ENVIRONMENTAL ANALYSIS AND DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)
Form 1600-1 Rev. 2-99 **Department of Natural Resources**

Region or Bureau: Northern Region
Type List Designation
Type II, NR150.03(8)(I)(2)(a)

Contact Person
Peter Prusak

Title
Basin Engineer, St. Croix GMU

Address
1341 Second Avenue
PO Box 397
Cumberland, WI 54829

Telephone Number (715) 822-5421, ext. 106

NOTE TO REVIEWERS: Comments should address completeness, accuracy or the EIS decision. For your comments to be considered, they must be received by the contact person before

_____

(time) (date)

Applicant: Knut Sons, Inc., Gregory Knutson, Owner

Address: 95 13 ¼-13 ½ Street, Ridgeland, WI 54763

Title of Proposal: Knut Sons, Inc. Large Confined Animal Feeding Operation (Dairy) Expansion

Location: County City/Town/Village Barron County, Dallas Township

Township 32 North, Range 12 West

Section(s) NE of SW, Section 29

PROJECT SUMMARY

1. General Description (brief overview)

This environmental assessment is associated with the issuance of a Wisconsin Pollutant Discharge Elimination System (WPDES) permit for a proposed expansion of a dairy operation named Knut Sons, Inc. and the review/evaluation associated with manure storage and runoff control facilities. The operation has never held a WPDES permit. This proposed WPDES permit will be issued for up to five years. The proposed effective date is October 1, 2000 and the proposed expiration date is September 30, 2005.

Existing Operation.

The Knutson Family has farmed at this site in southwestern Barron County since 1971. They milk 288 cows and raise another 230 replacement animals on their farm. Their total existing dairy herd is approximately 570 animal units. Their present farmstead consists of five animal freestall barns, a milking parlor, bunk feed storage silos, machinery sheds and other structures. All the animals are confined to the barns or several attached barnyards and animal exercise lots. No animals are pastured. Most of the outdoor barnyards are concrete where the animals are fed from feed bunks.

Three of the barns have below ground, poured concrete manure storage facilities. Manure is scraped into the manure storage facilities. They use custom manure haulers to pump and land spread the liquid manure. The barns without manure storage facilities are scraped daily (weather permitting) as are the concrete feedlots. This manure volume is hauled daily and land spread. They scrape and land

spread 10 tons of manure per day.

The outdoor feed lots have wood picket fences for collecting and separating manure solids from rainwater. The fences back up the rainwater that falls on the roofs or feedlots, allowing manure solids to settle out on the lot. The overflow treated rainwater is directed to a double grassed filter strip where it infiltrates.

The Knutsons now own and raise crops on about 600 acres of farmland. They raise corn silage, corn grain, and alfalfa. They have arrangements for applying liquid manure to other neighboring farmland. They now have agreements for spreading on 200 acres and know more land can be obtained if needed in the future. Their farm cropland is enrolled in the farmland preservation program and it meets accepted standards for soil loss and approved crop rotations. They intend to continue in these programs with their conservation practices under the expanded operation.

Proposed Expansion

The Knutsons intend to expand their dairy herd over the next two years. They plan to increase their herd to 625 milking cows (875 animal units) by January 1, 2000. They will also increase their existing replacement herd gradually over two years from the present 230 heifers and calves (170 animal units) to 625 heifers and calves (380 animal units). The milking herd is to be kept in new facilities and the replacement herd will be housed in the existing buildings.

The Knutsons are planning and now building the new facilities for their increased milking herd. These are to be located immediately south of the existing farmstead on what had been cropland. They will be building a liquid manure storage facility, one free stall barn, a milking parlor with holding area, and a bunk silo feed pad.

The free stall barn will be 110 feet by 376 feet in plan area. There will be a manure reception tank attached below the barn floor. Manure in the freestall barn will pushed with alley scrapers into a transfer pipe running alongside barn floor where it gravity flows to the reception tank. They will use a skidsteer to push the manure in cold weather when the alley scrapers won't work. Manure will be agitated and pumped from the reception tank into the manure storage facility with a vertical pump.

The manure storage facility will be 154 feet by 380 feet and have a 6.8 million-gallon capacity**.** They are sizing the manure storage facility to contain all the manure from the freestall barn and parlor as well as the manure scraped from the existing feedlots and barns where the replacement animals will be housed. This is the manure that had been daily hauled. The operators will move the manure in the spreader down to the manure storage facility and discharge it into the manure storage facility. This will eliminate the need for daily hauling and spreading on frozen ground. If after trying this procedure and if it isn't workable, the Knutson's may submit plans and specifications to construct a manure-stacking slab of suitable size for storing the solid manure. They will not have to request a WPDES permit modification to do this.

The manure storage facility is sized for the proposed herd expansion, flushing water from the parlor that is estimated at 4,000 gallons per day, and rainfall that lands in the manure storage facility. The existing manure storage facility will be large enough to hold all the manure and wastewater expected to be produced for one year even though it will be emptied and land applied twice a year. This extra volume would be available for containing manure from another 625 animal unit milking herd should the Knutsons ever decide to expand again in the future.

The manure storage facility will be built in the native soil which is sand and then lined first with 18 inches of clay followed a 60 mil thick high density polyethylene (HDPE) membrane. There will be five concrete agitation pads around the edge of the manure storage facility to allow machinery to agitate the manure storage facility contents prior to hauling it out. The manure storage facility will be fenced with a four-foot high woven wire fence and one strand of barbed wire to keep animals out of the manure storage facility.

