

GEMS Newsletter



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Summer 2002

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No More Paper TADs!!



The Department no longer prints or mails out paper turnaround documents (TADs). All facilities that were submitting their monitoring data on paper TADs have been notified that they must begin to submit data electronically. A notification letter sent to facilities submitting paper TADs in May 2002 (see below), explains the steps to follow to switch to the electronic format and describes where to send disks, exceedance reports and data certification forms. Contact Jack Connelly, Mary Beth Schuetz or Kathy Thompson for more information. ♣

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Data Quality Problems - Inadequate Sensitivity



Does your groundwater monitoring data meet Code requirements for method selection and detectability? Groundwater monitoring for compliance

with requirements in NR 507 must also meet the requirements in NR 140.16. Employing the method selection criteria in NR 140.16(2) should enable facilities and the Department to determine reliably whether monitoring results exceed PALs for the parameters monitored. Ideally, the concentration of any detected parameter should be above the limit of quantitation (LOQ) for the method selected. When concentrations are not detected or detected between the limit of detection (LOD) and LOQ, the LOQ must be below the PAL unless that is not possible with the best available methods.

"Problem" Parameters

<u>Substance</u>	<u>CAS Number</u>	<u>PAL ($\mu\text{g/L}$)</u>
Benzo(a)pyrene	50-32-8	0.02
Benzo(b)fluoranthene	205-99-2	0.02
Chrysene	218-01-9	0.02
Antimony	7740-36-0	1.2
Arsenic	7740-38-2	5
Cadmium	7740-43-9	0.5
Lead	7439-92-1	1.5
Mercury	7439-97-6	0.2
Thallium	7740-28-0	0.4
Selenium	7782-49-2	10
Bromodichloromethane	75-27-4	0.06
1,3-Dichloropropene		
cis	10061-01-5	0.02
trans	10061-02-6	0.02
DBCP	96-12-8	0.02
EDB	106-93-4	0.005
1,1,2,2-Tetrachloroethane	79-34-5	0.02
Vinyl chloride	75-01-4	0.02

When we evaluated monitoring data in GEMS to see whether it fulfilled the method selection criteria, we found several parameters that are reported routinely with LOQs above the PALs. The table identifies the most frequent offenders. Check your monitoring results to see if you meet these criteria. [See the full article](#) for more information about the "problem" parameters and possible solutions. ♦

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How do I report results from samples collected voluntarily?



Does your facility collect samples from wells voluntarily, perhaps as part of an agreement with landfill neighbors, or as part of an independent groundwater investigation? Even though a facility's plan of operation does not require a well to be sampled, ch. NR 140, Wis. Adm. Code, does require that any exceedance of groundwater standards, either preventive action limits (PALs) or enforcement standards (ESs), be reported. If you discover groundwater exceedances in results from these wells, report the results and the location of the well in the exceedance report letter that accompanies routine sampling results.

You should also notify the specific hydrogeologist assigned to the landfill of the groundwater exceedance and well location. Exceedances from voluntary samplings do not need to be submitted electronically, since the wells are not usually part of the GEMS database. However, if a groundwater exceedance appears to be related to the landfill, DNR review staff will discuss the situation with the facility to determine whether it is appropriate to add the private well or monitoring well to the landfill's routine monitoring program. ♣

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Many GEMS parameter code numbers have changed over the years – update your system now!



To compare your parameter list files with our master list, there is now a list of all the changed parameter code numbers on our WEB site at

<http://www.dnr.state.wi.us/org/aw/wm/monitor/Downloads/index.htm>

The spreadsheet includes all the changed parameter code numbers and includes the old numbers, the old parameter descriptions, the new numbers, and the new descriptions.

No longer will updated parameter code numbers wreak havoc with electronic data submittals, however. An old parameter number inadvertently submitted with monitoring data will now be converted automatically to the new numbers, so that the data can be uploaded smoothly. Parameter codes are changed periodically in order to make the GEMS system more consistent with other DNR programs or other agencies. ♦

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New Data Certification Forms

The Department list of forms for solid waste environmental monitoring now contains a new data certification form. The form can be found under environmental monitoring downloads on the DNR web site at <http://www.dnr.state.wi.us/org/aw/wm/monitor/Downloads/index.htm>, in either Microsoft word or PDF file format. Please replace the old form with the new one for your regular environmental monitoring submittals. The new form provides space for entering multiple submittal files and space for entering a contact person who is responsible for answering questions specifically about the electronic submittal. ♣

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Electronic Well Construction Forms

As reported in the last GEMS Newsletter, we prefer that consultants submit monitoring well construction and development information electronically. Over the last year, several consultants participated in a pilot project where they used the electronic monitoring well construction and development forms and provided feedback on the forms and the electronic submittal process.

