General

Conservation practices planned for each field and the operation are listed in the Plan and Implementation Schedule (Appendix C). Specifics of the nutrient management plan are listed below.

Manure and associated byproducts applied on this farm will be land applied based on the applicable regulations, crop, yield of the crop to be grown, and analysis of the wastewater and manure collected as solids.

The P-Index assessment indicated a predominantly low potential for P to be transported from the field. Therefore, the application rate will be based on N for all areas (see Section 3).

Nutrient Management Plan

There are three types of land application of manure products on the farm. First, will be the application of the wastewater effluent from the methane digester via irrigation, second will be the application of separated, settled, and composted solids via spreaders, and third will be the direct manure deposition by the grazing animals in cattle conditioning pastures and heifer pastures. The estimated manure production rates per animal are provided in Tables 5 and 6 and are based on the NRCS Agricultural Waste Management Field Handbook.

The nitrogen and phosphorus application rates for the various crops grown on Partner Farm were taken from the NRCS Animal Waste Management Field Handbook and are provided in Table 7. Table 8 provides an example of variable crop rotation grown on the farm and their estimated nitrogen uptakes. However, because of the annual variability of the crop rotations under the pivots, the net nutrient balance for the cropped field are provide as annual average balances of the typical distribution of crops for the three field categories of sprayfields (receive wastewater effluent), seasonally grazed fields, and cropped fields only receiving periodic solids applications. Table 9 provides the amount of nutrients being deposited in the confinement barns and how these nutrients move through the waste management system to ultimately provide the amount of nutrient that will be land applied via the irrigation effluent from the digester or as solids that are removed before the wastewater enters the irrigation wastewater storage pond. This table also takes into accounts atmospheric losses of nitrogen due to volatilization. Table 10 provides nutrient uptakes estimated based on NRCS handbook values for hay, crops, grazing, and forage production, the manure application rate, and the required supplemental fertilizer quantity, if any. As seen in Table 8, for most fields, the nutrient loads from the manure products are well below even the phosphorus limits for allowable nutrient applications although the design was based on N.