

Municipal Landfill Ground Water Monitoring Rules

OAC rule 3745-27-10

Acknowledgements

- Ground Water Rules Workgroup
- Cal James, Steve Lowry, Kathy Metropulus, Laura Parkinson, Don Slivka, Dan Campbell, Lindsay Taliaferro III.
- 6 year process involving a lot of meetings, public and Agency input.

Ground Water Detection Monitoring Plan

- Documented in Operating Record
- Includes: Well monitoring system description, SAP, parameters to be monitored including frequency of sampling.

Waste- derived

- Replaces “leachate or leachate-derived” language.
- Allows 27-10 to apply to contamination caused by landfill gas migration.
- Only impacts GWQA and CM Programs.
- No change in detection monitoring well and background requirements.
- No side or up gradient wells required for comparison to background data.
- No changes made to placement of downgradient wells or comparison of downgradient wells to background.

Schedule of Implementation

- Existing and closed facilities with operating record – 270 days from effective date.
- Closed facilities without operating record – 270 days from effective date.
- Facilities following F&Os – follow F&Os. Can request to come under new rules.
- Only have to amend those parts of GWMP plan that are applicable to amended rules.

Qualified Ground Water Scientist

- Must certify GWDM plan, GWQAP, and CMP.
- Also must certify all revisions to those plans and all reports and data submitted in accordance with rules.

Self- Implementing

- OAC rule 3745-27-10(A)(6)
- Specifically states that no approval is needed unless the rule states it is.

Surface Water Sampling

- Director may require or authorize.
- Used in places where a monitoring well is impractical.
- Authorization will include provisions for sampling procedures, constituents to be analyzed, and data analysis methods.

OAC Rule 3745-9 Exemption

- Monitoring wells constructed under 27-10 are exempt from the requirements of OAC rule 3745-9.
- Well construction and abandonment rule.

Annual Monitoring System Evaluation

- OAC rule 3745-27-10(B)(5)
- Annually for life and post-closure care period.
- Submitted every 12 months.

Sampling and Analysis Plan

- Must follow.
- QA/QC samples: at least one duplicate per sampling round, field and equipment blank if non-dedicated sampling used, collection of trip blanks.
- Number of QA/QC samples enough to demonstrate accuracy of results.
- Methods to be used to identify well maintenance problems and process for fixing the problems including documentation.

Ground Water Elevation Measurements

- Must measure water levels in all wells sampled prior to purging and sampling.
- Total depth of well must be measured unless dedicated pump is used. Well depth must be measured whenever dedicated pump is pulled from the well.
- Must determine GW flow semi-annually or whenever “more than half the wells in the system” are sampled.
- Measurements taken in 24 hour period.
- Potentiometric maps must be produced and included with data.

Statistical Plan

- Must be submitted within 90 days of completing background sampling, but no later than 450 days of implementing sampling.
- Submit to operating record or Agency.
- Any changes submitted 30 days prior to implementing change.

Updating Statistical Background

- Add to background data in blocks of a minimum of 4 new samples.
- Statistically compare to old background.
- Only add 4 new measurements if no statistical differences are detected.
- Director can deem acceptable another non-statistical method to demonstrate new background data is unaffected by the landfill.

Intra-Well Statistical Demonstration

- Must demonstrate in writing that the wells are unaffected by a release from the landfill.
- Submit demonstration to the operating record or Ohio EPA.

Results Submission

- Lab Data sheets.
- Lab/Field QA/QC data.
- Chain of custody, sample receipt forms.
- Data summary tables.
- Statistical results including summary tables/tests for normality
- Potentiometric maps
- Analysis methods, MDLs, PQLs.

Detection Monitoring

- Eight samples collected for background data.
- SZS detection parameters: benzene, chloroethane, vinyl chloride, 1,1-dichloroethane, NH₄, Cl, Na, K.
- Data from new wells stats analyzed ASAP.

False Positive Demonstration

- OAC rule 3745-27-10(D)(7)(c)
- Resample demonstration – automatic return, 1 of m statistical re-sampling method.
- Number of re-samples used must be documented as well as the statistical method.
- Demonstration to Director with return on approval.

Ground Water Quality Assessment Program

- Submit plan within 135 days from notifying the director of a statistically significant increase or 210 days from initial sampling, if a demonstration to the director under D(7)(c) is made.
- Commence sampling within 135 days of notifying the director of a statistically significant increase.

GWQAP

- Initially sample only background wells closest to the affected well within the unit affected or within the flow path of the affected well.
- Initially sample only down-gradient wells within the unit monitored by the affected well.
- A well is part of the GWQAP if it is needed to meet the provisions of E(6) – first determination.
- GW wells not part of GWQAP must be sampled under program applicable to those wells.

GWQAP

- Owner or operator may initiate source control activities necessary to prevent continuing releases.
- No approval necessary in GW rules.
- Must comply with all applicable rules and laws.

GWQAP-Off Site Migration

- Must comply with E(6) – rate, extent and concentration.
- Do not have to pursue contamination off site if adjacent property owner denies entry.
- Must document that permission was sought and if response from offsite land owner available, that permission was denied.
- Rule similar to that in HW rules.
- Owner and Operator still liable for clean up of off site contamination.

Compliance Monitoring Program

- Part of GWQAP.
- Self implementing – no approval necessary.
- Must be documented in plan submitted to operating record.
- Can be used by sites in corrective measures without an approved corrective measure.

