OKI GROUNDWATER COMMITTEE
MARCH 3, 2004 - 10:00 A.M.
OKI Board Room
720 East Pete Rose Way (at the corner of Eggleston Avenue)*

AGENDA

1. Welcome/Introductions

2. Announcements

3. Update on Local Groundwater Management Efforts
   Scott Kirk, Jim Lauver, Tim McLelland, Dick Renneker,
   Dean Walden, Dave Welhrauch

4. OKI Staff Update

5. Riverbank Filtration: New Credit for an Old Concept
   Bill Gollnitz, Cincinnati Water Works

6. Groundwater Initiatives in the Great Miami Basin
   Mike Ekberg and Bruce Pletsch, Miami Conservancy District (MCD)

7. Other Business

8. Adjournment

* PLEASE NOTE THE NEW LOCATION OF OKI’S OFFICE *
SEE the MAP and DIRECTIONS ON the REVERSE
or in SEPARATE ATTACHMENT
RBF: New Credit for an Old Concept

William D. Gollnitz
Greater Cincinnati Water Works
Riverbank Filtration (RBF)

- River
- Production Well
- River
- River
- Pumping Well
- Aquifer: Sand & Gravel
- Induced Infiltration
- Ground Water Underflow
- River
- Streambed: Silt & Sand
- Aquifer: Sand & Gravel
- Induced Infiltration
- Ground Water Underflow
Background

• Surface Water Treatment Rule - Protects the public from *Giardia Lamblia* and viruses in SW
• Requires 3 log (99.9%) removal and inactivation of *Giardia*
• “Ground Water under the Direct Influence of Surface Water” (GWUDISW)
  – “Any water beneath the surface of the ground with (i) significant occurrence of insects or other macroorganisms, algae, organic debris, or large diameter pathogens such as *Giardia Lamblia* (*Cryptosporidium parvum*), or (ii) significant or relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.”
GWUDISW Evaluations

• Federal Guidance - 4 step process
  – records review
  – review of well sources (well construction)
  – on-site inspection (distance to SW; temp & cond data)
  – microscopic particulate analysis (mpa)

• AWWARF Protocol-recognizes natural filtration

• Ohio EPA
  – similar to federal guideline
  – quarterly sampling for total coliform
  – conduct mpa if TC positive
Microscopic Particulate Analysis

• Filter 1,400 gallons of ground water thru 1.0 micron filter
• Remove and separate microbials from other debris
• Microscopically look for evidence of “Surface Water Indicators”
  – *Giardia*, *Cryptosporidium*, algae, diatoms, rotifers, plant debris
• Classify source based upon “relative risk” tables - high, moderate & low (arbitrary and overly conservative)
- OEPA considers GWUDISW the same as surface water, therefore requiring full conventional treatment.
- OEPA can reclassify source at any time in the future based upon new data, increased pumpage, etc.
Expanding Regulations

• Interim Enhanced SWTR - expanded the SWTR to address *Cryptosporidium Parvum*

• Requires filtration for 2-log removal of *Cryptosporidium*

• Crypto included in the definition of “GWUDISW”

• Plant performance tightened up (Turbidity lowered from 1.0 ntu to 0.3 ntu)
Algae Concentration in GMR and CMB Wells

The graph illustrates the algae concentration in GMR and CMB wells over time. The x-axis represents time, while the y-axis shows the algae concentration in cells per 100 gallons. Each well is color-coded, allowing for easy comparison between different samples and time points.
Bolton Well Field

- Classified GW due to no detects for TC
- Algae detected in wells at various concentrations (some moderate & high risk)
- $4-5 million to upgrade softening plant
- Flowpath Study (JAWWA paper)
  - no G/C detects in any GW samples
  - 4.0 log reduction of surrogates
- Hydraulic connections exists; however, RBF performs better than conventional treatment
- OEPA may reclassify if production increases
Central Wyoming Regional Water System-Casper, WY

- 27 collection devices along North Platte River, including 23 vertical wells, 3 collector wells & 1 infiltration gallery, producing 18 MGD
- Shallow, 40’ deep, aquifer with artificial recharge
- 1996-Consultants recommend system not GWUDISW due to natural filtration (e.g. RBF)
- 1997-USEPA classifies system GWUDISW due to time of travel being <30 days
Central Wyoming Regional Water System-Casper, WY

