

To populate inputs into the groundwater model, NAI proposes to conduct slug tests in selected groundwater monitoring wells to measure hydraulic conductivity of the surficial aquifer. In addition, groundwater samples will be collected to measure the total organic carbon content in groundwater of surficial aquifer zone.

A technical memorandum will be prepared that describes the basis of the model, its characteristics, and the assumptions applied to the model variables used in the calculations. The report will include figures that convey steady-state fate and transport predictions of nitrate through the soil and the groundwater zone. The report will identify potential downgradient receptors (e.g., wells, waterbodies) that could be impacted by nitrate migration, if any.

Task 4. Field Installation and Data Acquisition for Holding Pond Study

NAI will conduct a volumetric change analysis to discern whether significant unaccountable losses of holding pond wastewater effluent (i.e., leakage) can be detected. NAI will deploy pressure transducers at the site to monitor water levels in the holding pond. One pressure transducer will be deployed nearby to allow for correction of barometric pressures. To deploy the transducers in the holding pond, two stilling wells will be installed at opposite ends of the pond. To evaluate effects of climate on the water table elevations a weather station and an evaporation pan will be installed onsite. The weather station will record measurements of temperature, precipitation, wind speed, and the evaporation pan water levels.

Once the equipment is installed, the water elevation in the holding pond will be monitored (utilizing HOBO pressure transducer loggers) for approximately one month.

It is assumed that during the month, Lowndes County personnel needs to closely track the wastewater flow volumes and timing that are conveyed into the holding pond, as well as the volumes and timing of wastewater that leaves the pond via spray irrigation. In addition, periodic water level checks of the evaporation pan will need to be performed by Lowndes County personnel.

Once the monitoring period is over the pressure transducers will be retrieved and stilling wells will be decommissioned.

Task 5. Data Analysis and Reporting for Holding Pond Study

After the holding pond and site weather data are collected, it will be processed and utilized to develop a water balance based on the inflow records into the holding pond, documented irrigation volumes, precipitation inputs, and evaporative losses measured and calculated during the study period. Water volumes in the ponds will be calculated using the Polygon Volume