Subsurface Sewage Treatment Systems (SSTS)
Technical Advisory Panel (TAP) for Product Registration

Meeting Notes – August 27, 2008

Veterans Service Building, Room 508

Meeting Attendees

Committee Members	Present on August 27	Guests	Present on August 27
Ed Kerzinski	x		
Mitch Johnson	x	Mike Catanzaro, Delta Environmental	x
Loren Kohnen		Nick Noble, Orenco Systems	x
Kemp Ritter	x	Lynn Carlson, Aggregate and Ready-mix Association	
Sara Christopherson	x	Karl Goetter	
Mike Frauenkron	x	Brian McQuestion, Hoot Systems	x
Bob Whitmyer	x	Mike Sundberg, Bord na Mona	x
Greg Halling	x	Curtis Cluckey, Ring Industrial	x
Joe Enfield	x	Dean Person	
Chad Villand	x	Paul Flynn	
		Doug Fessel	
		Tony Birrittieri	
		Kurt Christopherson	
MPCA Staff		Jesse Kloeppner, Orenco Systems	x
Barb McCarthy	x	Kevin Kloeppner, Advanced Onsite Solutions	x
Gretchen Sabel	x	Jeff Iverson, Infiltrator Systems	x
Mark Wespetal	x	Wes Combs, Zoeller	
Bill Priebe, Supervisor	x	Colin Bishop, Bord na Mona	x
Leah Hedman, Attorney General Office		Frank Connelly, JMK	x

Meeting was called to order at 10:09 on August 27, 2008. Agenda was reviewed and introductions occurred.

Meeting notes: From July 25, 2008 meeting were reviewed. **A motion made by Halling, second by Ritter, to approve the meeting notes. Motion carried, unanimous.**

Product Review and Listing: Barb McCarthy presented information on the draft listing template. Barb provided a mock up of what the Orenco listing would look like, this is posted on an unlinked page of the MPCA website. Sara Christopherson suggested adding a link to a template operating permit for the

system; Chair Whitmyer suggested including the "known limitations" list there. Barb stated that a link could be included that leads to a "how to use the list" document – this would be included on each page. **Motion Christopherson, second Villand, to approve this listing format**. Question – how would updates and product changes be handled? Suggestion – include a "new information" page where things that are new after the product is registered can be listed. Things that are critical to operation and effectiveness may require reconsideration by the TAP. Question – should the results of 3rd party testing be included on the website? Unsure if this can happen – NSF's reports are proprietary. Florida has handled this by listing the effluent levels that the product meets, not the full report. Mitch Johnson suggested an amendment to the motion that notes that the data is available on request, but not to include the data on the website. Barb suggested that MPCA could use an approach like Florida where a summary table is included and then a note added that additional info is available from NSF or manufacturer. Mike Catanzaro from Delta Environmental raised a concern that this causes problems for manufacturers. **Motion passed unanimous**.

Known Limitations: Barb presented a draft list of possible limitations so that manufacturers see what sort of things MPCA is looking for here. Sara Christopherson stated that the public domain systems also need a listing like this. This should be included in the operating permit.

Draft Approval Letter: Barb presented a mock up of an Orenco approval letter. After a brief discussion, the committee said that it looks good. One note was that it needs to include Salcor information.

Third-party Testing Letter: The TAP agreed that testing results should be sent directly to the MPCA from each testing entity to ensure all data and conclusions are the original documents.

