B .1407 tables 1 and 2; for DWQ facilities: as listed 15A NCAC 02T.1100. Maturity and stability are additional factors that define finished compost.

- Stability- specific stage, level of decomposition or state of organic matter during composting
- Maturity- Level of completeness of composting

The California Compost Quality Council (CCQC) has established specific procedures to assist in the determination of a compost maturity index. These procedures reference the test methods for the examination of compost and composting (TMECC) as developed by the US Compost Council. The procedures outlined by the CCQC are a good starting point for a comprehensive determination of finished compost in North Carolina. The complete document is available at:

http://www.anr.state.vt.us/dec/wastediv/compost/documents/CompMaturity.pdf

The CCQC maturity index evaluates at least three parameters of compost. An initial carbon:nitrogen (C:N) ratio is established for the finished product prior to conducting the additional tests. The C:N ratio is utilized as a prescreening method in the process. Two additional tests (one from each group) are required since the level of maturity is best assessed by measuring two or more compost characteristics.

Group A	Group B
• Carbon Dioxide evolution or respiration	Ammonium:Nitrate ratio
• Oxygen Demand	Ammonia concentration
• Dewar self heating test	Volatile Organic Acids
	Plant test

The Solvita test, which was outlined in the Stakeholder meeting, addresses CO2 respiration from Group A and Ammonia concentration from Group B. The Solvita test could be one option for a facility in addition to determining the C:N ratio to determine what is finished compost. However, Groups A and B list additional options for facilities that choose to not utilize the Solvita test. The flow diagram on the following page would be utilized for Type I-IV~~H~~ solid waste facilities that would apply for stormwater permit coverage for finished product storage and processing areas.

*C:N Ratio pre-screening test is an optional step and just an initial screen and not a determinant of maturity/stability.