The manure storage facility will need 9,000 cubic yards of clay for an 18-inch thick liner to be located below the polyethylene liner. They will excavate this clay from a site in section 19 two miles from the farm. The clay there has been tested and meets the required minimum standards of 20% passing a #200 sieve and a plasticity index of 7 or more. They will excavate the topsoil and stockpile it on-site. Then they will remove the clay liner material, after which the site will be re-graded and they will then spread the topsoil so this land can continue to be farmed.

The manure storage facility was designed to meet NRCS technical standard 313 . The design work was completed by Barron County Land Conservation staff and US Department of Agriculture- Natural Resources Conservation Service professional engineering staff.

Most of the grading will be done to obtain fill and to prepare the site, drainage diversions, building pads, and access roads. The site's

existing slope varies from 2% to 6%. Regrading will not alter these contours or physical appearance of most of the site. Their grading and excavation plan calls for removing fill for the building slabs and access road from a 25-foot high side hill on the immediate west side of where the manure storage facility is to be built. Excavation from the manure storage facility will also be used in the berms and for fill, too. The side hill will be regraded after the fill is removed and the contours altered to feather back in to the existing side slopes. A diversion drainage ditch will be built along the west side of the site to keep rainwater and snow melt away from the buildings and manure storage facility. The Knutsons have applied for and received a DNR WPDES construction site storm water erosion control permit for controlling erosion and keeping sediment from running off the site. The existing site's soils are Chetek sandy loam which are quite permeable. Most of the stormwater that will run off the building roofs and paved areas will infiltrate and not reach surface water. They also have the option to install drain tile across the south end of the site to supplement infiltration of stormwater should this be necessary. This is not expected to be the case.

The Knutsons have developed a 590 nutrient management plan to landspread all the manure they expect to generate for the entire expansion. This will be 4.8 million gallons of liquid manure and 4800 tons of solid manure. No winter spreading of manure or stacking of manure will be allowed.

Water usage in the parlor for flushing and cleanup is estimated to be 4000 gallons of water per day. All the parlor wastewater will be sent to the manure storage facility. A mature dairy animals consumes up to 60 gallons of water per day. Herd watering will be 60,000 gallons per day or more. The Knutsons intend to construct a new high capacity well at the site to provide this water.

The Knutsons will construct a code-complying private sewage system to treat and dispose of all the human sanitary wastewater from the bathrooms and shower facility in the parlor building.

2. Purpose and Need (include history and background as appropriate)

The business plan of Knut Sons Inc. involves the expansion of the farming operation from 570 animal units to 875 animal units by January 1, 2000, and another expansion to 1500 animal units by January 1, 2003. The Knutson's also have long range plans to expand again at some undetermined time in the future by adding another 625 milking cows (875 animal units). This last expansion is not part of this environmental assessment.

This expansion is considered necessary to optimize the labor efficiency of the facility and to fully utilize the investment in the animal housing facilities, manure storage facility and milking center. The purpose of the operation is to produce milk for the grade A milk market.

3. Authorities and Approvals (list local, state and federal permits or approvals required)

The Department of Natural Resources has the following authorities and approvals regarding this operation:

- Wisconsin Pollutant Discharge Elimination System (WPDES) Permit for Concentrated Animal Feeding Operations (CAFO), those operations with 1,000 animal units or more
- High Capacity well permit
- Wisconsin Pollutant Discharge Elimination System (WPDES) Permit for Land Disturbing Construction Activities affecting five or more acres (WI-0067831)
- Review and approval authority of manure storage facilities and runoff control systems
- A permit for air emissions is not required for this operation. However, odor control requirements may be imposed by order of the Department if the Department determines that a violation of s. NR 429.03 – Malodorous Emissions, Wis. Adm. Code, occurs
- Chapter 30 Water Regulation Permits. (Note: DNR Water Management Investigator Dan Harrington inspected the site and determined no DNR water regulation permits are required for the operation or the clay borrow pit excavation.

Barron County has the following authorities and approvals regarding this operation:

- Barron County Land Use Permit to Locate Dairy Operation
- Barron County Land Use Permit to Build Manure Storage Structure
- Review and approval authority for a manure management plan
- Barron County Land Use Permit to Excavate Gravel (Note: Barron County does not require the Knutsons to obtain this

land use permit for removing the clay liner material in section 19 because the clay is going to be used for the landowner's personal use and will not be sold to others.)

4. Estimated Cost and Funding Source

The project cost is estimated at $ 3.0 million dollars.

PROPOSED PHYSICAL CHANGES (More fully describe the proposal)

5. Manipulation of Terrestrial Resources (include relevant quantities - sq. ft., cu. yard., etc.)

Six and one half acres of cropland will removed from crop production for the buildings, manure storage facility, and roads. About 50,000 cubic yards of fill will be excavated from the manure storage facility site and surrounding headland and used for the site buildings and roadways. Around 9,000 cubic yards of clay will be excavated from a borrow pit and used for the manure storage facility. The cropland needed will increase to 800 acres for raising all the haylage and corn silage to feed the animals.

6. Manipulation of Aquatic Resources (include relevant quantities - cfs., acre feet, MGD, etc.)

There will no impact on any surface water aquatic resources except for the additional stormwater that will result from the building roofs and other paved surfaces. Drainage patterns will not be significantly changed from present patterns. All the rainwater is expected to infiltrate the soils and not run off to surface water. It is illegal to discharge any contaminated stormwater or other water pollutants to any surface or groundwater without proper treatment.

There will be a substantial increase in liquid and solid animal manure from the increased animals housed in these facilities. This manure with its nitrogen and phosphorus nutrients will continue to be land applied to cropland.