- 2001- USEPA orders system to filter all GW
- CWRWS refuses to filter GW due to high cost ($5-10 million)
- Convinces USEPA to allow demonstration project for 2 log removal using RBF
- USEPA provides “guidance letter” for RBF and alternative filtration technology (artificial recharge)
- Demonstration study currently in progress (04 completion)
Upcoming Regulations

• Long Term 2 Enhanced SWTR-expands SWTR & IESWTR to determine level of treatment based upon *Crypto* concentration at source

• Monitor Crypto monthly for 2 years to determine Running Annual Average (RAA)

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<tr>
<th>Source Crypto Concentration</th>
<th>Bin Classification</th>
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<tr>
<td>&lt;0.075/L</td>
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<tr>
<td>0.075 - &lt;1.0/L</td>
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<td>Tools for Additional Treatment</td>
<td>Log Credit</td>
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<td>------------------------------------------------</td>
<td>------------</td>
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<td>Watershed control</td>
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<td>Membranes</td>
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LT2 RBF Credit

• Existing GWUDISW wells - monitor for Crypto at wellhead

• New wells-presumptive credit
  – 0.5 log for 25’ setback
  – 1.0 log for 50’ setback
  – unconsolidated sands 10% fines
  – turbidity <1.0 ntu

• May allow for demonstration of additional credit

• AWWA likely to develop demonstration study guidance manual
USEPA Concerns with RBF

• Hesitant to issue more credit due to:
  – lack of *Giardia*/*Crypto*/surrogate spiking studies
  – no ideal surrogate
  – lack of backwashing capability
  – hydrogeologic complexities
  – streambed scour
  – inefficiency of filtration of *Cryptosporidium*
Another Double Standard

Conventional Filtration Plant
3.0 log credit

Crypto concentration >3.0 oocysts/L

Existing GWUDISW Well

Bin 1 based upon GW monitoring
(No detects);
Requires 3.0 log treatment

Utility A

Conventional Filtration Plant
3.0 log credit

Bin 4 based upon SW monitoring;
Requires 5.5 log treatment

Utility B

Intake (Abandoned)

Crappy River Utility
A

Install RBF Well
1.0 log credit

Additional 1.5 log treatment required
Upcoming GW Regulations

• Ground Water Rule- protects the public from bacteria & viruses in ground water by requiring disinfection

• Must provide 4-log (99.99%) inactivation of viruses (see SWTR CT values)

• State evaluates hydrogeologic sensitivity

• If sensitive, perform monthly sampling (e-coli) for 1 year

• If positive, and SW is contamination source, re-designation of source to GWUDISW is possible
The Bottom Line…..

• We need to encourage our regulators to recognize RBF as a treatment process because:
  – effective in removing a wide range of contaminants, including microbials
  – cost effective, especially for smaller systems, because it precludes the need for expensive engineered treatment systems
Groundwater Initiatives in the Great Miami Basin
MCD Home Page
Miami Conservancy District not only collects a vast amount of data, staff members also analyze and interpret this data to provide important information to decision makers about the best use of our region’s water resources. The results are published in a variety of reports, designed to be useful for both technical and lay audiences, which are widely distributed and available on this website.
The Groundwater resource library contains a substantial number of documents covering a wide variety of topics related to groundwater issues within the Great Miami River Watershed.

Since groundwater issues across the watershed are diversified, so are the documents contained in the reference library. Among the resources are professional papers, consultants reports, and journal articles.

This library is designed to serve anybody interested in groundwater issues across the region.
1. Numerical Modeling of the Great Miami AQUIFER from Hamilton to New Baltimore Area, Ohio

Match: 100%

Author: Wen-Jei Fang

This Master's Thesis, submitted to the University of Cincinnati (1992), describes a groundwater flow model for the BURIED Great Miami VALLEY AQUIFER b...

( more inside)

2. BURIED River VALLEYs in Ohio

Match: 100%

Author: James W. Cummins

This document consists of two maps relating to the BURIED river VALLEYs across the state of Ohio. It was produced in order to provide more information...

( more inside)

3. Selected Data for the Great Miami BURIED VALLEY AQUIFER System in Butler, Clermont, Hamilton, and Warren Counties, Ohio

Match: 100%

Author: This document presents findings for these four counties within the Great Miami BURIED VALLEY AQUIFER System, where groundwater quality has not yet be...