Based on the feedback we obtained from the pilot project, we modified the forms. The updated forms are available on the Environmental Monitoring website at: www.dnr.state.wi.us/org/aw/wm/monitor/downloads/index.htm.

However, some consultants prefer to submit the data electronically using their own software package instead of the department forms. There is a text file submittal format currently available that will accommodate this need. The definition of this format is now posted on the Environmental Monitoring website at the address listed above. This comma-delimited format has not been used previously by the public, so we would like to obtain comments on ways to improve its use.

Currently, facilities submit well construction information to the Department on two paper forms: the Monitoring Well Construction Form 4400-113A and Monitoring Well Development Form 4400-113B. Until further notice, we will continue to require a paper copy of the forms in addition to the electronic submittal.

If you are interested in submitting your monitoring well construction information electronically or have comments on the forms or text file format please contact John Sissons at (608) 267-7567 or email him at (John.Sissons@dnr.state.wi.us). ❖

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Well reporting procedures – how to document point information for GEMS

Monitoring Point Documentation

It is important to notify the review staff hydrogeologist when new wells are being installed at a facility. New wells must be entered into the GEMS system before monitoring data can be uploaded for them. It is primarily the hydrogeologist's responsibility to assign DNR ID numbers to new wells, to make certain the wells have Wisconsin Unique Well Numbers (WUWNs), and to enter the new monitoring points into GEMS.

Forms need to be completed and provided to the Department for all stages of a monitoring well's existence, from documentation of the soil boring, to well construction, and finally abandonment. The information on the forms will enable the site hydrogeologist, or other staff person, to fully document the monitoring point in GEMS.

The forms are now available electronically on the Bureau of Waste Management's Website at <http://www.dnr.state.wi.us/org/aw/wm/monitor/Downloads/index.htm>.

At this time we ask that these forms be provided in electronic format (floppy or compact disk) as well as in hard copy for documentation in our

1. Soil Boring Log Information Form 4400-122 and 122A
2. Monitoring Well Construction Form 4400-113A
3. Monitoring Well Development Form 4400-113B
4. Groundwater Monitoring Well Information Form 4400-89
5. Groundwater Monitoring Inventory Form 3300-67
6. Well/Drillhole/Borehole Abandonment Form 3300-5

paper files. See the article on Monitoring Well Installation Forms, elsewhere in the newsletter, for current attempts to streamline the submittal of well information further.

Unique Well Number Assignment

All groundwater monitoring wells installed in the state must be assigned a Wisconsin Unique Well Number (WUWN). There are several ways of obtaining and assigning WUWNs. Well drilling firms and consultants may obtain a series of numbers and accompanying labels from the Department for assignment to new monitoring wells as they are installed. To obtain a series of numbers and accompanying labels, contact Dave Johnson, of the Bureau of Drinking Water at (608) 261-6421 or by e-mail at Dave.Johnson@dnr.state.wi.us.

Department staff can assign WUWNs to existing monitoring wells that do not already have numbers. Contact the site hydrogeologist, the region program assistant or Kathleen Thompson at (608) 266-0867 or e-mail at Kathleen.Thompson@dnr.state.wi.us. Kathy will provide numbers and accompanying labels on an as-needed basis.

WUWN are assigned to water supply wells by the Bureau of Drinking and Groundwater. Contact Sandy Hershberger at (608) 267-7605 or e-mail at Sandra.Hershberger@dnr.state.wi.us for water supply well WUWN assignment. ♥

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WHO DO I CALL ABOUT...**Waste management staff:**

phasing out paper TADS?

Jack Connelly (608) 267-7574

Johnston.Connelly@dnr.state.wi.us

Mary Beth Schuetz (608) 267-0546

MaryBeth.Schuetz@dnr.state.wi.us

Kathy Thompson (608) 266-0867

Kathleen.Thompson@dnr.state.wi.us

parameter number changes?

Dave Parsons (608) 266-0272

David.Parsons@dnr.state.wi.us

John Sissons (608) 267-7567

John.Sissons@dnr.state.wi.us

electronic data submittal formats?

Mary Beth Schuetz (608) 267-0546

MaryBeth.Schuetz@dnr.state.wi.us

Kathy Thompson (608) 266-0867

Kathleen.Thompon@dnr.state.wi.us

upload status?

Kathy Thompson (608) 266-0867

Kathleen.Thompkins@dnr.state.wi.us

Mary Beth Schuetz (608) 267-0546

MaryBeth.Schuetz@dnr.state.wi.us

laboratory methods or QA/QC?

Janet Battista (608) 267-3533

Janet.Battista@dnr.dnr.state.wi.us

reporting periods?