Compliance Monitoring Program

- Release only contains constituents 63 to 78 of Appendix I list.
- Implemented 1st semi-annual event after submitting the Compliance Monitoring Plan.

Compliance Monitoring Plan

- Description of wells to be sampled.
- SAP.
- Semi-annual sampling.
- Constituents sampled must be detection monitoring parameters + those shown to be contaminants released. Semiannual and annually.

Compliance Monitoring Plan

- Statistical analysis.
- Contaminants – reestablish background with eight samples in first year with stats analysis commencing with ninth sample.
- Non- contaminants - start stats analysis with initial sampling event.

Compliance Monitoring

- Statistical Trigger
- Must re-determine rate, extent and concentration per paragraph E if any parameter 1 thru 62 in Appendix I statistically triggers.
- This means going back and doing Appendix II.

Compliance Monitoring

- Must sample for Appendix II if any parameter 63-78 triggers.
- If Appendix II parameter detected then determine rate, extent and concentration.
- If no Appendix II parameters detected then revise compliance monitoring plan.

Compliance Monitoring

- Must continue until end of post closure care period.
- Must perform source control measures.

Other GWQAP Changes

- Quarterly assessment reports changed to semi-annual.
- Do not have to resubmit documents already submitted.

Corrective Measures Program

- Must submit a GW monitoring plan as part of the CMS.
- Semi-annual sampling.
- Appendix I constituents 1 – 66 plus released contaminants.
- No requirement to do Appendix II in rule.

Corrective Measures Program

- Quarterly reports changed to semi-annual.
- Do not have to resubmit documents already submitted.

Industrial Waste Landfill Ground Water Monitoring Requirements

OAC 3745-29-10

Revocation of Old Rule

- Old requirements removed.
- New rule points to OAC rule 3745-30-08
- Residual Waste Rules.

New Requirements

- Follow OAC 3745-30-08.
- Update GWMP plan.
- Old plan good for 60 days after new plan submitted.
- Alt. approved parameter lists still good.
- Permit applicants to use App. III(H) for GW monitoring.
- Leachate sampling use App. III(H).

Residual Waste Rules

OAC rule 3745-30-08

Applicability

OAC 3745-30-08(A)

- Industrial waste landfill rule included.
- GWMP shall be:
 - Written.
 - Protective of human health and the environment.
 - Describe the program and how it complies.
 - Must follow the plan.
 - Changes must be submitted 60 days prior to implementation.

Surface Water Sampling

- Director may require or authorize.
- Used in places where a monitoring well is impractical.
- Authorization will include provisions for sampling procedures, constituents to be analyzed, and data analysis methods.

OAC Rule 3745-9 Exemption

- Monitoring wells constructed under 27-10 are exempt from the requirements of OAC rule 3745-9.
- Well construction and abandonment rule.

SAP

- Must use methods documented in SAP.
- Changes must be submitted 60 days prior to implementation.

Ground Water Elevation

OAC rule 3745-30-08 (C) (2)

- Must measure water levels in all wells sampled prior to purging and sampling.
- Measurements taken in 24 hour period.
- Potentiometric maps must be produced and included with data.

Statistical Plan

OAC rule 3745-30-08 (C) (5) & (6)

- Removal of need for Director's approval.
- Several changes made to standardize the language with that in other rules.

Updating Statistical Background

OAC rule 3745-30-08 (C) (6)(g)

- Add to background data in blocks of a minimum of 4 new samples.
- Statistically compare to old background.
- Only add 4 new measurements if no statistical differences are detected.
- Director can deem acceptable another non-statistical method to demonstrate new background data is unaffected by the landfill.

Intra-Well Statistical Demonstration

OAC rule 3745-30-08 (C) (6)(h)

- Must demonstrate in writing that the wells are unaffected by a release from the landfill.
- Submit demonstration.
- Unless a previous demonstration has been approved by Ohio EPA.

Frequency and number of samples.

- Revoked old OAC 3745-30-08(D)(7).
- Added language to D(4) requiring that the number of samples and frequency of sampling be consistent with the stats test used.

Alternate Frequency of Sampling

OAC rule 3745-30-08(D)(7)

- Inclusion of variance language in OAC rule 3745-27-10(D)(6).
- Can move from semi-annual to longer period of time not to exceed 1 year.
- Approved by Director.
- Demonstration for variance must be made by owner or operator.

False Positive Demonstration

OAC rule 3745-30-08(D)(9)

- Resample demonstration – automatic return.
- Demonstration of statistical error or natural variation to Director with return on approval.

OAC rule 3745-30-08(D)(10)

- Clarification language on what sampling needs to be done after a statistically significant increase is determined.
- Speaks to all classes of residual waste landfills and adds industrial waste landfills.

GWQAP

- Semi-annual and annual sampling and analysis requirements.
- Source control provisions added to Compliance Monitoring requirements.

CMS

- Public notice requirements.
- Put GWQA report and CMS into nearest public library to landfill.

Appendix III Constituent Lists

- A. Coal Burning Wastes.
- B. Foundry
- C. Pulp and papermaking.
- D. Steelmaking
- E. Gypsum processing.
- F. Lime Processing.
- G. Portland Cement.
- H. Industrial solid waste landfills.