There will be more well water withdrawn. The animals and milking operation will use about 65,000 gallons of water per day.

7. Buildings, Treatment Units, Roads and Other Structures (include size of facilities, road miles, etc.)

- These structures will be built:
- 6.8 million gallon liquid manure storage facility (2.4 acres)
- 110 foot x 376 free stall barn
- 0.65 acre milking parlor and animal holding area
- 2 acres of access roads
- 0.85 acre silo pad

8. Emissions and Discharges (include relevant characteristics and quantities)

- The following emissions and discharges can be expected:
- 4.8 million gallons of liquid dairy manure produced annually
- 4500 tons of solid dairy manure produced annually
- Increased odor from the manure storage facility and animal housing, especially during the spring haulout of liquid manure for application to cropland

- Other Changes
- The following additional changes will occur:
- Additional feed, electricity, and petroleum consumption from the increased operation along with the increased milk production
- Doubling the existing 570 animal unit herd to 1255 animal units
- Increased traffic, especially around the farmstead

10. Identify the maps, plans and other descriptive material attached

The following documents are attached to this environmental assessment.

Attachment A:	Location map
Attachment B:	Plat map
Attachment C:	Aerial photo
Attachment D:	Wetland map
Attachment E:	Barron County soils map
Attachment F:	USGS topographic map
Attachment G:	Site map from engineering drawing
Attachment H:	WPDES Agriculture Discharge Permit Application
Attachment I:	Environmental Analysis Questionnaire completed by Gregory Knutson on March 29, 2000.
Attachment J:	Polk County Land and Water Resources Department Policy Manual, Chapter III – Nutrient Management Requirements

The following documents are available for inspection at the Department of Natural Resources Office, 1341 Second Avenue, Cumberland, WI 54829.

Attachment A:	WPDES draft permit
Attachment B:	Knut Sons, Inc. 590 nutrient management plan
Attachment C:	Manure storage facility plans and specifications

AFFECTED ENVIRONMENT (Describe existing features that may be affected by proposal)

Information Based On (check all that apply):

[ ] Literature/correspondence (specify major sources)

[x] Personal Contacts (list in item 28)

Field Analysis By: [ ] Author [ ] Other (list in item 28)

Past Experience With Site By: [x] author [ ] Other (list in item 28)

11. Physical (topography - soils - water - air)

The majority of the Knutson land is typically 2% to 6% slope and is in hydrologic group A which means there is five or more feet to groundwater. The average soil phosphorus level is 75 to 100 mg/l. The land is located within the Lower Pine Creek watershed that is tributary to the Red Cedar River. The Red Cedar river is formally listed as an impaired watershed from nutrients because it doesn't meet water quality standards for dissolved oxygen that are caused by high levels of phosphorus and nitrogen in the watershed.

12. Biological (dominant aquatic and terrestrial plant and animal species and habitats including threatened/endangered species; wetland amounts, types and hydraulic value)

The wildlife species found are common edge or agriculture species including those favoring hay and corn habitats. Birds include meadowlarks, bobolinks, field sparrows, northern harriers, eastern bluebirds, red-winged blackbirds, common crows, waterfowl (mallards and blue-winged teal), and wild turkeys, to name a few. Raccoons, deer, red fox, meadow voles, and cottontail rabbits are some of the mammal species. Garter snakes and fox snakes are reptiles that could be present; and leopard frogs are one amphibian species that is often present on dry land away from wetlands.

13. Cultural

a. Land use (dominant features and uses including zoning if applicable)

The site is zoned for agriculture, which is the predominant land use in the area, and the zoning will not need to be changed as a result of this project. The land use will remain in agriculture- just another form where milk production replaces crop production.

b. Social/Economic (include ethnic and cultural groups)

This is a rural area where agriculture and dairying are one of the main economic livlihoods of the people who live there. Most are small family owned and operated farms. Barron County is one of the top dozen counties in Wisconsin in agricultural production.

c. Archaeological/Historical

Dr. Victoria Dirst, Department of Natural Resources Archeologist, was contacted on May 17, 2000 to check any archeological or historical resources that will be impacted by the Knut Sons Inc. operation. The only historical site anywhere near the farm is the German Lutheran Cemetery in the SE ¼ of the NW ¼ of Section 29,T32N R12W, Barron County. This is about one-eighth mile north of the farmstead on the west side of USH 25.

14. Other Special Resources (e.g., State Natural Areas, prime agricultural lands)

No special resources are known.

ENVIRONMENTAL CONSEQUENCES (probable adverse and beneficial impacts including primary, indirect and secondary impacts)

15. Physical (include visual if applicable)

Short-term physical impacts will be associated with all the construction activity at the site. These impacts include noise and dust from machinery and construction equipment. Once the site grading is done and the access roads are built, the dust and traffic will drop as the equipment is confined to the roads. There will be longer-term impacts from traffic and activity from housing, feeding, and hauling milk that is generated from the dairy. These will continue as part of the permanent operation.

A new long-term physical impact of the expanded operation will be more buildings and a large grading and excavation project. There will be 24,000 cubic yards of material excavated for constructing the manure storage facility and 40 acres of farmland will be used for the dairy operation. The manure storage facility will require two acres and the other buildings will take up 2.5 acres. The access roads will take up two more of the 40 acres. The remaining 33 acres will be returned to farmland. Once it is established, the site will look a lot like it did before except for the buildings.

The forty-acre site is prime farmland and up to now was used for cropland. The confined animal feeding operation is another form of agriculture. The Knutsons are converting from cropping to milk production that keeps the land in agriculture.