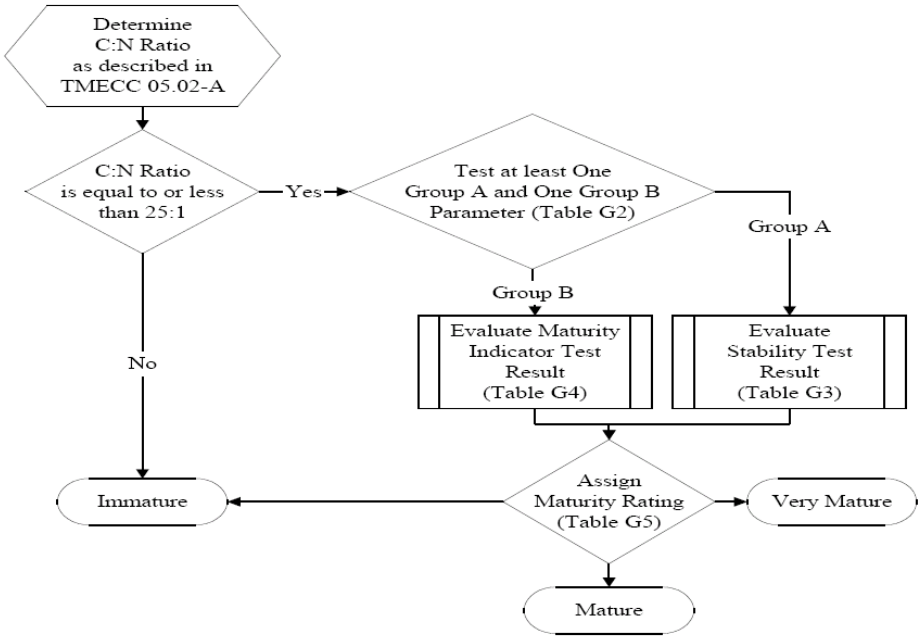


Table 05.02-G3
Stability Thresholds Using Respirometry

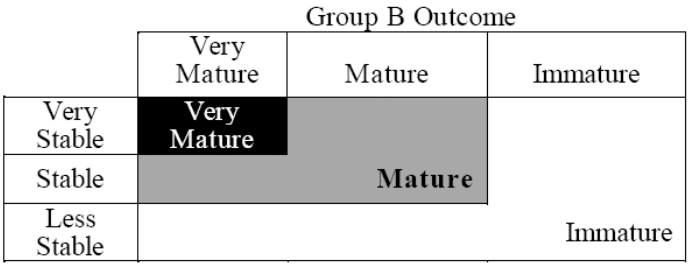
Group A (Stability)	Rating: Very Stable	Stable	Less Stable
Specific Oxygen Uptake Rate (mg O_2 per g OM per d)	< 12	12 – 36	> 36
Carbon Dioxide Evolution Rate (mg CO_2-C per g OM per d)	< 2	2 – 8	> 8
Dewar Self-Heating Test (Dewar Index)	V	IV	III, II, or I
Headspace Carbon Dioxide (color-code for Solvita CO_2)	7 – 8	5 – 6	1 – 4
Biologically Available Carbon (mg CO_2-C per g OC per d)	< 2	2 – 4	> 4

ADAPTED FROM—TMECC Table 05.08-1 Compost Stability Index.

Table 05.02-G4
Maturity Thresholds for Maturity Indicators

Group B (Maturity Indicator)	Rating: Very Mature	Mature	Immature
Ammonium, (mg kg^{-1} dw)	< 75	75 - 500	> 500
Ammonium:Nitrate Ratio[3], (unitless ratio)	< 0.5	0.5 – 3.0	> 3.0
Seedling Emergence, (% of control), AND	> 90 and	80 – 90 and	< 80 and
Seedling Vigor, (% of control)	> 95	85 – 95	< 85
In-Vitro Germination and Root Elongation , (% of control)	> 90	80 – 90	< 80
Earthworm Bioassay: The Minnesota "Z"-Test (% weight gain)	< 20	20 – 40	> 40
Ammonia, (color-code for Solvita NH_3)	5	4	3 – 1
Volatile Fatty Acids, (mmoles g^{-1} dw)	< 200	200 – 1,000	> 1,000

Figure 05.02-G2. Maturity Assessment Matrix



The Maturity Assessment Matrix is applied when the C:N Ratio is equal to or less than 25:1.

Notes:

- This option is available for DWM Type 1 - Type 4 Facilities and DWQ Residual Compost Facilities.
- Maturity testing is entirely optional for these facilities; however facilities that do not conduct maturity testing may not qualify for stormwater permitting.
- These maturity index procedures was established by California Compost Quality Council (CCQC)
- Compost Maturity Index Parameters established and supported by TMECC
- DWM and DWQ new policy will support this proposal while one or both seek rule changes
- Testing Interval per .1400 rule requirements or STA program
- Titles – need to better clarify titles

Why we support this new component:

- Being able to treat flow off "finished product" as stormwater will decrease the cost to treat the runoff and allow producers to utilize less costly BMP options.
- We give the industry a choice of testing options for stability and maturity. We will not recommend a specific testing product.

Stakeholder Advisory Group Consensus for #6: Finished Product:

√ **This proposal was accepted by all stakeholders present, with the change of making sure C/N determination is just an initial screen and not a determinant of maturity. Several members voted per proxy, and their comments were discussed in meeting.**

We propose the following new component to the Compost Permitting Process:

Proposed New Component (#7: Naming Waters):
Nomenclature of various site discharges:

- Discharges that do not originate from contact with materials while they are in the manufacturing process are "stormwater discharges associated with industrial activity."
- Discharges that originate from contact with "finished product" will be presumed to be "stormwater discharges associated with industrial activity" as long as finished product meets existing standards, maturity standards and discharges comply with stormwater permit requirements.
- Waters that contact materials in the manufacturing process and that do not leave the site are called "process waters,~~s.~~" As long as it does not impact the groundwater
- Discharges that originate from contact with other raw materials, waste materials, or by products are "process wastewater" discharges.
- Discharges of commingled contact and non-contact flows are "process wastewater" discharges.

