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CLASS I ENVIRONMENTAL ASSESSMENT FOR MINN-DAK FARMER'S COOPERATIVE SUGAR LOAN APPLICATION

Prepared for:
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ACRONYMS AND ABBREVIATIONS

CCC	Commodity Credit Corporation
EA	Environmental Assessment
FSA	Farm Service Agency
NDGWS	North Dakota Ground Water Studies
NEPA	National Environmental Policy Act
NWI	National Wetland Inventory
U.S.	United States
USDA	United States Department of Agriculture

1.0 INTRODUCTION AND BACKGROUND

This Class I Environmental Assessment (EA) has been prepared in accordance with National Environmental Policy Act (NEPA) implementing regulations for United States (U.S.) Department of Agriculture (USDA) Farm Loan Programs (7 Code of Federal Regulations 1940 subpart G) and procedures outlined in the Farm Service Agency (FSA) Handbook for Environmental Quality Programs (1-EQ). The purpose of this Class I EA it to provide a brief environmental analysis as required by NEPA for any projects utilizing federal funds. In this case, Minn-Dak Farmer's Cooperative has requested loan funds from the USDA Sugar Loan Program. The Class I EA will cover only those resource areas that are potentially impacted by the proposed action. A brief history of Minn-Dak, operations, and the Sugar Loan Program are provided below.

1.1 MINN-DAK FARMER'S COOPERATIVE

Min-Dak Farmer's Cooperative was officially formed in August of 1972. The Cooperative's shareholders produce sugar beets for processing at the processing plant in Wahpeton, North Dakota. The processing factory was completed in 1974 and was later expanded. The expansion was completed in 1998. Minn-Dak is part of the domestic sweetener industry and currently has over 450 shareholders (Minn-Dak 2012a).

1.2 SUGAR PROCESSING

At the Minn-Dak processing plant, sugar beets that are harvested by shareholders are processed into granulated sugar. More than one-half of the sugar produced in the U.S. is derived from sugarbeets. Annually, more than 25 million tons of sugarbeets are produced on over 1.5 million acres, yielding approximately 20 tons of beets per acre and 4 million tons of refined sugar. Over 30 beet sugar processing facilities exist in the U.S., and all are located in or near sugar beet production centers due to the rapid deterioration of sugar content after the beets have been harvested (Minn-Dak 2012b).

Sugar processing involves washing and slicing the beets into strips. Raw juice from the beet is extracted by using hot water that absorbs the beet sugars. The sugar-laden raw juice is drawn off and the beet pulp that remains is processed into pellets for livestock feed or other products. The raw juice is mixed with milk of lime and carbon dioxide gas in carbonation tanks where the carbon dioxide and lime form carbonate. The non-sugar particles attach to the carbonate and precipitate out to the bottom of the tanks. The remaining juice is filtered and then boiled under pressure to evaporate off much of the water. The resulting thick juice is similar in consistency to pancake syrup. This thick juice is filtered again then boiled under vacuum to remove more water and begin sugar crystal formation. The crystal and syrup

mixture is separated using a centrifuge. The crystals are washed with clean, hot water and are then air dried forming granulated sugar crystals ready for a variety of packaging options (Minn-Dak 2012b).

1.3 USDA SUGAR LOAN PROGRAM

The Sugar Loan Program provides nonrecourse loans to producers of domestically grown sugarcane and sugarbeets. The program helps to stabilize America's sugar industry and ensure the well-being of agriculture in the U.S. The Farm Security and Rural Investment Act of 2002 allows FSA to administer nonrecourse loans on behalf of the Commodity Credit Corporation (CCC) (FSA 2003). To be eligible for a loan through the Sugar Loan Program, processors must:

- Possess sugar from domestically grown sugarbeets or sugarcane from producers who are in compliance with both highly erodible and wetlands regulations;
- Agree to all terms and conditions in the loan application; and,
- Execute a note, a security agreement, and a storage agreement with the CCC.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