The Knutsons will build a new 0.85 acre silage storage pad where corn silage will be piled, covered, and stored to be fed to the animals. They already have a smaller bunk silo storage facility about 100 feet north of this new one. It is illegal for any leachate or contaminated stormwater runoff to escape from the pad. Should runoff ever become a problem, the Knutsons will be required to implement a management plan and install any necessary best management practices to protect surface water. Runoff at this site infiltrates the soils readily because they are permeable. The Knutsons will also be keep the empty pads clean to prevent stormwater contamination .

Water usage for cattle drinking and parlor cleaning operations is expected to be about 65,000 gallons per day. A high capacity well is required for this site. Groundwater is estimated to be 15 to 25 feet from ground level at the site, except for some localized perched water conditions in the area. There is a high yielding sandstone acquifer that is deeper and this acquifer will likely be used by the Knutson high capacity well. There are no municipal wells near this area so no conflicts will occur. The private wells are far away also; the nearest wells are owned by the Knutsons, themselves. DNR has no authority to regulate these water conflicts under this WPDES permit.

The Knutsons will need to apply for and obtain a DNR high capacity well permit to construct a high capacity well. They may need up to 60,000 gallons per day for watering the animals and 4,000 gallons per day in the milking parlor, not counting the water they now use for their existing herd. Groundwater levels in the area could be affected by water usage at the operation; however, the WPDES permit does not regulate this.

Groundwater wells in this area utilize the shallow unconsolidated drift formation aquifer or the deeper sandstone consolidated formation acquifer. Groundwater is abundant in the area and the likely hood this high capacity well will affect other private wells is unlikely. The nearest home is over one - fourth mile away. Neither the WPDES permit nor the high capacity well permit regulates water level impacts such as lowering the water table. There are no requirements for monitoring water levels or other groundwater impacts for a high capacity well under Wisconsin law. The only situation where a high capacity well impact is regulated is where it affects a municipal well and there aren't any municipal wells near this site.

No waterways or aquatic resources will be re-routed or altered as a result of this project. The distance to the closest navigable water is about 1000 feet which is the South Fork of the Lower Pine Creek. Short-term impacts to this resource or other wetland resources are not expected during construction of the operation if BMP's are implemented and maintained for storm water runoff control. The Knutsons have obtained a stormwater construction permit to control soil erosion during construction.

The streams adjacent to the farmstead are Spring Creek, Lower Pine Creek, and the South Fork of Lower Pine Creek. These are high quality class II and III trout streams. There will be more stormwater generated at this site from all the roofs and paved surfaces. It is illegal to discharge any stormwater contaminants to these surface waters or to groundwater. If problems develop, the Knutsons will have to implement new, more effective best management practices to prevent any discharges.

A long-term physical impact is associated with the production of manure at the site. It is anticipated that approximately 4.8 million gallons of liquid manure will need to be stored and land spread every year. The nutrients associated with manure can have detrimental impacts on groundwater (nitrogen) and surface waters (nitrogen and phosphorus) if not properly land applied. Biochemical oxygen demand associated with manure can reduce dissolved oxygen levels in surface waters. In addition, ammonia in the manure can be toxic to fish and aquatic life.

The cattle will be held in buildings where they are totally confined and manure from these buildings will be transferred to a manure storage facility. As a result, the long term nutrient impacts on wetlands and surface waters from the cattle housing area are not expected. The manure storage facility itself has been designed to meet appropriate NRCS design standards to ensure that groundwater impacts do not occur.

DNR's WPDES permit regulates all aspects of manure storage, land application, runoff control, and reporting. The landspreading of its manure is regulated in accordance with a Department approved Manure Management Plan. This Manure Management Plan can be an effective tool to proactively address possible problems that would otherwise be associated with manure landspreading activities. This is a direct benefit to the environment since livestock operations with less than 1000 animal units are not required to obtain a WPDES permit and may not be adequately planning their landspreading activities. This lack of planning may result in adverse impacts to water quality.

The permit includes injection and incorporation requirements based on proximity to surface waters which are intended to ensure that manure does not runoff to surface waters and cause short-term impacts associated with biochemical oxygen demand and ammonia. No manure will be allowed to be spread during the winter on snow covered or frozen ground. The Knutson's now incorporate any manure spread within 200 feet of streams identified on their field aerial photographs. The WPDES permit will contain other minimum restrictions on manure spreading including prohibitions of spreading in a

waterway, terrace channel, or any area where there may be a concentration of runoff. No spreading is allowed on fields with soils less than 10 inches thick over fractured bedrock, nor beyond the cropping boundaries of fields identified in the manure management plan.

All the farmland and the farmstead are located in the Lower Pine Creek subwatershed that is tributary to the Red Cedar River. The Red Cedar River is listed as a 303(D) water that is impaired and doesn't meet dissolved oxygen standards. Nutrients, primarily phosphorus, are the main cause for this water quality impairment. The Knutsons will landspread their manure on farmland which are in this watershed.

Farmers set manure application rates are based on the nitrogen needs of the crop to be grown. Most crops utilize more nitrogen than phosphorus, so if manure is applied to the nitrogen needs of the crop on a regular basis, phosphorus soil levels may increase over time. In order to protect against increased phosphorus loadings to area surface waters, the proposed WPDES permit will require that the operation's Manure Management Plan address phosphorus loadings from fields where the operation landspreads manure. While phosphorus is a critical component of ensuring healthy crop growth, excessive phosphorus that is applied on land can make its way to surface waters where it contributes to excessive algae growth. Excessive algae growth contributes to such water quality problems as low dissolved oxygen in surface waters. This is a problem of the Red Cedar River. The Knutsons will implement field and site specific restrictions and practices as part of their Manure Management Plan submitted to the Department for review and approval. These restriction and practices will need to take into account existing soil nutrient levels, buffers, crop rotations, and other relevant factors. Specific restrictions will also be placed in the proposed WPDES permit for the operation that are designed to address phosphorus impacts associated with the operation's landspread manure.