Steering Committee Consensus: Yes

Notes:

- Concepts above presented in DWQ Report #1 and in NC Attorney General's opinion.
- This division of nomenclature and permitting stance is largely consistent with DWQ's approach to stormwater and wastewater permitting in other industries.

Why we support this new component:

- Nomenclature is consistent with Federal rules, i.e. "stormwater discharges associated with industrial activity" is found at 40CFR122.26(b)(1)(a); "process wastewater" is found at 40CFR122.2.
- NC DOJ Attorney General's Office opinion supports either definition as applicable to "finished product" and gives DWQ the freedom to exercise flexibility and judgment with "finished product".

Stakeholder Advisory Group Consensus:

√ **This proposal was accepted by all stakeholders present, with the caveat that process waters do not negatively affect groundwater. Several members voted per proxy, and their comments were discussed in meeting.**

We propose the following new component to the Compost Permitting Process:

Proposed New Component (#16: Extraordinary Storm Event):
Under an NPDES discharge permit, discharges that result from storm events greater than the 25-year, 24-hour rainfall for the site location (ranges from 5 to 8.5 inches across NC) will be exempted from monitoring requirements.

For an operation **that has a non-discharge permit**, discharges resulting from events larger than the 25-year, 24-hour rainfall will be treated the same way as all other systems permitted under the program. Non-discharge program rules establish design criteria at the 25-year, 24 hour storm with freeboard requirements, and therefore *all systems currently permitted under these rules are at risk of discharging in events excessively greater than the design*. The decision to enforce against discharges therefore depends on the facility's operation and maintenance history and circumstances of the storm event.

For operations **that manage process water under a DWM permit**, discharges resulting from events larger than the 25-year, 24-hour rainfall will be addressed according to the following principal requirements: DWM design criteria must meet the 25-year, 24 hour storm and freeboard requirements. *DWM acknowledges* that *all systems currently permitted under these requirements are at risk of discharging in events excessively greater than the design event*. The decision to enforce against discharges therefore depends on the facility's operation and maintenance history and circumstances of the storm event.

Steering Committee Consensus: Yes

Notes:

- This is not a "get out of jail free card". Facilities are still subject to notice of violation if facility design, operation and maintenance have been negligent or lacking prior to extraordinary storm event.

Why we support this new component:

- We understand extraordinary storm events may cause discharges that are beyond the composting operations control and will happen rarely.
- This approach resembles DWQ's posture in other permitting programs and is the most fair.

Stakeholder Advisory Group Consensus:

√ **This proposal was accepted by all stakeholders present. Several members voted per proxy, and their comments were discussed in meeting.**

We propose the following new component to the Compost Permitting Process:

Proposed New Component (#10: General Permits for LT1 and LT2):

- A new General Permit would be proposed and submitted for approval to EPA for Large Type 1 and Large Type 2 compost facilities. Once approved these facilities would apply for a General Permit. These permits would cover both Stormwater and Wastewater discharge requirements.

Steering Committee Consensus: Yes

Notes:

- A General Permit is simpler than an individual permit but will still stipulate that facilities must follow stormwater/wastewater parameters.
- Applicants must still address the specific circumstances of their facilities in regard to stormwater and wastewater issues in the permitting process.
- Because a General Permit requires EPA approval, which may take up to a year for approval, this General Permit would not become available for Large Type 1 and Large Type 2 Facilities until 2012.
- Large Type 1 and Large Type 2 facilities would work under the current provisions of the Session Law on a case-by-case basis until the General Permit is available.
- Individual permits in this interim period may be issued for less than the normal 5-year permit term.
- **Michael Scott and Jon Risgaard need to reconvene on groundwater issue
- The general permit will have the following elements:
    - For stormwater discharges:
        - A written Stormwater Pollution Prevention Plan (would resemble DWM's O&M plan)
        - Quarterly sampling of stormwater
        - Required management response actions if sample results exceed benchmark values for the monitored parameters.
    - For process wastewater discharges:
        - The application must establish that the discharge to surface waters is the best feasible alternative.
        - Quarterly monitoring of process wastewater discharges
        - The permit will require compliance with permit limits.