Orenco Systems Submittal: Nick Noble from Orenco gave a presentation on additional testing that the AX10 underwent through NovaTec Consultants, Inc, of Vancouver, BC. (see presentation for information) Question: If the AX10 met standards, why did they develop the AX20 with double the surface area? Noble – unknown. Question – Was oxygen flow increased from the AX10 to the AX20? No, just the surface area. Question – Sara: Isn't this a leap of faith? We are being asked to make a judgment call. Noble – no, the data is clearly asymptotic with strong R-values, they are confident that the system will meet the standards. Comment – as a panel, are we in the position to interpret the research? The goal was to have a third party certify that it will meet standards, not to have the TAP interpret data to come to that conclusion. Question – can MPCA clarify if the 600 gpd is peak flow? Answer – MPCA has used 600 for a long time. Noble – NovaTec will certify that the system meets MPCA standards at 800 gpd. NSF won't because MPCA can 't define peaking events. Sara – if NovaTec will certify, then she's comfortable. NSF has a protocol for 600 gpd, this should be followed. Question – is NSF the only testing entity that will be accepted? No, 7083.4000 allows for the use of other testing entities (i.e.: CEN European Standard). Will MPCA allow data from NovaTec? NovaTec is NSF certified, so their data should be acceptable. MPCA will do further investigation – can NovaTec be considered "an equivalent protocol"? Priebe – need a letter from Orenco requesting this.

Chair Whitmyer asked the group how they want to handle this. The TAP agreed (no motion) that they want to review the anticipated certification letter from NovaTec before considering a recommendation to list the product at 600 gallons per AX20 at the September meeting.

Discussion of the Salcor Disinfection Unit – Five diagrams were provided to show how the disinfection units would function with the AX20. Mitch Johnson – does not like the idea of shutting down the system when the UV bulbs go out. Sara Christopherson – does the operation manual cover how to make sure that the flow to the UV does not exceed 3 gpm? Noble – no. Sara – this is needed**. Motion – Christopherson, seconded by Halling, that the TAP should require that the manufacturer provide a discussion of how the system works to ensure that flow to the UV unit does not exceed 3 gpm. Passed unanimous.** Note – this should apply to any manufacturer, not just Orenco.

Orenco nitrogen performance – actual field data from Pennsylvania, expected to be reviewed and certified by NSF, will be sent to the TAP when it is complete. Noble provided a brief overview of what will be presented. This data will be available in mid-September 2008.

Lunch Break

Delta Environmental Submittal (ECOPOD series): Barb provided an overview of the Delta submittal. Most of the documents were distributed to the committee before the TAP meeting; however, a few documents were distributed at the meeting. Barb identified some issues in a couple areas, including missing information (i.e.: state approvals, certification of UV Disinfection Report), Minnesota specific manuals (I.e. Design Manual) and nitrogen testing.

Mike Catanzaro of Delta Environmental provided an overview of the E50 and E60 ECOPOD systems. His presentation is attached to these minutes. Delta will be developing an O & M manual specific to Minnesota. There were specific technical questions that Mike answered. How does it work in cold climates? Many have been installed in Wisconsin, and there is one in Beltrami County MN that has been working since the 1990's. The system has a blower – where does the air come from? Does it have to be warmed? It could be warmed, but that's not necessary. Is insulation needed? Some are insulated, their submittal will address this.

When the UV unit malfunctions, there is an alarm that sounds. The control panel can be set up to 'lock out' the pump, ceasing the discharge to the soil dispersal system. It also has a time dosing feature in the control panel. This will control the flow to the UV units, keeping them working effectively. The issue of limiting flow to no more 60% of the rated flow in a three-hour period was discussed. Would this be a problem if someone did two loads of laundry, emptied the bathtub and ran the dishwasher in an hour? That restriction was geared more for commercial and does not really apply to residential setting. What happens when flow is greater? It is able to handle inconsistent flow. How often do the UV bulbs have to be changed? Two years, with annual service to make sure they are working properly. Inspection of the unit is required every six months.

The TAP seems comfortable with the submitted documented provided with the application. Barb has a list of additional things that are needed; she will work with Delta to get them and bring it to the TAP next month. It is not required that Mike attend September's meeting. Question - Does Delta work with Installers and Service Providers in the first few installs to make sure they know what they are doing?

Yes. Who will represent Delta in Minnesota? Rep Rite Burk & Associates, Mendota Heights, will be the Minnesota rep.

Question – does the TAP want the system to have a lockout? No. Regular cleaning of the bulbs is an issue – with hard water like we have in MN, we typically need to clean scale every couple weeks. Answer – Salcor units have a Teflon sleeve covering that prevents scaling, cleaning; it is much easier and requires less frequent cleaning.