( more inside)
**Document Reference Information**

**MCD Document Reference Library**

**Document Reference details**

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Visit our NEW GIS Applications

1. Water Resource Monitoring
Groundwater Assessment of the Lower Great Miami River Sub-Watershed
Groundwater Assessment of Sub-Watersheds

Previous Approach
Groundwater Assessment of Sub-Watersheds

New Approach
Objectives of the Assessment

- Assess the natural quality of aquifers and anthropogenic impacts
- Provide recommendations to address impacts
- Conduct public education and outreach on our findings
Groundwater Assessment of Sub-Watersheds

Mad River
Groundwater Assessment of Sub-Watersheds Lower Great Miami
Groundwater Assessment of Sub-Watersheds
Stillwater River
Groundwater Assessment of Sub-Watersheds

Upper Great Miami
Groundwater Assessment of the Mad River Basin
Groundwater Assessment of the Mad River Basin
Groundwater Assessment of the Lower Great Miami River Basin
Land Use in the Lower Great Miami River Basin
Glacial Geology in the Lower Great Miami River Basin
Bedrock Geology in the Lower Great Miami River Basin
Glacial Geology in the Lower Great Miami River Basin
Population in the Lower Great Miami River Basin

Source: U.S. Census Data (2000)
Population in the Lower Great Miami River Basin

Source: U.S. Census Data (2000)
Water Withdrawal in the Lower Great Miami River Basin

Source: ODNR Water Withdrawal Database 1999
Aquifer Sensitivity in the Lower Great Miami River Basin

Source: ODNR Ground Water Pollution Potential (DRASTIC) maps
Groundwater Assessment of the Lower Great Miami River Basin
Analyte List – Groundwater Samples

- Major ions
- Trace elements
- Nutrients
- VOCs (Method 524.2)
- Base neutral & acid extractable organics (Method 625)
- Pesticides
- UCMR List 1
Automated Surface Water Sampler
Analyte List – Surface Water Samples

**Nutrients and Sediment**

- Suspended Sediment
- Total Phosphorus
- Soluble Reactive Phosphorus
- Total Kjeldahl Nitrogen
- Nitrate
- Nitrite
- Ammonia
- Silica
- Chloride
- Conductivity
- Fluoride
- Sulfate
Project Deliverables

- Report in brochure format by December 2004
- Data set on website by December 2004
- Public outreach --- ongoing after December 2004
Questions ?
Attended by:
Jim Fox, Chair Village of Indian Hill
Mary Moore, Vice Chair Butler County Dept. of Environmental Services
Mark Altic Chevron Texaco
Peg Collins League of Women Voters
Dwight Culbertson City of Fairfield
Frank Divo Southwestern Ohio Water Company
Mike Ekberg MCD
Bob Fischer Paramount’s Kings Island
Carl Gatton Warren County
Brian Gibson Clermont County General Health District
Bill Gollnitz Greater Cincinnati Water Works
Michael Gray Village of Glendale
Terry Huxel City of Wyoming
Todd Kehr City of Trenton
Scott Kirk Western Water Company
Jim Lauver Village of Glendale
Robert Marsh Southwest Regional Water District
Tim McLelland Hamilton to New Baltimore Groundwater Consortium
Bruce Pletsch Miami Conservancy District
Mike Proffitt OEPA
Allison Reed OEPA
Richard Renneker Warren County
K. D. Rex Hamilton County Regional Planning Commission
Tom Schumann USGS
Cliff Shrive FPS Consulting Engineers
Dave Weihrauch City of Oxford
Bruce Whitteberry Cincinnati Water Works
Scott Wilson Butler County Health Department
Bruce Koehler, Fran Malone, Doug Smith, Jane Wittke, OKI Staff

Welcome and Introductions
Jim Fox called the meeting to order at 10:05 a.m. Everyone introduced themselves.

Announcements
Jane Wittke announced the next meeting will be May 19, and will include a presentation from Maggie Rogers, Cleveland Division of Water, discussing “Where Were You When the Lights Went Out?” The title refers the blackout of last year in the Northeast United
States and its impact on Cleveland’s water. As approved by the Ohio EPA, there will be a .5 contact hour credit for this presentation.