Why we support this new component:

- Helps to streamline the process – a general permit does not require a site-by-site public notice ~~hearing~~ and establishes a pre-determined set of water management criteria to guide the design and siting process.
- Potentially less costly than individual permit at only $100/yr.

Stakeholder Advisory Group Consensus:

√ **This proposal was accepted by all stakeholders present. Several members voted per proxy, and their comments were discussed in meeting.**

We propose the following new component to the Compost Permitting Process:

Proposed New Component (#11: No Exposure Options for Small Type 2 & 3 Facilities):

Small type II facilities are limited within the Solid Waste Compost rules (15A NCAC 13B .1402 (2)) to only accept pre-consumer meat-free food processing waste, vegetative agricultural waste, source separated paper or other source separated specialty wastes, which are low in pathogens and physical contaminants. Waste acceptable for a type I facility may be composted at a type II facility.

Small type III facilities are limited within the Solid Waste Compost rules (15A NCAC 13B .1402 (3)) to only accept manures and other agricultural wastes, meat, post consumer-source separated food wastes and other source separated specialty wastes or any combination thereof that are relatively low in physical contaminants, but may have high levels of pathogens. Waste acceptable for a type I or II facility may be composted at a type III facility.

A small facility is defined within the Solid Waste Compost Rules (15A NCAC 13B .1402 (6)) as a facility that receives less than 1000 cubic yards of material for composting per quarter, and occupies less than 2 acres of land.

There are currently only four type II Solid Waste Compost facilities in North Carolina. Only one of these facilities (UNC Asheville) is a small facility. There are a total of 18 type III Solid Waste Compost facilities in North Carolina with 8 of them being classified as small facilities.

The current permitting approach for small type II and III facilities utilized by DWM and DWQ includes the option of a No Exposure approval. The majority of the small type II and III facilities are enclosed systems (Earthtub, or other in vessel system) or are located under a roofed structure. These two options (in vessel system or a roofed structure) prevent stormwater from coming into contact with the process. Feedstock storage areas and curing areas can then be roofed or covered with tarps to eliminate stormwater contact. Leachate is managed within the process utilizing collection systems that reuse the material for moisture addition.

The proposed new component is to clearly articulate the requirements for No Exposure approvals to applicants. The requirements should adequately address:

1) Type of compost system (Require in vessel or roofed structure)
2) Storage method for incoming feedstocks and curing material (Require roofed structure or covering with tarps)
3) Collection system for process water (septic system with recirculation, municipal sewer, etc.)
4) Discharges from site (Discharges could not occur)
5) Additional requirements to operate with a No Exposure Approval
~~5)~~6) Follow up with agreement between Divisions – DWM & APS(seepage of processes wastewater into the shallow groundwater environment)

Steering Committee Consensus: Yes

Notes:

- Small Type 2 and Small Type 3 facilities that have exposure and a discharge will be subject to either an Individual permit or General Permit based on DWQ inspection.

Why we support this new component:

Stakeholder Advisory Group Consensus for #11: No Exposure Options for Small Type 2 & 3 Facilities:

√ **This proposal was accepted by all stakeholders present. Several members voted per proxy, and their comments were discussed in meeting.**

We propose the following new component to the Compost Permitting Process:

Proposed New Component (#12: Notification Sites/Small Type 1's):
We recommended that we continue to have Small Type 1 Facilities fall under the category of "notification sites" and not require them to have a DWM or DWQ permit for operation. We would not recommend the issuing of a general permit for Small Type 1 facilities. An MOU between DWM and DWQ on "notification sites" is recommended to help accomplish this new component to meet federal guidelines. The objectives of protecting public welfare and the environment can be accomplished without an individual permit or general stormwater permit by:

- Providing (8-hour course) training for these facility operators that addresses facility management and the implementation of BMPs for site discharges.
- Increased communication between DWM and DWQ regarding facility inspections and problem areas that may need to be addressed.
- Establishment of a set of BMPs that can be discussed with facility operators to address the management of stormwater and wastewater.
- Annual site visits by DWM to insure compliance or in response to a complaint.
- Notification sites would be required to submit a GPS coordinate of their exact location.
- If a water quality problem is suspected DWM will notify DWQ. DWQ will inspect site and determine if there is a water quality violation or threat to water quality that needs to be corrected by facility; and the facility may be subject to administrative penalties and permitting requirements.
- Website / newsletter generated by DWM, DWQ, DPPEA, NCSWANA and the NC Compost Council to better educate these facility operators on areas that need to be addressed within this sector of North Carolina's compost sector.

Steering Committee Consensus: Yes

Notes:

- Small type I compost facilities are not required to have a solid waste permit under 15A NCAC 13B .1402(g)(3). These facilities are allowed to accept yard and garden waste, silvicultural waste, untreated and unpainted wood waste or any combination thereof.
- The facilities are limited to less than 2 acres for a facility footprint and must process or store less than 6,000 cubic yards of material per quarter.
- Facilities are required to notify the Solid Waste Section prior to operation and on an annual basis as to:

    - Facility location
    - Name, address and phone number or owner and operator
    - Type and amount of wastes received
    - Composting process to be used; and
    - Intended distribution of the finished product

- The facilities must also agree to operate in accordance with operational requirements as set forth in Rule .1406 and setbacks listed in .1404(a)(1)-(10).
- Siting requirements are:

  - Outside of the 100 yr floodplain
  - 50' to property lines
  - 200' to residences
  - 100' to wells
  - 50' to perennial streams / rivers
  - Located in accordance with 15A NCAC 2B .0200
  - 25' to swales or berms to allow adequate access for fire fighting equipment
  - A site shall not cause a discharge of materials or fill materials into waters or wetlands of the state.
  - A site shall not cause a discharge of pollutants into waters of the state that is in violation of the NPDES requirements
  - A site shall not cause non-point source pollution of waters of the state that violates assigned water quality standards.

- A site shall meet the following groundwater requirements:

  - A site shall not contravene groundwater standards as established under 15A NCAC 2L
  - The depth to the seasonal high water table shall be maintained at a minimum of 12 inches

** should conditions change this will be re-evaluated**

Why we support this new component:

- We will be able to track small facilities
- Increased training will improve facilities management and increase awareness of proper compost management.
- Improve communication between DWM and DWQ

Stakeholder Advisory Group Consensus for #12: Notification Sites/Small Type 1's:

√ **This proposal was accepted by all stakeholders present, but DWQ will need to re-evaluate if DWM makes any changes to regulation of these facilities. Several members voted per proxy, and their comments were discussed in meeting.**

1:20 PM MONITORING SUBCOMMITTE REPORT – JOE HACK

The following is the draft that the Monitoring Subcommittee is working on. It was shared with all the stakeholders. The group asked questions and discussed options. The Monitoring Subcommittee will continue work on proposal and be prepared to present at next meeting. Here is the current proposal.

We propose the following new component to the Compost Permitting Process:

Proposed New Component (#8 Analytical Monitoring Requirements):

In consideration of multiple permitting levels of composting facilities and both the size and types of feedstocks incorporated into each, the monitoring required is different. The proposed matrix (next page) provides "triggers" for stormwater permit requirements.

The frequency of these monitoring requirements may be decreased to semi-annually ~~or annually~~ based on one or a combination of the following:

- Four (4) consecutive monitoring events showing no exceedances of benchmark values
- Verifiable, documented implementation of a storm water pollution prevention plan
- Implementation of structural BMPs to minimize potential for off-site water quality impacts
- During the period of semi-annual monitoring any exceedances will revert back to quarterly monitoring schedule.