The Knutson's will have to modify their manure management to keep phosphorus on the fields and prevent its transport to surface water. They are required to develop a plan for phosphorus regulation as part of a schedule in the permit that is due three months from permit issuance. They are considering alternatives on how to do this. They already use a number of best management practices that now keep their soil loss at or below accepted soil conservation loss rates. These also keep phosphorus on their fields.

This accepted soil loss rate is referred to as "T". "T" is the topsoil production rate in tons per acre per year from natural soil production and loss factors such as weathering, mineralization, soil erosion, etc. Farmers can reduce soil loss by following accepted best management practices (BMP's) so the soil and its inherent fertility to grow crops remains the same or improves. The Knutsons already use and maintain grassed waterways on their fields; they raise hay in their crop rotations to reduce soil erosion; and they incorporate liquid manure within 72 hours or less of application to keep nutrients on the field.

They will consider using two more options to protect water resources from phosphorus. One is to incorporate all manure applied within 400 foot area of every river, stream, or areas of channelized flow. This is up from 200 feet they now observe.

The second is they may also elect to follow the phosphorus based management strategy such as the one defined in The Polk County Manure and Water Quality Management Ordinance, Chapter III –Nutrient Management Requirements. This does specify nutrient management planning on each field depending on how each field rates, using specified criteria of field slope, phosphorus soil level, field runoff potential, and the field's proximity to drainage. A copy of these guidelines is attached.

Once approved by the Department, all landspreading activity must be completed in accordance with the management plan. A certified crop consultant must develop the plan.

Landspreading manure in accordance with an acceptable Manure Management Plan is advantageous to both the farmer and the environment. The nitrogen and phosphorus from the manure provide nutrients for crop growth and lowers the need for commercial fertilizer. In many instances, the net nutrient application will not change, only the type of fertilizer. When manure is spread in suitable amounts and promptly tilled into the soil, the potential of runoff causing off-site problems is minimized. The WPDES permit will regulate the application rates, applied acreage, spreading techniques and other specifications through the Manure Management Plan. The operation will also be required to conduct manure and soil sampling to determine appropriate application rates, depending on soil and crop types.

If the operation conducts landspreading in accordance with an approved Manure Management Plan, maintains an adequate land base for landspreading, and properly inspects and maintains manure storage facilities and runoff control systems, the

threat to groundwater and surface water should be minimal under normal operating and climatic conditions.

16. Biological (include impacts to threatened/endangered species)

David Heath of the Northern Region reviewed the project on May 17, 2000 and searched the Natural Heritage Inventory (NHI) data files. He found no recent occurrence records of endangered, threatened, or special concern species or natural communities, or any State Natural Areas in Section 29 of T32N R12W, Barron County. He stated that even though comprehensive endangered resource surveys have not been completed for the project area, he did not believe further surveys are warranted based on the project scope.

Kevin Morgan, DNR Wildlife Biologist in Barron reviewed the impact on wildlife. He reported a limited number of wildlife species would be affected by the development. Most of these species will be common edge or agricultural species. The construction of buildings for the farm expansion will remove cropland from production forever. This will reduce the overall amount of farmland habitat available for wildlife in this specific location. The remaining land will remain in crops as it is presently used.

Of the two habitats, hay and corn, each provides somewhat different habitat and value for wildlife habitat. Hay provides a more continuous field like cover that is good nesting and feeding habitat for meadowlarks, bobolinks, field sparrows, northern harriers, eastern bluebirds, red-winged blackbirds, common crows, waterfowl (mallards and blue-winged teal), and wild turkeys, to name a few. Raccoons, deer, red fox, meadow voles, and cottontail rabbits are some of the mammal species. Garter snakes and fox snakes are reptiles that could be present; and leopard frogs are one amphibian species that is often present on dry land away from wetlands. In regard to corn, as it grows it provides more cover and structural diversity. Many of these same species above will also be present in corn.

The above species will be displaced from the actual site of the construction but will still be present on other parts of the farm where these habitats continue to exist. Local populations of individuals may slightly decline due to loss of habitat. The only species of wildlife that will be on the new development will be house sparrows.

Provided manure landspreading is limited to existing (already disturbed) croplands and application practices avoid increased nutrient loading to surface waters (see later discussion in this section), no serious threat to sensitive resources in the vicinity would be expected. Therefore, long-term significant impacts on terrestrial animals and vegetation are not expected.

17. Cultural

a. Land Use (include indirect and secondary impacts)

A primary long-term physical impact associated with the operation is odor. Odors, especially in the immediate area, could be objectionable during certain periods of the year. Odors from the operation, especially during agitation of the manure contained in the storage facility in preparation for landspreading activities are unavoidable impacts. Hauling during the spring prior to planting and in the fall will minimize odor. These will be short-term duration problems that are the result of accepted farming practices. The dairy manure in the pit will form a crust on its surface that can seal in odor during most of the year and further control the problem. The manure storage facility and housing facilities are located in an open area where predominant breezes will disperse the odor. The nearest house is the owner's that is over 800 feet from the manure storage facility.

