before being pumped into the methane digester or will be placed in spreaders for land application at agronomic rates in accordance with the NMP.

Dairy Facilities

A milk parlor and two freestall confinement barns have been built to house the 1400 mature cows (see Figure 4). Once two more freestall barns are built, the dairy mature cow herd size will increase to 2800. The barns will be bedded with either sand or organic mulch from recycled solids. The dairy freestall barns will be flushed with recycled water from the collection pit at the end of the sand lane. The milk parlor will be flushed with fresh water. The dairy barns flush water will flow to the center travel lane and then to the north where it enters a 500' sand separation lane where sand will be removed and recycled for bedding if sand is being used. The sand lane and a secondary sand drop in the collection pit at the end of the sand lane will minimize the amount of sand getting into the methane digester. Two 1000 gpm pumps on float controls will deliver the effluent from the collection pit to the methane digester. The two pumps are needed for redundancy in case of a pump failure. Figure 9 provides the wastewater flow layout for the dairy and cattle operations waste management system.

Wastewater Volumes and Storage

The volume of water generated that must be handled by the waste management system is calculated in Table 2. The wastewater volume includes the freshwater flush water from the milk parlor, cooling sprinklers in the dairy barns, and manure and bedding volumes. Though it is unlikely that any of the cattle litter will be put through the digester after the dairy comes on line, to be conservative it was estimated that as much as 20% of the cattle litter could be used to augment feed stock for the methane digester, so this volume is included in the analysis. As shown in the Nutrient Management section, the volume of wastewater generated will only amount to about 2.9 inches over the 2195 acres of pivots receiving the wastewater. As seen in Table 2 the existing wastewater storage pond is significant to handle the additional wastewater from the dairy because only three days of retention time is required due to the large number of very well-drained sprayfields that are available to the facility. The 24-hour 25-year storm event storage is available in the pond as long as the water level is kept 2 feet below the top of berm. A marker shall be placed in the pond to clearly indicated this depth.

Methane Digester

As indicated the dairy will be the primary source of manure going to the digester because of its better biogas production properties than the cattle manure. The effluent from the 2.7 million gallon, spirally-mixed, plug-flow, and temperature-controlled methane digester will be pumped through three screw presses to remove the larger solids for offsite delivery. The effluent from the screw presses will then go into a concrete solids settling tank (0.47 million gallons, 73'dia x 16'deep) to remove additional solids before overflowing into the existing plastic lined storage pond (1.7 million gallons, 120' x 230' x 18' with 3:1 side slopes. The storage pond has approximately 3 days of storage and is designed to contain the 25-year 24-hour design storm as shown in Table 2. The stormwater inputs are from rainfall falling on the concrete travel lanes between the dairy barns, the sand lane and collection pit, the open top settling tank (4,200ft^2), and the irrigation pond itself (38,000ft^2), which translates to less than 1.0 foot depth in the irrigation pond. Control elevations for the pond are provided in the O&M Section. Effluent from the irrigation storage pond will be pumped to center pivot irrigation systems on the farm for delivery to crops. The solids from the screen separators will be composted or directly applied to field crops at agronomic rates. The sludge solids from the settling tank will be spread on