

File Legend

1. Digitized Nutrient Management Plans:
 - a. **2042 PDF files:** PDFs scanned or electronically delivered Nutrient Management Plans (NMPs) from the Department of Environment and Natural Resources (DENR) in summer 2014.
 - b. **4_25_15 file_list.xlsx:** table listing the file names and corresponding Permit IDs.
 - c. **04_29_16_filelist_Attributes.xlsx:** table listing permitted swine facilities from the Department of Environment and Natural Resources from 2014, described with the following attributes: Permit_ID, PDF, NOTES, Manure_PAN_Produced_annual_lbs, Integrator, County.
 - d. **Permit_Description.docx:** descriptive information about data contained in 04_29_16_filelist_Attributes.xlsx.
2. Supplemental Data
 - a. **CAFO_points_duplin.zip, catchment_duplin.zip, huc12_duplin.zip, lagoons_DuplinSampson.zip, sprayfield_duplin.zip:** each contain shapefiles (.shp) and Keyhole Markup language Zipped (.kmz) files. Shapefiles (.shp) are the proprietary format for ArcGIS software. Keyhole Markup language Zipped (.kmz) files are the format used by Google Earth.
 - b. **NMP_CAFO-level_data.csv, NMP_Sprayfield_level_Data.csv, catchment_summary_CDL_NMP.csv, HUC_summary_CDL_NMP.csv:** .csv files containing data tables
 - c. **Metadata_TableNames_FieldNames-1.xlsx:** descriptive information and data dictionary for all files

Summary of data

Nutrient management plans (NMPs) were scanned or delivered electronically from the Department of Environment and Natural Resources (DENR) in summer 2014, during their five-year review and re-permitting of most of NC swine CAFOs (industrial animal operations/factory farms/concentrated animal feeding operations). Swine CAFOs take the manure that pigs produce and store it in open-air pits called lagoons and then spray the liquid effluent onto what are called sprayfields as fertilizer for crops.

The data includes almost all of the NMPs for all swine CAFOs, all the sprayfields for Duplin county only, lagoons for Duplin and Sampson counties only, and the corrected point location of the swine CAFO for Duplin county only. NC DENR has publicly available all point locations of swine CAFOs, but sometimes they are wrong. Provided here are correct point locations of the swine CAFO for Duplin county. Every sprayfield, lagoon, and point have the permit ID associated with them that can be used to link the three files together.

NMPs require that each swine CAFO prove that there is enough acreage with enough crops to absorb the nutrients in the swine manure. The metric that NMPs use to figure out this balance is called "plant available nitrogen" abbreviated as PAN. The PAN sprayed onto fields from manure (PAN_spray) has to be less than the PAN that the crops can absorb (PAN_crops). The PAN_bal (balance) is the difference between the two. Attributes of the sprayfields include information on the PAN_spray, PAN_crop, and PAN_balance. Additionally, PAN_crop and PAN_balance was re-calculated using remote-sensing rather than what was reported in the NMP. As such there are PAN reported values as well as PAN calculated values at the sprayfield scale.

Two sub-watershed shapefiles are included for Duplin county. These sub-watersheds are at the catchment scale and HUC12 scale. The catchment scale is smaller than the HUC12 scale. PAN metrics were aggregated at these sub-watershed scales. The sprayfield shapefile has attributes that identify the catchment and HUC12 that their centroid is in, however PAN metrics are calculated based on areal percent of sprayfield within each catchment/HUC12.