Minn-Dak proposes to use federal Sugar Loan Program funds to construct two additional thick-juice storage tanks adjacent to the two existing tanks at the Minn-Dak Farmer's Cooperative processing plant in Wahpeton, North Dakota (see **Figure 1**). A third tank is under construction currently, but would not use federal funds. Each tank would be 20,106 square feet in area (160 feet in diameter and 35 feet high). The purpose of the action is to increase the processing capacity and sugar storage of the Minn-Dak processing plant. The need for increased capacity is the processing demand exceeds current capacity, and that the sugar content of the harvested beets rapidly deteriorates, making rapid processing necessary to maximize sugar output.

The existing tanks have a containment berm around them to contain the thick juice in the event of a spill. The containment berm would have to be expanded to surround the new tanks. However, this berm expansion will not be funded with federal loan monies, and is not part of this proposed action. As such, it is not analyzed in detail in this EA.

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, Minn-Dak would not receive federal funding for tank construction. However, Minn-Dak would likely find alternative, non-Federal funding and the tank construction would still occur.

Figure 1. Proposed Tank Locations at Minn-Dak Farmer's Cooperative

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Affected environment and environmental consequences describe the human and natural environment that could potentially be impacted from the proposed action and the extent of the impacts. This is generally broken into a number of resource areas. Due to the limited scope of this EA, many of these resource areas will not be impacted. Resource areas not analyzed in detail are listed below, in **Table 1**.

Table 1 Resource Areas Not Analyzed in Detail

Resource Area	Potentially Impacted	Detailed Analysis
Biological Resources	No	No
Water Resources	Yes	Yes
Soil Resources	No	No
Cultural Resources	No	No
Recreation	No	No
Air Quality	No	No
Socioeconomics	No	No
Environmental Justice	No	No

3.1 WATER RESOURCES

The region of influence is the southeast corner of North Dakota, referred to as the Red River Valley area, with the project action located north of Wahpeton, North Dakota.

3.1.1 Affected Environment

3.1.1.1 Ground Water Aquifer

The Red River Valley and Wahpeton area is within the Agassiz Lake Plain physiographic division of the Central lowland Province, which covers portions of North Dakota and into southern Canada. The plain is practically featureless except for the erosional stream channels containing Red River of the North and its tributaries. The Red River originates at Wahpeton from the confluence of the Bois De Sioux and Ottertail Rivers and is the eastern boundary of the Wahpeton area and North Dakota. The Wild Rice River flows across the western part of the area from south to north, joining the Red River about 8 miles south of Fargo. Maximum topographic relief in the Wahpeton area is about 25 feet (North Dakota Ground Water Studies [NDGWS] 1974).

Within the Wahpeton area, glaciofluvial deposition occurred from past historic streams emerging from, upon, though, underneath, or marginal to melting glacial ice. Deposits from streams originating on or at a stagnant or receding ice front are usually associated with till.

Studies revealed that, although deposition of this nature did occur during the Pleistocene history of the area, the greatest accumulation of glaciofluvial materials was deposited during interglacial periods by northerly flowing streams. The first major period of glaciofluvial deposition occurred between a deposition of the Light-Gray Till and Intermediate Till, was confined, more or less, to the deep (up to 125 feet cut) and narrow valley, which is what is known today as the Wahpeton Buried Valley Aquifer (see **Figure 2**). The Wahpeton Buried Valley Aquifer enters North Dakota from the southeast approximately 2 miles north of Wahpeton and leaves the study area along U.S. 81 north of Abercrombie, a distance of about 16 miles (Red River Valley 2005).