There may be adverse indirect impacts associated with the proposed operation related to non-agricultural uses of lands in the area. Land values of residential uses may be decrease within areas zoned as agricultural due to concerns, real or perceived, associated with the operation (increased traffic, odors, etc.). It is difficult to assess the extent or existence of such impacts and these impacts are beyond the regulatory authority of the Department.

b. Social/Economic (include ethnic and cultural groups, and zoning if applicable)

This site is zoned agriculture and the project is consistent with this use. Barron County has already issued the Knutsons zoning permits to proceed.

The proposed operation will also have beneficial indirect effects. The area's economy will benefit from new jobs associated with the operation and an increase in the area's tax base. It is anticipated that the operation will employ about 10 local residents. It is also estimated that $2.0 million dollars will enter the local economy annually as a result of added employment opportunities and business such as the operation's purchase of feed from local farmers.

Public controversy always develops over issues of large corporate farms out competing smaller traditional family farms and, in some cases, forcing the family out of business. The Knutsons are a family farm operation that has been farming at this site for many years. They do not have any corporation ownership. The Knutsons need to get larger to remain competitive and use all their existing resources more efficiently so their family can continue to economically prosper.

c. Archaeological/Historical

The Knut Sons, Inc. operation will impact no archaeological or historical resources or sites. The historical cemetery is one eighth of a mile north of the farmstead and it will not be affected in any manner by this project.

18. Other Special Resources (e.g., State Natural Areas, prime agricultural lands)

No other special resources are known.

2. Summary of Adverse Impacts That Cannot Be Avoided (more fully discussed in 15 through 18)

The following impacts are expected and can not be avoided:

- There will be more buildings and farming activity where before there was only cropland.
- There will be short-term construction related noise and dust until the site work is done. There will be more truck and agricultural equipment traffic because the operation has expanded.
- 6.5 acres of cropland will be removed from production but converted into milk production at the site.
- There will be more inputs including feed, energy, and water that are a necessary part of this operation. Up to 65,000 gallons of water will be withdrawn from a high capacity well.
- More stormwater will be generated on the site from the roofs and paved surfaces.
- There will be a very large increase in manure production. Manure will need to be stored, hauled, and spread on cropland in accordance with the approved Manure Management Plan. This plan will protect surface water from nutrients running off and entering surface waters. The primary methods are to immediately incorporate all manure on land application to keep the phosphorus in the soil and to maintain adequate buffer strips.
- There will be additional odor from the animals and manure storage that is consistent with accepted farming practices.

ALTERNATIVES (no action - enlarge - reduce - modify - other locations and/or methods)

203. Identify, describe and discuss feasible alternatives to the proposed action and their impacts. Give particular attention to alternatives that might avoid some or all-adverse environmental effects.

No Action: If the operation had not been constructed or expanded to the current size, the adverse consequences could have been avoided but the economic benefits would not have been realized. These economic benefits include a substantial addition to the local tax base, the creation of new jobs and the additional purchases of goods and services in the local community. The permit is being issued to insure the environmentally sound management of the business. The Knutsons are a family farm operation and have been part of the local agricultural community for years. They are seeking this expansion to remain economically viable for future generations.

Reduced Size of Operation: The economy for the dairy industry is creating a trend toward larger dairy businesses. The current operation and proposed expansion has been designed to take advantage of economies of scale and lead to greater long – term viability of the business. The expansion of the operation allows for the construction of a better long – term manure storage system. These systems are expensive and require more cows to be milked to pay for them. Reducing the size of the farm is not economically viable.

Alternate Location: The farm takes advantage of using the considerable agriculture operation that now exists at this site. They need these existing facilities for raising replacement cows. Locating at a different site would require the need to replace all these existing facilities at a tremendous cost. There is no evidence that locating the operation at a new site would change the environmental impact of the business.

EVALUATION OF EXISTING FACILITIES

The Department's alternatives when evaluating existing runoff control and/or manure storage facilities either as part of processing a permit or the permit itself are:

- Determine that the facilities meet current standards and require no further action on behalf of the operation.
- Determine that the facilities do not meet current standards and allow the operation the option of abandoning the structure, upgrading the facility, replacing the structure or require long-term groundwater monitoring around the structure (with possible future upgrades depending on the results of the monitoring).

The selected alternative will be based on the information collected as part of this environmental assessment and further Department review.

REVIEW OF NEW FACILITIES

The Department's alternatives for review of proposed runoff control and/or manure storage facilities either as part of processing a permit or the permits itself are:

- Deny the plans and specifications for the design of the proposed facilities based on water quality concerns and require resubmittal of plans and specifications.
- Approve the plans and specifications for the design of the proposed facilities without conditions.
- Approve the plans and specifications for the design of the proposed facilities, but with conditions requiring additional components to the facilities' design or operation based on water quality concerns.

The selected alternative will be based on the information collected as part of this environmental assessment and further Department review.

WPDES PERMIT

Within the constraints of the Department's existing permitting authority for concentrated animal feeding operations (CAFO's), the Department has limited alternatives to the issuance of a WPDES permit for the operation. Based on the information available to the Department, the Department cannot justify denial of the WPDES permit for the operation since it is expected that the operation will be able to comply with the conditions of the permit and not cause an exceedance of water quality standards. The Department could require more stringent conditions in the permit if it determined the conditions were necessary to protect water quality. The Department will use the information collected as part of the environmental assessment as well as part of the public comment period associated with the issuance process of a WPDES permit to makes its final determination on issuance of the permit and to determine if additional restrictions in the permit are necessary.