Motion Christopherson, second Johnson, that if the manuals and all submittals are updated to and demonstrate that the systems and documentation meet Minnesota standards and requirements, it should be OK for approval for listing at the next meeting. Motion passed unanimous.

Next meeting: We expect to finish up the submittals of Orenco's AX 20 and Delta's ECOPOD system; will expect to review the EZflow application at this meeting, assuming that Minnesota-specific information is provided before the meeting. The Delta DF Series application submittal will not be on the agenda for September's meeting; Delta will resubmit at a later time. The Recommended Standards and Guidance Documents (RSG's) will need to provide the same summary information listing on the website as the registered product. Drainfield rock RS&G is expected to be discussed. Barb will send out the link to the MNDOT standards for aggregate.

October meeting: The agenda items may include: 1) Premier Tech Environment has been in contact with the MPCA, they provided an electronic application; 2) Operating permits – it would be good to have a work group develop a draft permit template. Joe Enfield volunteered to get this rolling. The U of M would be also involved; designers and everyone should be allowed to be involved. It was decided to have a small work group draft a framework once the TAP has a discussion on the big picture items.

November meeting: Discuss Wisconsin's approach to enforcement.

Open Forum: Sara Christopherson stated her concern that by allowing Orenco to prove that they can meet the treatment standard by calculation is making the process much more complicated. Other manufacturers noted that they feel that Orenco is just trying to get around the need to retest, and that their certification will be less valid because they don't have an ANSI sticker. In Minnesota, an ANSI sticker is not required as part of the product registration process. (Need to clarify).

Mike Sundberg concern – enforcement of operating permits is critical, and we need to address it. Sara – the TAP needs to provide a draft operating permit by February so local units of government s can work it into their programs for the 2009 construction season.

Brian McQuestion – can something be put on the deed to note that the property is served by a unit that needs continual maintenance to function adequately? Much more work is needed on enforcement.

Meeting adjourned at 3:01 pm.

JOURNAL OF SEDIMENTARY PETROLOGY, VOL. 16, NO. 2, PP. 72–85
FIGS. 1–8, TABLES 1–6, AUGUST, 1946

A COMPARISON OF THE PHYSICAL PROPERTIES AND PETROGRAPHIC CHARACTERISTICS OF SOME LIMESTONES AND DOLOMITES OF SOUTHEASTERN MINNESOTA

ERNEST H. LATHRAM AND GEORGE A. THIEL
University of Minnesota, Minneapolis, Minnesota

ABSTRACT

The texture, specific gravity, porosity, absorption and nature and amount of insoluble residues in various Paleozoic limestones and dolomites were determined and compared with the results obtained from abrasion and impact tests on the same samples. The experimental results indicate that an increase in porosity due to dolomitization and leaching is accompanied by a decrease in crushing strength and in resistance to abrasion. Neither the character nor the amount of insoluble residues has an appreciable effect on the strength of the rock samples tested.

Aside from the engineering aspects of the problem, the results have a direct bearing on the rate of weathering, and the resistance to impact and abrasion during transportation, of clastic materials derived from such nonclastic strata.

INTRODUCTION

A comparative study of the physical properties and petrographic characteristics of limestones and dolomites was undertaken at the request of the Minnesota Highway Department. The use of any rock for road construction, either as base or surface material, must be governed by such factors as crushing strength and resistance to abrasion. It was found that rocks from quarries in the same formation showed marked differences in physical properties even though they appeared uniform when viewed megascopically. This study was undertaken in an attempt to evaluate possible causes for the variations and thereby aid the highway engineers in selecting limestones and dolomites suitable for road metal.

MATERIALS AND METHODS

The limestones and dolomites that were sampled and tested were taken from quarries in the Ordovician strata that crop out in southeastern Minnesota in the region east of Mankato and south of the Twin Cities. There are scores of quarries in this area, most of which are in the Oneota-Shakopee dolomites.