Two deadlines are coming up for water facilities later this spring: First, any water facility that has not updated or resubmitted a Risk Management Plan (RMP) to the U.S. EPA since June 21, 1999, must do so by June 21, 2004. RMPs are required for facilities that handle any substances on a list of extremely hazardous substances, including chlorine, identified by the U.S. EPA. Second, small water systems (serving more than 3,000 people but fewer than 50,000 people) have until June 30, 2004 to submit vulnerability assessments to the U.S. EPA, as required by the Bioterrorism Act passed by Congress in 2002.

**Update on Local Groundwater Management Efforts**

*Scott Kirk, Western Water Company,* stated that his wellhead protection plan is completed. The company is exploring collector wells in the Little Miami aquifer, although the Ohio Department of Natural Resources (ODNR) is hesitant to allow another well into the aquifer, and is concerned about interbasin transfers of water. The company is also halfway through its vulnerability assessment. Western Water Company serves a large area in the counties of Warren, Brown, Clinton and Clermont, and water demand is increasing in their service area at a phenomenal rate as development occurs. They have about 13,000 connections, 750 miles of distribution main, and pump 2.5 to 3 million gallons of water per day.

*Jim Lauver, Village of Glendale,* noted that the water treatment plant dates back to 1890. The plant pumps about half a million gallons of water per day from the Mill Creek aquifer, from two wells about 190 feet deep. Because the system dates back to 1890 there are many types of pipes used to carry the water, ranging from plastic tubing to lead. In the last year the lime slaker system has been maintained; the alarm system replaced; and all the pre-1940 water meters are being replaced which will allow for a more accurate reading and billing system to be instituted. The old meters were tested to check their accuracy and were found to lose about 50% of billable water usage. The village is in a preliminary study to research the feasibility of developing a water consortium with Lockland Water and Greater Cincinnati Water Works (GCWW); Glendale already has an interconnection with GCWW for contingencies.

*Tim McLelland, Hamilton to New Baltimore Groundwater Consortium,* reported that through the collaborative efforts of Friends of the Great Miami, Miami Conservancy District, the Hamilton County Soil and Water Conservation District, City of Hamilton, and Butler County Department of Environmental Services, an event called Great Miami River Days is being planned for September 10-12, 2004 in Hamilton, Ohio to create a better understanding of the river as a resource. Plans call for canoe floats, rafting races, and walking races along the bike path.
Because Tim is a member of the Executive Committee for the national Groundwater Guardian Conference, he announced that he welcomes ideas from the Groundwater Committee to improve the Conference.

He also explained that through the efforts of the Consortium a letter was written in opposition to Fernald’s plan to discharge extra uranium waste into the Miami River and they have agreed not to discharge over and above what they currently discharge, which is 30 ppb.

In addition, he commented that a new development with 219 homes is being planned in St. Clair Township of Butler County, which would be located over the one-year time-of-travel zone for wellhead protection in the area. The Consortium has concerns because 50 dry wells are being proposed for the development. The Consortium, the Butler County Engineer’s Office, the Planning Department and the Soil and Water Conservation District are looking at alternate means to solve storm water and water quality problems, and will be meeting with the developers.

Dick Renneker, Warren County Water and Sewer, reported on the rehabilitation of eight wells and an expansion of the county’s south water treatment plant, which serves Mason and an area east of Mason, in order to respond to current development. Due to King’s Island and the new industry in the area, the community has decided to increase capacity from 6 million gallons of water per day to 9 or even 12 mgd. A design for the north end of the county for three or four new wells is in the works that would provide at least 6 million gallons per day. The plan for the north wellfield involves some stream erosion control measures in Twin Creek to protect a new well and its distribution line. In addition, a small plant near Traders World, which pumps 1.5 million gallons a day, will either be sold or phased out.

Dean Walden, Lockland Water, reported that they just recently finished their wellhead protection and management plan that was accepted by the Ohio EPA. Lockland is a very small community of 3700 people. The water plant pumps .5 to .64 millions of gallons per day 5 days a week with a 3 million gallon reservoir that helps out the rest of the week. Currently they are working on their vulnerability assessment, which will be submitted in a few weeks. Like Glendale, they have varied size supply pipes and also are scheduling installation of new water meters. Lockland is starting to talk to Glendale and GCWW about the possibility of a shared regional wellfield.