EVALUATION OF PROJECT SIGNIFICANCE (Complete each item)

21. Significance of Environmental Effects

a. Would the proposed project or related activities substantially change the quality of the environment (physical, biological, socio-economic)? Explain.

The site will not be significantly changed in terms of the type of land use as a result of the proposed operation; the site will remain in agriculture land use. Although 6.5 acres will be lost to the local wildlife, this is not considered a significant change because the wildlife can continue to exist in adjacent parts of the farm where their habitat will continue to exist. The will be beneficial effects on the area's economy as new jobs are generated and the area's tax base will increase. Over $2 million dollars will enter the local economy annually.

b. Discuss the significance of short-term and long-term environmental effects of the proposed project including secondary effects; particularly to geographically scarce resources such as historic or cultural resources, scenic

and recreational resources, prime agricultural lands, threatened or endangered species or ecologically sensitive areas. (The reversibility of an action affects the extent or degree of impact)

No historical or cultural resources have been identified that could be impacted. There have been no threatened or endangered species identified that might be affected. The proposed expansion site was previously used for agricultural purposes and will remain under agricultural use.

A potential effect from the expansion project is the generation of an increase of odor from the facility. However, problems with this increase in odor are not expected to be a significant issue, due to the fact the surrounding area is predominantly a rural farming community and that some odor is present from the existing operation. The Department has an interim policy on handling odor complaints according to s. NR 429.03, Wis. Admin. Code, which addresses "Malodorous Emissions". The Department will handle any odor complaints on a case by case basis and review whether best management practices are being properly utilized.

The potential for long-term environmental effects to the groundwater and surface water from improperly applied manure exists if the permittee does not comply with conditions of the WPDES permit. These environmental effects are not anticipated because the Department has the authority to enforce all the permit requirements.

22. Significance of Cumulative Effects.

Discuss the significance of reasonably anticipated cumulative effects on the environment. Consider cumulative effects from repeated projects of the same type. What is the likelihood that similar projects would be repeated? Would the cumulative effects be more severe or substantially change the quality of the environment? Include other activities planned or proposed in the area that would compound effects on the environment.

There is a trend in the livestock industry towards larger-scale facilities of this kind. Large-scale operations have rapidly become an economic necessity due to changing pricing structures and the need to reduce capital inputs while maximizing production. Economies of scale associated with concentrated animal feeding operations (CAFO's) have allowed producers to increase production without increasing costs. If numerous projects of this type are proposed in this area there is a concern that the land base available for landspreading manure could be overwhelmed and would make a number of such projects nonviable, primarily with respect to costs associated with hauling manure long distances for landspreading. The Department is not aware of additional projects of this type in such a vicinity that the land base would be compromised.

Any future projects will be examined at the appropriate time. With each new operation or expansion proposed, cumulative effects such as impacts from manure landspreading activities are considered. Unless these facilities are poorly sited or concentrated in a small area, the cumulative impacts to the environment should not be significant.

23. Significance of Risk

a. Explain the significance of any unknowns that create substantial uncertainty in predicting effects on the quality of the environment. What additional studies or analyses would eliminate or reduce these unknowns? Explain why these studies were not done.

The proposed manure storage and runoff control facilities at the operation will be built in accordance with currently accepted standards to minimize the risks of ground and surface water contamination. Plans and specifications for proposed facilities have been reviewed and will be approved by Department.

Ensuring the manure storage facilities and runoff control systems meet currently accepted standards is intended to address possible adverse impacts to ground and surface waters. Once the permit is issued, the operation will be required to obtain Department approval of all new manure storage and runoff control facilities prior to construction to ensure that the facilities meet current standards.

The operation must comply with its WPDES permit and associated Manure Management Plan. Consequently, the landspreading of manure should not yield any substantial increase in risk to the environment. The Manure Management Plan

will include acres that may not have previously been managed in accordance with a nutrient management plan, which could mean environmental benefits compared to existing manure application practices.

The nutrient content of manure temporarily stored in the storage facility may vary. Unidentified variations in nutrient content may result in over-application of nutrients (nitrogen in particular) that could impact groundwater. The WPDES permit issued to this operation will require manure and soil testing to ensure this does not occur.

The high capacity well will result in more groundwater being withdrawn from the aquifer in which the well is developed. It is impossible to state with certainty how this will affect other private wells in the area. Fortunately, groundwater is readily available to any landowner who constructs a well in this area and well yields are substantial. Further, the high capacity well will be far enough away from other existing private wells. Therefore, the impact of the well should not be significant.

b. Explain the environmental significance of reasonably anticipated operating problems such as malfunctions, spills, fires, or other hazards (particularly those relating to health or safety). Consider reasonable detection and emergency response, and discuss the potential for these hazards.

Possible operating problems that could impact the environment include failure of manure handling and storage facilities or poor manure land application practices that lead to nutrient runoff to surface waters or leaching of nutrients to groundwater.

Any leakage from the manure storage facility would have the long-term impact of contaminating groundwater with ammonia and other nitrogen compounds. The liner must be kept intact to prevent any leakage. The operators must be extremely careful of not tearing or damaging liner during manure haul out. Equipment to remove manure can only be operated on the machinery pads specifically designed for this purpose. The storage facility has an exposed 60 mil thick polyethylene liner which will be completely visible every time the pit is emptied. The Knutsons will be able to see if there is any damage to the liner. Any tears or breaks can be fixed immediately at that time with replacement patches. The 18 inch clay liner under the plastic liner also provides a back-up measure of safety against leakage.