Monitoring Committee Group Consensus: Not yet, work in progress.

Notes:

- Considerations should be given to older existing facilities;
- Considerations should be given to monitoring of metals associated with wastewater treatment or industrial process sludges at Type 4 facilities;
- Certain benchmark values should be determined based on TMDL's in a particular watershed;
- Quarterly monitoring was proposed consistent with existing stormwater permits;
- Will Stormwater BMP's assist in managing these constituents in the runoff;
- Considerations should be given to Fecal Coliform versus E Coli in the monitoring;
- Type III facilities may accept manures in feedstock which may also trigger E Coli testing;
- (Ryan's suggestion) Consideration should be given to locate a rain gauge that posts data online, within a mile or so of a facility's site, instead of just a manual rain guage. Data should be posted on 15-minute time increments or less. There are a lot of gages out there (USGS, State Climate Office, NWS), so there is a decent chance they can locate 1 near their site. If there is not a gage close enough, they can buy a tipping bucket rain gage and data logger for as low as $200 and then have to download the data, and inspect and maintain the gage.
- Committee considerations- Break out biological parameters separately (fecal vs other parameters),

- DWQ needs to present current criteria for sampling, representative storm event, time period, specific parameters and lab hold periods
- The Committee is considering quantitative vs qualitative monitoring as the primary means of monitoring
- Ken needs to take this concept back to DWQ management.
- Cool season and warm season sampling should be considered
- The Committee feels that a well run compost facility with a regular qualitative monitoring program is a good means of addressing issues of water quality.
- Bob is suggesting that the following equipment be used as in field monitoring devices to gain quantitative results-DO Meter, pH meter, conductivity meter, and NTU meter.
- Training needs to occur on these instruments along with in field visuals.
- Metals Type 4 facilities (Cu&Zn)
- **Need to capture Aquifer Protection facilities on monitoring matrix

Why we support this new component:

- Provides general layout to permittee of expectations during permitting and design;
- Provides "triggers" associated with either facility type and in certain feedstock cases;
- Introduces nutrient sensitive watersheds or impaired water issues;
- (Ryan's rational) Having data on the storm distribution and time of sampling along with the total depth adds significant value without much extra cost. It could help explain unexpected lab results and also give an idea of what the antecedent conditions were. It would make a better data set for decision making down the road.

Stakeholder Advisory Group Consensus #8 Monitoring Requirements:

This proposal will be proposed at next meeting

Note: Attached to minutes of meeting is copy of current Monitoring Matrix in Excel Spreadsheet.

4:00 PM NEXT STEPS

At our next meeting we need to discuss the next set of compost permitting proposal and be prepared to develop consensus of the group: The next proposals we plan to try to cover, discuss and vote on are:

- #8 Monitoring Parameters
- #13 Excluding Monitoring Requirements for Small Type 1 Facilities.
- #1 Phasing and Timing of Implementation of Overall Plan. How to Treat Old Facilities? Do we hold them to the new standards?
- #2 Permit Process Flow/Clarity of Administrative Duties
- # 4 Waste Water Treatment Options

- #5 Non-Discharge Options that will be Permitted
- #9 Individual Permits for DWM Type 3 and Type 4 and DWQ Residual Compost Facilities
- #14Stormwater BMP's – Development of a list by DWQ that is "approved" by the Stakeholders Group.
- #17 Training of Operators
- #18 (New) Small Type 2's and Type 3s that have exposure and no discharge.

*Will resend out this proposals prior to next meeting.

* Meeting minutes from this meeting and documents to be posted on public side of NCDENR Portal

Next Meetings schedule: July 13, 2010 12:30 PM – 4:30 PM

Next meeting will be held back at the DWM Building at Cameron Village in Raleigh, NC.

Minutes compiled and submitted by:

Scott Mouw, NCAPPEA

Liz Patterson, DENR-DWM

David Halley, True North Organizational Development Services