Dave Weihrauch, City of Oxford, reported that during Christmas break, rainstorms helped recharge levels with 4.1 inches in 36 hours. At the same time, the resulting erosion took hundreds of cubic yards of soil along Seven Mile Creek, and caused major damage to a transmission main and loss of pressure. The main well was reset and the streambank was reestablished. The loss of service because of this incident resulted in improving emergency procedures for the City of Oxford. The City’s vulnerability assessment is also in progress.
**Terry Huxel, City of Wyoming**, reported that like Glendale they have been in the water business 100 plus years. A new plant was put on line in 2000 and aeration line softening, recarbonation, filters and CO2 and fluoride. They are serviced by six wells located in the city limits, with 3 million gallons per day capacity. The wells are hard to get to but have lots of surveillance from the community. The first phases of the wellhead protection plan have been approved (delineation and inventory), with the management plan under review. Their vulnerability assessment is also underway.

**OKI Staff Update**

**Doug Smith** showed some preliminary work that has been done in conjunction with the GIS (Geographic Information System) department for the Greenspace office at OKI. The maps will be part of the Greenspace web page on the OKI website when they are finalized. The maps are: Aerial photos of the Mill Creek River Valley; Regional Natural Systems Inventory; National Wetlands inventory with floodplains and stream networks plus 8,11, and 14 hydrologic unit codes for the region; and the Natural Systems Inventory adjusted in conjunction with the OKI definition of Greenspace. These maps with their various layers can be used in conjunction with aquifer layers to investigate how land use could impact water supply.

**Bruce Koehler** described plans to implement a project that will be funded through the Watershed Initiatives Grant program. OKI and several project partners received $95,000 for the Great Miami Runoff Reduction Project, a proposal that will utilize best management practices to install rain gardens and pervious parking. The project also involves monitoring, evaluation and extensive education activities on best management practices and stormwater management. The grant period is two years.

**Jane Wittke** updated the committee on the work of the Land Use Commission. On January 8th OKI’s Board adopted the following goals and objectives for seven strategic issues in the Public Facilities and Services Category and the Natural Resources and Open Space Category, as follows:

**PUBLIC FACILITIES AND SERVICES:**

**Goal**

Adequate public facilities and services will be available for all planned development, and adequate capacity will be maintained for all existing development and re-development areas.

**Strategic Issue**

8. *Ill-timed extension of water, sewer, and road facilities and services may expedite sprawling, inefficient development.*
Objective
H. By 2010, each local government will have an up-to-date comprehensive plan recommending that the necessary public facilities and services will be in place at the time the impacts of development occur, and that discourages the provision of public facilities outside of areas identified for new development.

Strategic Issue
9. Adequate infrastructure does not keep pace with the impacts of development.

Objective
I. By 2012, measures will be in place to require the provision of adequate facilities and services.

Strategic Issue
10. There is little coordination among public facilities and services planning, transportation planning, and land use planning.

Objective
J. By 2010, each local government will have an up-to-date comprehensive plan that links public facilities, land use, transportation, economic development, housing, natural resources, recreation, intergovernmental coordination and capital budgeting.

NATURAL RESOURCES AND OPEN SPACE:
Goal
Protect and improve the diversity and sustainability of the region’s natural resources and open space.

Strategic Issue
11. Protection and sustainability of groundwater and surface water resources are not always addressed in local, state, regional, and federal planning processes.

Objective
K. By 2010, groundwater and surface water resource protection and sustainability will be addressed in local government comprehensive plans, and will continue to be addressed in relevant OKI planning efforts.

Strategic Issue
12. The value and preservation of diverse natural systems, which includes air, water, wildlife, plantlife, and land are not always examined in local, state, regional, and federal planning processes.
Objective

L. By 2007, a regional model for measuring the value of natural resources and open space will be developed for use in planning processes throughout the region.

Strategic Issue

13. **There is little coordination among natural systems planning, land use planning, and public facilities planning.**

Objective

M. By 2010, each local government will have an up-to-date comprehensive plan that links natural resources and open space, recreation, public facilities, land use, transportation, economic development, housing, intergovernmental coordination and capital budgeting.

Strategic Issue

14. **Protection and sustainability of water resources are most effectively addressed on a watershed basis, while local governments make planning and budgeting decisions on a jurisdictional basis.**

Objective

N. By 2006, each local government in the OKI region will be involved in watershed planning efforts, so that cities, villages, townships and counties make more informed planning and budgeting decisions.