Manure spills are always a concern. There could be accidents where the manure hauling tank tips over or is ruptured. Any leaks in the tank will be easily observed and corrective action can be taken. Any spill during hauling is limited to the tank's 3,000 gallon volume which is relatively small and can be cleaned up with absorbent material such as sand or straw and field spread. Even spills into road ditches can be cleaned up by digging out the manure soil and land spreading it.

The over application of manure on to farmland can cause nutrients to build up in the soil to some point where groundwater could become contaminated through leaching. The Knutsons have a manure management plan which will have specific application rates for every field. They will follow this to ensure only the required manure nutrients are applied. These recommendations are always updated annually and the fields are soil tested on a regular basis so any nutrient build up in the soil will be observed and application rates can be adjusted to correct the problem. They intend to inject all the manure, depositing it below the soil surface in the plant root zone. Burying the manure in the soil minimizes the chance of any runoff from rain.

The Knutsons will build a fence around storage facilities will minimize the risk of people or animals falling into the pond.

Manure will be landspread in accordance with a Department approved Manure Management Plan, which will does not allow poor land application practices; thus, operating practices should have minimal impacts on the environment.

24. Significance of Precedent

a. Would a decision on this proposal influence future decisions or foreclose options that may additionally affect the quality of the environment? Explain the significance.

No. All future projects will be evaluated by their own specific adverse and beneficial impacts. There are other similarly sized dairy operations in Wisconsin. Each individual project is considered separately based on its own merits.

The Department primarily considered issues that fall under our regulatory authority as part of this assessment. The project is not known to conflict with plans or policy of local, state, or federal agencies. The operation will need to apply for and

receive the appropriate approvals from all involved agencies prior to operating. Permitting this operation would not foreclose future options for taking necessary actions to protect the environment (i.e., revocation, modification of the permit). In actuality, through enforcement of the WPDES permit, the Department has a means to avoid or address possible environmental impacts associated with the operation.

b. Describe any conflicts the proposal has with plans or policy of local, state or federal agencies that provide for the protection of the environment. Explain the significance.

No conflicts are known.

25. Discuss the effects on the quality of the environment, including socio-economic effects, that are (or are likely to be) highly controversial, and summarize the controversy.

There is the possibility that public controversy may be generated as a result of the permitting of this operation. State and area citizens may express concerns about the environment such as possible air and water quantity/quality issues. The Department has some authority to address odor complaints should they arise. The Department is starting a process to study and address odor and air toxic issues from livestock operations on a statewide basis. This study is expected to develop standards and voluntary best management practices to reduce or minimize potential problems from concentrated animal feeding operations (CAFO's). Water quantity issues are addressed to a certain extent if the operation is required to obtain a high capacity well permit. However, neither of these issues is addressed by the issuance of the WPDES permit, which is strictly intended to address the water quality concerns.

There may also be socio-economic concerns such as animal treatment issues, the trend towards large-scale farming in the state, impacts larger-scale farming may have on the viability of smaller operations and concerns of smaller operations and non-farming rural inhabitants regarding changes in the agricultural landscape associated with CAFO's. The socio-economic issues are difficult to quantify and there is significant disagreement as to the validity of these concerns. These socio-economic issues are beyond the scope of the WPDES permit and the Department's overall regulatory authority.

26. Explain other factors that should be considered in determining the significance of the proposal.

No other factors are being considered at this time.

SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES

27. Summarize citizen and agency involvement activities (completed and proposed).

- Peter DeJardin – Barron County Land Conservation Department – manure storage facility design, nutrient management, phosphorus strategy
- Gregory Knutson – Co -Owner Knut Sons, Inc., submittal of permit application materials, agriculture operation planning
- Susan Scobell Watson – DNR WPDES Permit Coordinator -NOR Rhinelander, WPDES draft permit
- Victoria Dirst – DNR Archaeologist, site check
- Dan Harrington – DNR Water Management Specialist – Cumberland, need for Chapter 30 permit(s)
- Rick Cornelius – DNR Fisheries Manager – Barron, aquatic resources
- Dave Gifford – Barron County Zoning Office – Barron, special use permit, manure storage facility permit
- John Dague – DNR Air Management Engineer – Cumberland, air management permits and odor control
- Dave Heath – DNR NOR Rhinelander, endangered, threatened, or special concern species check
- Kevin Morgan – DNR Wildlife Manager – Barron, impacts on wildlife

The proposed WPDES permit for the operation will be public noticed for comments as part of the permit issuance process. In addition, an informational hearing will be held on the proposed WPDES permit to receive additional comments.

Project Name _____ County _____

DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code, the Department is authorized and required to determine whether it has complied with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

28. Complete either A or B below.

A. EIS Process Not Required . . . . . [X]

Analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion therefore, an environmental impact statement is not required prior to final action by the Department on this project.

B. Major Action Requiring the Full EIS Process. . . . . [ ]

The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

_____ _____

Signature of Evaluator Date Signed

_____ _____

Noted: Regional Director or Basin Water Leader Date Signed

Copy of news release or other notice attached? [ ] Yes [ ] No

Number of responses to public notice

Public response log attached? [ ] Yes [ ] No

CERTIFIED TO BE IN COMPLIANCE WITH WEPA

_____ _____

Regional Director or Director of ISS (or designee) Date Signed

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

Note: Not all Department decisions respecting environmental impact, such as those involving solid waste or hazardous waste facilities under sections 144.43 to 144.47 and 144.60 to 144.74, Stats., are subject to the contested case hearing provisions of section 227.42, Stats.

This notice is provided pursuant to section 227.48(2), Stats.

c:\wpdes\barron\knutson draft ea.doc