Barb Hennings (608) 264-6021

Barbara.Hennings@dnr.state.wi.us

information requests?

Mary Beth Schuetz (608) 267-0546

MaryBeth.Schuetz@dnr.state.wi.us

any environmental monitoring topic not covered above?

Jack Connelly (608) 267-7574

Johnston.Connelly@dnr.state.wi.us

Staff from other programs:

laboratory methods and data quality?

Donalea Dinsmore (608) 266-6948

Donalea.Dinsmore@dnr.state.wi.us

private well Wisconsin Unique Numbers?

Sandy Hershberger (608)@dnr.state.wi.us Sandra.Hershberger@dnr.state.wi.us

monitoring well Wisconsin Unique Numbers?

Dave Johnson (608) 261-6421

Dave.Johnson@dnr.state.wi.us

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Full Article: Data Quality Problems – Inadequate Sensitivity

Problem Parameters and Proposed Solutions

Over the past several months, Department staff have encountered several situations in which method selection has been an issue so we've done some data mining in GEMS to see how much data is affected. As a result of this exercise, we've identified a list of parameters that are reported consistently with (LOQs) which exceed their respective PALs and for which choice of method may be an issue. This list includes three polyaromatic hydrocarbons (PAHs), seven metals, and several VOCs. Seven of the VOCs have PALs that are very low and few laboratories are able to achieve LODs below the PALs.

Method Recommendations

Although specifying particular methods in your bid specifications or contract may improve the odds that your monitoring meets Code requirements, it's more important to identify your analytical sensitivity needs. Method sensitivity is highly dependent on instrumentation and which method options the laboratory uses, so performance varies between laboratories. More than one method may get the job done and some method choices may be better than others for analyzing your samples.

Although ICP methods may be a convenient technique for analyzing multiple metals in a single analysis, none of the ICP analyses (methods 6010 or 200.7) for antimony or thallium had LODs below the PALs. For arsenic, cadmium, lead, and selenium, the LODs were below the PALs, but in most cases, the LOQs were not. At a couple landfills, we suspect that detected concentrations below the LOQ were false positives. Another technique, graphite furnace atomic absorption (GFAA), more reliably has LOQs below the PALs. Antimony and thallium are problematic with this technique as well. EPA has approved ICP-MS methods 6020 and 200.8 that routinely achieve LOQs below the PALs. The Department encourages use of these methods or equivalents for groundwater analyses.

Traditionally, methods for mercury (7470 or 245.1) are reported with LODs of 0.2 µg/L, the PAL for this parameter. Current technology and approved methods are now capable of quantifying samples at or below the mercury PAL. Several laboratories with newer instrumentation have LODs that range between 0.2 - 0.5 µg/L with traditional methods. Both EPA and the Department have approved fluorescence methods for water analyses that have LODs that range from 0.0001 to 0.01 µg/L. The Department maintains a list of laboratories it recognizes with mercury LODs below 0.02 µg/L; however, certified laboratories that don't appear on this list may have methods with sufficient sensitivity for routine groundwater analyses.

Of the 44 VOCs listed in Appendix III in NR 507, 17 have PALs at or below 0.5 µg/L. With current instrumentation, LODs of 0.2 µg/L (LOQ \cong 0.7 µg/L) should be readily achievable in relatively clean groundwater by almost half of the certified laboratories. Based on a 1998 survey of certified laboratories, about 25% of the laboratories had LODs below 0.15 µg/L. Although LODs of 0.2 µg/L may be appropriate for some routine monitoring, it may be necessary to seek a laboratory with lower LODs if the data are critical. In groundwater that is contaminated with VOCs, higher LODs may be appropriate. Much depends on the intended use of the data and the level of contamination present. You should consult with the Bureau of Waste Management staff person assigned to your landfill if you have questions.

Frequently, PAHs are analyzed concurrently with other semi-volatiles using method 8270, a GC-MS technique. Under these conditions, few, if any laboratories can meet the sensitivity requirements so if PAHs are treated like any other semi-volatile, it's unlikely that the analysis will provide sufficient sensitivity. Some laboratories may be able to lower their LOQs below the PALs using options in method 8270 with a separate analysis for the PAHs. Laboratories may use another option, method 8310, an HPLC technique with a fluorescence detector to achieve the necessary sensitivity. This method has been used historically for groundwater at petroleum-contaminated sites.

A Caution about Dilutions

When a single analysis is used to determine multiple parameters (e.g. VOCs) and the concentration of one or more of the parameters is above the laboratory's calibration range, the sample must be diluted to quantify the affected parameters. This affects the LODs and LOQs for all of the parameters. If, as a result of the dilution,

and the sample concentrations are below their respective LOQs and the LOQs are above the PAL, you should request that the laboratory report results for the affected substances from a lesser dilution.