Stratigraphy and Lithology

*General Ordovician Stratigraphic Column of Southeastern Minnesota**

Ordovician
- Cincinnatian Series
  - Maquoketa formation
    - Wykoff member
    - Dubuque member
- Mohawkian Series
  - Galena formation
    - Stewartville member
    - Prosser member
    - Decorah shale member
      - Ion submember
      - Guttenberg submember
  - Plateville formation
    - Spechts Ferry member
    - McGregor member
    - Glenwood member
- Chazyan Series
  - St. Peter sandstone
- Beckmantownian Series
  - Shakopee dolomite
  - Root Valley sandstone
  - Oneota dolomite

  } "Prairie du Chien" group
  - Blue Earth siltstone
  - Kasota sandstone

* Stauffer, C. R. and Thiel, G. A., Paleozoic and related rocks of Southeastern Minnesota,

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The Oneota Dolomite

The Oneota Dolomite is typically thick-bedded, drab to buff or pink in color, and frequently very porous and cavernous. It may, especially in the upper part, appear sandy or shaly and often cherty. The thickness varies greatly, from 45 feet at Mankato to 150 feet at Dresbach.

The base of the formation is marked by a distinct unconformity where it overlies the Cambrian Jordan sandstone. Above, the Oneota is overlain by a thin sandy horizon known as the Root Valley sandstone. Where present, this sandstone is an important horizon marker.

The Oneota was used extensively as a building stone at one time and some of the more massive parts still are used commercially.

The following is a characteristic section of the Oneota formation as exposed at Lewiston, Minnesota:

	Thickness (in feet)
Root Valley Sandstone	
11. Sandstone, loose blocks, brown to white mingled with mantle rock.	3.0
Oneota Dolomite	
10. Dolomite, rough, gray to drab, with calcite-filled cavities.	40.0
9. Dolomite, gray to buff, compact, even-bedded.	2.0
8. Dolomite, hard, rough, gray to buff, with quartz-filled cavities and much calcite.	8.0
7. Dolomite, massive-bedded gray to drab, with calcite-filled cavities.	36.0
6. Dolomite, rough, cavernous, gray to buff.	10.7
5. Dolomite, massive to thin-bedded, gray to buff.	20.7
4. Dolomite, massive, buff. Weathers rough and porous, part of it into thinner beds.	25.0
3. Dolomite, brown to buff in color. This is the floor of the old quarry. The top of the rock floor is covered with fucoids and occasional flat, coiled gastropods.	5.0
2. Covered interval from level of railroad tracks to outcrop below the bridge.	50.0
Jordan Sandstone	
1. Sandstone, white to yellow, medium-grained, to level of Rollingstone Creek.	5.0

Shakopee Dolomite

The base of the Shakopee is interbedded with the underlying Root Valley sandstone and grades upward from it. On the whole, it is less dolomitic than the Oneota, but while it is thin-bedded in places, it is largely a massive, drab dolomitic limestone, porous, with calcite-filled cavities as in the Oneota. The formations are so much alike as to be almost impossible to differentiate in the field without a horizon-marker.

At the type locality, at Shakopee, the total thickness is probably 60 feet, and the average thickness in the St. Paul-Minneapolis area is about 56 feet. The following is part of the lower Shakopee at Shakopee, near the type locality:

	Thickness (in feet)
Shakopee Dolomite	
5. Dolomite, pink to brown, semi-crystalline alternating with compact buff beds, all fairly thin-bedded and uneven. Fossiliferous	7
4. Sandstone, irregular, gray, sandy gray dolomite.	2
3. Dolomite, gray to pink, fairly massive but splitting into thinner beds. Extends to the bottom of the old quarry.	10
2. Dolomite, thin-bedded, gray to pink or brown, occurring in the ditch and water hole below the quarry floor. Now partly covered.	5
1. Covered interval to level of Minnesota River (687 ft. A.T.). Outcrops and wells about the town show this portion to be a gray to brown dolomite. Springs along the river suggest sandstone below.	14

The top of the Shakopee is marked by a disconformity and overlain by the St. Peter sandstone.

Minnesota Geological Survey, Bulletin 29, 1941, p. 9.