She also explained that this year the Land Use Commission will be meeting in a series of five work sessions, to develop policies to carry out goals and objectives for all 28 strategic issues, which are grouped in six categories. The first policy work session will be held on April 2 and will focus on transportation policies.

**RBF: New Credit for an Old Concept**

**Bill Gollnitz** of the Greater Cincinnati Water Works discussed the work that he has been doing in collaboration with Bruce Whittleberry to pursue treatment credit from U.S. EPA for riverbank filtration. Data gathering ended in 2002, and analysis of the data resulted in an article published in the December 2003 issue of the Journal of the American Waterworks Association, *Riverbank Filtration as a Microbial Treatment Process.* Based on this study, the significance of riverbank filtration in dealing with Cryptosporidium and Giardia and in deserving treatment credit cannot be underestimated, especially for systems that could be designated as Ground Water Under the Direct Influence of Surface Water. A summary of Bill’s Power Point presentation is attached.
Groundwater Initiatives in the Great Miami Basin
Mike Ekberg and Bruce Pletsch, the Miami Conservancy District (MCD)

Mike Ekberg began the presentation with a walkthrough of the Miami Conservancy District webpage (www.miamiconservancy.org) and an overview of the types of reports that are available from the website. Water resource data is available as well as old MCD reports, consultant studies and U.S.G.S. reports, including PDF files of reports from the National Water Quality Assessment of the Great and Little Miami Basins.

A goal of the website has been to develop an extensive library on the Great Miami Basin. There are about 1100 documents available and about 200 more will be posted soon. Some of the subjects covered are groundwater, surface water and aquifer information. Other items available are maps in GIS format that identify qualities of wells and groundwater parameters. For example, it is possible to search by geographic area to show well locations, and to overlay soils, DRASTIC categories, parameters and values. There is also a link to U.S.G.S. information, such as stream gauge and precipitation data.

Bruce Pletsch reported on plans for groundwater assessment in the lower Great Miami watershed and work so far with the new approach to monitoring. He is in the planning phase where he is selecting well locations, and would appreciate input from members of the Groundwater Committee. Previously, MCD monitored 44 wells for the overall Great Miami basin. There has been a change in approach so that each subwatershed in the basin is monitored less frequently but more intensively. Budget and time allow for one monitoring study per year.

The subwatersheds to be monitored in turn include the Mad River, Lower Great Miami, The Stillwater River and the Upper Great Miami River, and each subwatershed will have about 40 wells monitored. For example, in the Mad River subwatershed, MCD previously was monitoring only 7 well locations, and then had to find more than 30 more locations under the new monitoring regime. The additional well locations were added by hydrologic units to account for land use (especially urban vs. agricultural/rural) and hydrologic category (e.g. bedrock and glacial). Other considerations included population, water withdrawal, and aquifer sensitivity. The Mad River report should be put on MCD’s website within the next month.

The goals of the subwatershed approach are to assess the natural quality of aquifers and their anthropogenic impacts, provide recommendations to address the impacts, and conduct public education and outreach on their findings. The analyte list for the Lower Great Miami subwatershed will be consistent with that used for the Mad River subwatershed, including major ions, trace elements, nutrients, VOCs, Base neutral and acid extractable organics, pesticides, and the UCMR List 1. For surface water chemistry, an automatic sampler from Heidelberg College will be installed in the vicinity of the Bolton wellfield. The analyte list for surface water will be include suspended
sediment, total phosphorus, soluble reactive phosphorus, total Kjeldahl nitrogen, nitrate, nitrite, ammonia, silica, chloride, conductivity, fluoride, and sulfate.

Reports from the Lower Great Miami subwatershed monitoring should be available by the end of 2004, through brochure summaries and the report itself being published on the MCD website. A summary of the PowerPoint presentation from both Mike Ekberg and Bruce Pletsch is attached.

**Other Business**
Mary Moore reminded the group that the next meeting of the Groundwater Committee will be May 19, 2004 in the OKI Board Room.

Because Maggie Rogers’ presentation has been pre-approved by Ohio EPA for .5 contact hour credit, the sign-in sheet will be more detailed to provide documentation so that those attending can receive the credit.

**Adjournment**
The meeting was adjourned at 12:10 p.m.