For more information about method selection for "problem" parameters, contact Donalea Dinsmore at Donalea.Dinsmore@dnr.state.wi.us or call (608) 266-8948. You should contact Department staff assigned to your site with questions regarding specific monitoring data at your site. ♣

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Scott McCallum, Governor
Darrell Bazzell, Secretary

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Madison, Wisconsin 53707-7921
Telephone 608-266-2621
FAX 608-267-3579
TTY 608-267-6897

May 8, 2002

Environmental Monitoring Contact

Subject: FINAL NOTICE--Discontinuation of Paper Turn-Around Documents

Dear Sir or Madam:

Our records indicate that you currently submit environmental monitoring results from your landfill to the Department of Natural Resources on the paper form of the Turn-Around Documents (TADs). We notified you previously and are reminding you again that, effective June 30, 2002, the Department of Natural Resources will no longer print the paper TADs. Therefore, any environmental monitoring data you collect after June 30, 2002 will need to be submitted electronically on a diskette.

In previous correspondence, we discussed the reasons for switching to electronic submittal. Mary Beth Schuetz has also contacted most of you, your lab, or your consultant by phone to review the procedure for submitting data on a diskette. The purpose of today's letter is to outline the steps necessary to submit your data electronically and to offer our assistance if you have any questions after reviewing the steps or run into problems trying to carry them out.

Steps to follow to submit data on a diskette:

1. Decide whether you want your lab to prepare the diskette or you will prepare it yourself.
 - If you're considering submitting the data on a diskette yourself and are familiar with spreadsheets, review the template and directions posted on our website at www.dnr.state.wi.us/org/aw/wm/monitor/Downloads/Comma-Delimited.pdf. If you have questions about how to use the spreadsheet, call one of the contacts listed at the end of the letter.
 - Ask the lab that analyzes your samples whether their list of services includes preparing electronic submittals (diskettes) and whether there is a fee for this service. You may want to check with other certified labs to compare costs and services.
2. If you decide not to prepare the diskette yourself, update your contract for lab services to include preparing the diskette for submittal. Make sure the laboratory knows what months you are required to collect samples at your site, so they can match your sample results with the right reporting period.
3. When you send in your first submittal, let us know in the cover letter that this is the first time you've submitted a diskette with monitoring data, so we can review it right away. We will then let you know if it looks okay or if there are any changes needed.

What to send and where to send it:

- Any diskette you submit with environmental monitoring data must be accompanied by a completed environmental monitoring data certification form. Download the current environmental monitoring data certification form, entitled EM-Cert-Form.doc or EM-Cert-Form.pdf, at www.dnr.state.wi.us/org/aw/wm/monitor/Downloads/index.htm.
- If any groundwater standards are exceeded, submit a list of which parameters had exceedances at which wells and indicate the cause and significance of the exceedances (called a notice of exceedances).
- Submit the diskette, the completed data certification form and the notice of exceedances (if necessary) to:

Bureau of Waste Management - Environmental Monitoring
P. O. Box 7921
Madison, WI 53708-7921

- Submit a copy of the data certification form and the notice of exceedances to the Waste Management Program Assistant at your regional DNR office. (Do not send the diskette to the region.) The address of each regional headquarters may be found at www.dnr.state.wi.us/org/aw/wm/contacts/#sc. Click on the county where your site is located. The Waste Management Program Assistant is the first person on the contact list for the county.

More information you should know before submitting your data electronically:

- A list of certified laboratories is available from the Department's website at www.dnr.state.wi.us/org/es/science/lc/search/. If you do not have Internet access, you may obtain a list of certified labs by calling Phillip Spranger in the Bureau of Integrated Science Services at (608) 267-7633.
- A list of the bureau's environmental monitoring data parameter numbers and descriptions is available from the Department's website at www.dnr.state.wi.us/org/aw/wm/monitor/Downloads/PARM_TBL_BY_NAME.pdf

Our hope is that this letter has provided you with the necessary information to successfully submit your environmental monitoring data electronically. If you have any questions about how to switch over to electronic submittal of data, please contact Mary Beth Schuetz at (608) 267-0546 (schuemb@dnr.state.wi.us) or Kathy Thompson at (608) 266-0867 (thompk@dnr.state.wi.us). If you have questions about this letter or are unable to reach Mary Beth or Kathy, please feel free to call Jack Connelly, Environmental Monitoring Team Leader, at (608) 267-7574 (connej@dnr.state.wi.us).

Sincerely,

Suzanne Bangert, Director
Bureau of Waste Management

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