Minn-Dak Farmer's Cooperative and Cargill Inc. are two of the larger industrial water users in southeast North Dakota, drawing their water from the Wahpeton Buried Valley Aquifer. On average permitted annual withdraws from the Wahpeton Valley Aquifer included 3,000 acre-feet of water in industrial permits for Cargill, which are held in abeyance for times of low flow in the Red River and another 350 acre-feet of water for the Minn-Dak Farmer's Cooperative. The present water demand and projections to 2050 confirm that the Aquifer is adequate to support these industrial permitted uses and some level of expansion. The Wahpeton Buried Valley Aquifer, with a water level below surface of 43.5 feet, is estimated to contain about 540,000 acre-feet of ground water in storage. The water quality varies slightly from calcium bicarbonate to sodium bicarbonate type, is hard, and usually contains excessive iron, which requires some level of treatment. In addition, plans for transition of irrigation users from the Aquifer to municipal rural water systems, supplemented by regional basin transfers, would allow for maintenance of the Aquifer for the industrial uses (Red River Valley 2005).

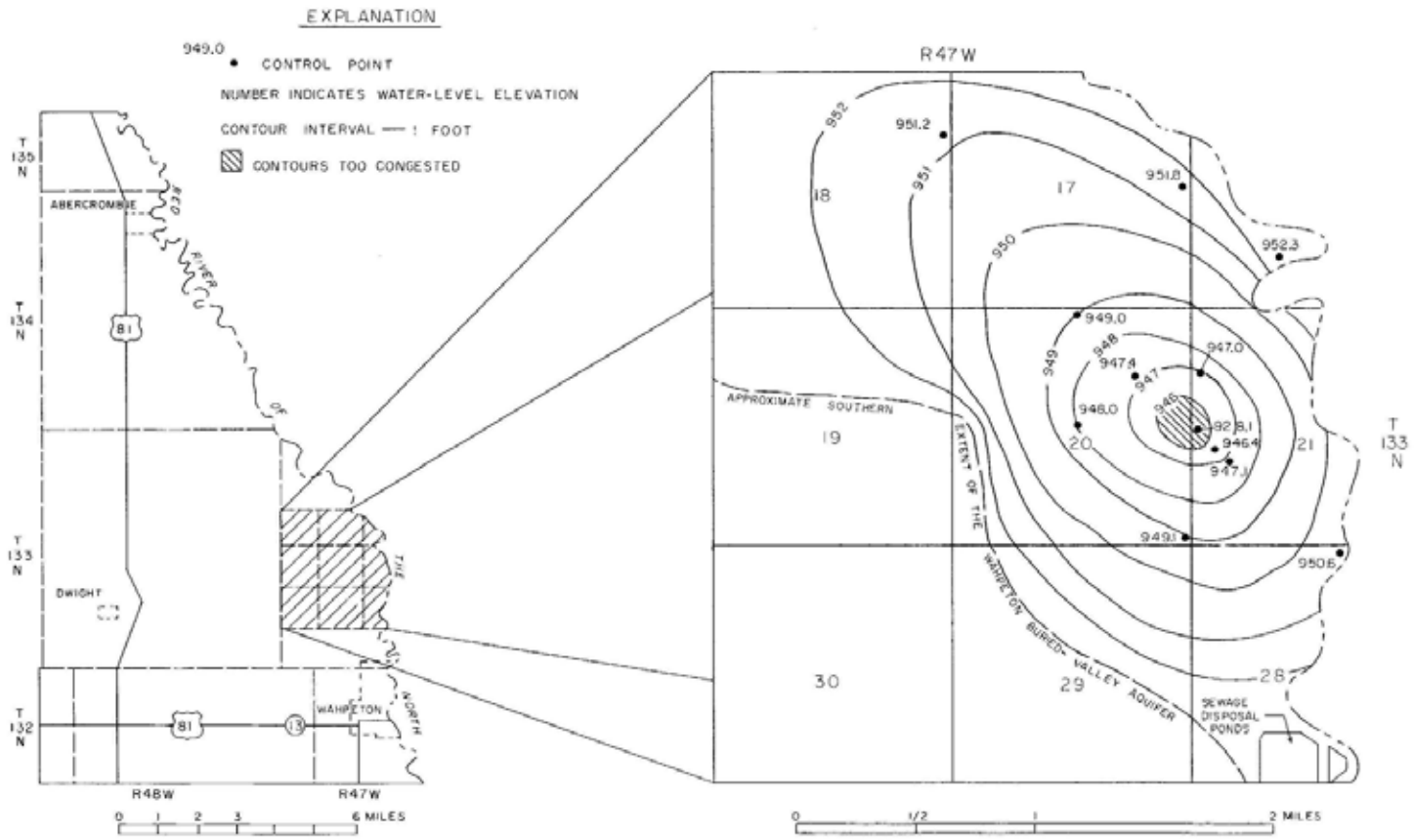

Figure 2. Location of the Wahpeton Buried Valley Aquifer

3.1.1.2 Soils

The geology of the project action area is identified through the National Cooperative Soil Survey (NCSS 2012) within Richland County as partially hydric soils, urban land with 0 to 2% slope, on the project site. The majority of the surrounding soils are also partially hydric soils consisting of silty clay loams and the hydric soils are limited to the east within the Red River of the North corridor (see **Figure 3**).

Partially hydric soils are defined as:

> *"Partially hydric" means that at least one component of the map unit is rated as hydric, and at least one component is rated as not hydric.*
>
> *Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation (NCSS 2012).*

3.1.1.3 Precipitation

Annual precipitation in the project area ranges from less than 13 inches in the northwest part of the valley to more than 20 inches in parts of the valley in southeastern North Dakota. The majority of annual precipitation and annual evaporation occurs in April through September (Red River Valley 2005). As a result, much of the precipitation is absorbed in the soil and transpired or evaporated back to the atmosphere, and very little results in runoff or groundwater recharge. Most runoff is in the early spring when snowmelt and precipitation generally exceed evapotranspiration.

3.1.1.4 Wetlands

The area of proposed construction was at one time cultivated agricultural land. No known wetlands are nearby. A search of U.S. Fish and Wildlife Service National Wetland Inventory database confirmed that no wetlands were in proximity to the tank construction area (NWI 2012).

3.1.2 Environmental Consequences

3.1.2.1 Proposed Action

The proposed construction of the two above ground storage tanks would be on previously disturbed areas that had stockpiled biosolids and top soils. The tanks would not require excavation to the depth of the aquifer water level (43.5 feet). The surface water runoff is treated on-site through anaerobic water treatment and settlement ponds. The construction and operation of the storage tanks would have no adverse impacts to surface freshwater resources (Red River of the North). Standard construction Best Management Practices (BMPs), such as temporary sedimentation and erosion control and other applicable controls, would be implemented per county construction permitting regulations.

