



2011 Annual Quality Assurance Report Central District Groundwater Section

December 2011

Executive Summary

The Central District Groundwater Section provides assurance that the groundwater data submitted to the Central District Department of Environmental Protection (Department) Office from wastewater facilities is reliable data. The Section reviews permit application data to ensure that the protection of groundwater is adequate for each location. Assurance is provided that the discharges from the domestic and industrial wastewater facilities located within the Central District will not harm the environment.

Sampling personnel for the domestic and industrial wastewater facilities are required to follow the Department's Standard Operating Procedures for groundwater sampling. Central District Groundwater Section personnel examine the data submitted for quality assurance adequacy.

The Central District Groundwater Section implemented a tracking system to provide a record of the quality assurance activities for the year of 2011. This spread sheet tracking system was initiated in July of 2011. Some activities were completed in the field.

Site visits were conducted to determine that monitoring wells were located in accordance with wastewater rules. During site visits photographs were taken, GPS data was collected, physical measurements were taken and field notes were made in field books. Hard copies of reports or documents were collected as necessary. If required, split samples of groundwater were collected and sent to the Tallahassee FDEP laboratory for analysis.

In the office, groundwater monitoring reports were reviewed for errors and missing data. Field sampling logs, chain of custody documents, equipment calibration data and laboratory reports were also reviewed if these documents were submitted.

Non-compliance issues were addressed in a timely manner verbally or in letters. Most had satisfactory outcomes. Most items were resolved through phone calls to the appropriate party, or by non-compliance letters. A few issues will need to be resolved through field observation of calibration of field equipment and a sampling event with the particular agency or consultant personnel. These will be carried over to 2012 when a more comprehensive field audit program will be initiated.

Quality Assurance Training Activities

During the 2011 calendar year Central District Groundwater Section personnel attended quality assurance training workshops that were developed and presented by the Standards & Assessment Section located in Tallahassee. These workshops were held at the Central District on March 7 and 8, 2011. The training workshops were designed to address topics of general relevance to the Department programs.

Audit Activities

The below described audit activities have taken place during the first half of 2011 and during previous years but were not tracked on a spreadsheet during that time.

The data from groundwater sampling events at wastewater facilities is submitted on the forms required by the permit for each facility. There is no requirement that the field sampling logs, the chain of custody documents, the equipment calibration records and the laboratory reports be submitted with the forms. The Department may request these documents if the data appears to be in error or does not appear representative of the groundwater conditions at a facility.

Some facility personnel or their representatives send in the field sampling logs, the chain of custody documents, the equipment calibration records and the laboratory reports with the required forms. When this occurs the personnel of the Groundwater Section do review the documents, logs and laboratory reports for quality assurance purposes.

Since July of 2011 site visits were made to 16 facilities to inspect the condition of monitoring wells and to inspect the records pertaining to sample collection. During these inspections the locations of the monitoring wells were determined by a GPS device and then plotted on maps for each facility. This ensures that the wells are in the proper locations as required by the wastewater rules and the facility permit. This provides assurance that the groundwater samples are representative in this respect. Follow up site visits were made when warranted to document the correction of any issues.

Since July of 2011 nineteen audits were completed on laboratory reports, chain of custody documents, equipment calibration documents, and field sampling logs when these documents were voluntarily submitted with the data from groundwater sampling events. This ensures that the collection of the samples and the analysis of the samples were accurate and representative of the groundwater conditions on the date of the sampling event.

Issues

During one site visit it was discovered that a compliance monitoring well was installed more than 200 feet from the wetted area of the disposal system which did not comply with the wastewater rules. This well was abandoned and a new well was installed at a selected location in compliance with the rules.

During two site visits it was discovered that the monitoring wells at the facilities did not have concrete pads to protect the monitoring wells from infiltration of surface water which may affect the groundwater samples collected from the wells. Also at some facilities wells were not locked and were not in a secure area. At some facilities wells were not labeled in the field with the well numbers which can result in data for incorrect locations.

During a site visit it was discovered that the area around a monitoring well had standing water which could infiltrate the groundwater.

During a site visit sampling records were inspected and it was discovered that samples were being filtered in the field when the permit stated this was not to be done without special permission from the Central District Groundwater Section. It was discovered that the facility and their laboratory were doing this correctly. The groundwater monitoring report forms contained the incorrect parameter. The groundwater monitoring report forms were re-issued with the correct parameter which eliminated the need for filtering samples in the field.

Review of the groundwater monitoring report forms submitted by each facility revealed incorrect quarterly dates, incorrect sampling dates that were not within the quarter, units for parameters were incorrect, monitoring wells were labeled incorrectly on forms, chloride results were reported higher than the total dissolved solids results, and fecal coliform results with a method detection limit that did not meet the primary standard for groundwater. Based on tables compiled for each quarter of data for a facility it was determined that groundwater samples were mixed up during a sampling event or at the laboratory for two monitoring wells at a facility.

Review of equipment calibration records indicated at one sampling site the pH standards used did not bracket the actual measurements. The consultant did obtain the correct standards to bracket the actual measurements.

Comparison of the laboratory reports with the data reported on the groundwater monitoring report forms for three facilities indicated that qualifiers were not reported with the results.

On one groundwater monitoring report compared with the laboratory report it was discovered that the results for a compliance well were for the equipment blank.

Comparison of the laboratory reports with the data reported on the groundwater monitoring report forms for one facility indicated results for metals were reported incorrectly because of failure to check if the results were reported in milligrams per Liter or micrograms per Liter. Additionally incorrect calculations were done to convert the results to either milligrams per Liter or micrograms per Liter, whichever the forms required. The incorrectly reported data caused the facility to be out of compliance when it was actually not out of compliance.

Comparison of the laboratory reports with the data reported on the groundwater monitoring report forms for one facility indicated that a total dissolved solids result was entered for a chloride result.

Corrective Actions

Corrective actions have been satisfactory for nearly all of the 35 entries on the Central District Groundwater Section Quality Assurance spreadsheet which was initiated in July of 2011. Three of the 35 entries will need a field audit follow up to inspect records on site or observe calibration of equipment used for groundwater sampling. One of the issues can be resolved by a phone call or letter request to submit the field sampling logs.

Most corrective actions have been resolved by submittal of revised groundwater monitoring report forms, responses to non-compliance letters and submittal of photos of completed repairs and corrections to monitoring wells.

Groundwater Section Quality Assurance Goals for 2012

The Central District Groundwater Section will continue the use of the quality assurance spreadsheet to formally track the quality assurance activities for 2012.

The Central District Groundwater Section will follow up on the few issues that were not completely resolved during 2011.

The Central District Groundwater Section will conduct field sampling audits at 1 to 2 percent of the 250 or more wastewater facilities in the Central District that have groundwater monitoring plans.