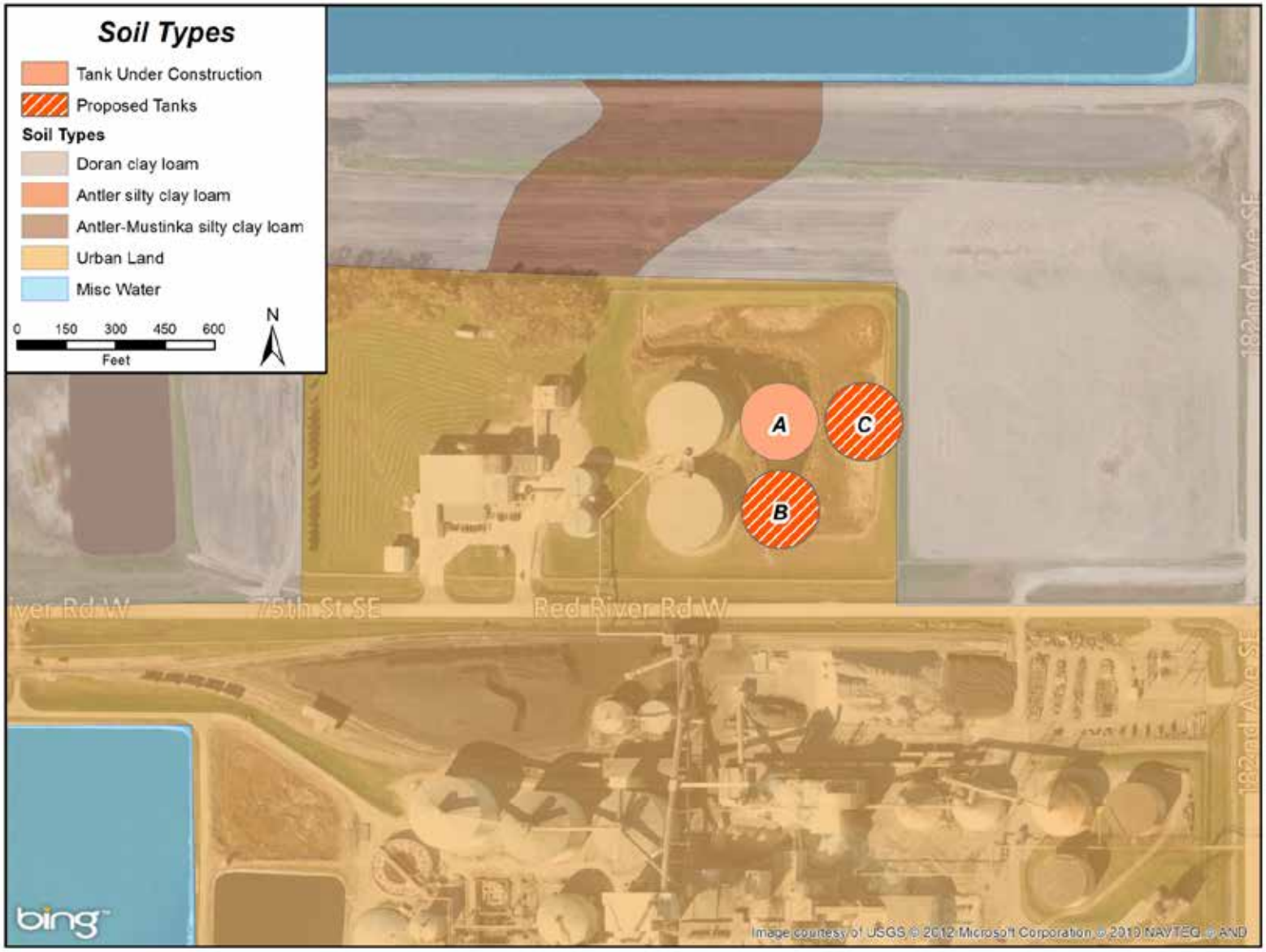

Figure 3. Soil Types at Minn-Dak Project Site

3.1.2.2 No Action Alternative

Under the No Action Alternative, Minn-Dak would not receive federal funding for tank construction. However, it is likely they would pursue and receive non-federal funding for this project. Construction of the tanks would likely still occur.

4.0 CUMULATIVE IMPACTS

Cumulative impacts are defined by the Council on Environmental Quality as potential impacts from "the incremental impacts of the action when added to past, present, and reasonably foreseeable actions regardless of what agency or person undertakes such actions" (40 Code of Federal Regulations 1508.7).

Past actions at Minn-Dak Farmer's Cooperative include the expansion that occurred from 1995 through 1998, where the existing thick juice storage tanks were constructed. This action converted active agricultural land to the existing storage tank area. Currently, construction of another thick juice storage tank is underway. This tank is located adjacent to the existing tanks (just to the east, see Figure 1). This tank, along with the two proposed tanks would more than double the existing thick juice storage capacity of the processing facility.

Because of the limited scope of this project, only water resources were addressed as a potential resources area that could be impacted. The current and proposed construction would create temporary disturbances to soils and would require standard construction BMPs to reduce erosion and sedimentation impacts to nearby surface waters. Approximately 60,000 square feet of new impervious surface would be added to the area; however, given the rural, agricultural nature of the area, it is unlikely that this amount of impervious surface would create any measureable impact with regard to stormwater runoff or to water resources. As such, there would be no cumulative impacts from the Proposed Action.

5.0 REFERENCES

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