

SNYDAR FARMS LLC

MANURE POLLUTION PREVENTION PLAN

GENERAL SITE INFORMATION - BENCHMARK

Summary and General Description of Operation

Snydar Farms LLC is a heifer rearing and custom field work and harvesting business. It has one facility located at 1956 Hampton Road, Everson, WA in the Kamm creek Watershed, Section 23, Township 40N, Range 3E in Whatcom County, WA, The farm has 152 farmed acres and is used for rearing 400 dairy replacement stock of all ages from new born calves in hutches to in-calf heifers housed in freestall barns. Although the operation consists of approximately 152 farmed acres, after subtracting the CAFO Buffers on streams and ditches, there are only 136 acres on which manure can be applied.

FACILITIES AND MANURE/WASTE HANDLING INVENTORY - BENCHMARK

Animal Inventory

As of November 2017, the dairy animal inventory was:

Animal Type	F1 Animal #s	Avg Weight (lbs)
Milking cows		
Dry cows		
Heifers (12-24 months)	200	900
Heifers (0-12 months)	200	300
<i>Total Animal Units</i>	<i>240</i>	

Note: Some flux in animal numbers is expected throughout the year.

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Facility Inventory and Description

Location	Confinement Type	Confinement % of time	Grazing	Milking Facility	Slab Area Collected, ft ²	Roof Area Collected, ft ²	Other Area Collected, ft ²
F1	Free stall	Winter – Freestall 100% Summer – Access to open lot 50%, Freestall 50%	No	No	30,700	13,300	2,930

Waste Collection and Treatment Options Available

Location	Collection Method	Liquid Pit	Sand Lane	Bedding Maker	Compost
F2	Scraper	X			

Dry Manure and Waste Storage

Most of the manure is stored in the waste storage tank, there is no separation of solids from the manure. Manure from Calf hutches and very dry manure in the summer months is handled as a solid and does not enter the liquid storage system. The small amount of manure is stored on concrete adjacent to the stall barn, runoff from this area is directed to manure storage.

Silage and Feedstuff Storage

Grass and corn silage are stored in bunkers at the farmstead. Leachate is collected and enters the waste storage system.

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Liquid Manure and Waste Storage System

Proper nutrient management requires agronomic application of manure during appropriate periods when plants have increased nutrient needs and uptake. In the interim, waste must be stored when conditions are not appropriate for application.

The system is planned to manage liquid and solid waste generated by the dairy in a manner that prevents degradation of water and protects public health and safety. The system is also planned to preclude discharge of pollutants to surface water from any storm smaller than a 25-year 24-hour storm event, to prevent ground water contamination, and to recycle the nutrients produced through soil and crops to the fullest extent possible.

Total volumes (gallons/year) collected for each area listed:

Location	*Liquid Manure	Milk Parlor	Contaminated Precipitation (Slab Water)	Storage Tank Surface Water	Silage Leachate	Total
F1	670,400		918,495	227,118		
Lots			416,640			

**All values are in gallons.*

Total Annual Production: 2,686,034 gallons

Inventory of waste storage ponds (WSP):

Location	ID/Name	Storage Type	Net Storage Volume (gal)	Source of Manure Inputs
F1	Home 1	Earthen pond (decommissioned 2017)	1,567,219	F1
F1	Home 2	Above ground tank (installed 2017)	1,634,347	F1
<i>Total net storage:</i>			<i>1,634,347</i>	

Estimated Storage Period

The dairy Waste Plan Spreadsheets indicate that when the waste storage ponds are emptied in the fall as scheduled, they will have adequate capacity to store manure, runoff, wash water, and precipitation from a 25-year, 24-hour storm event for at least 7 months. This estimate of storage capacity assumes that rainfall during the storage period is close to the area's 60-year average.

Designs have been drawn up and construction of a 1.8 Million gallon above ground steel tank (net 1.6M) is planned for late 2017 at F1. This is intended to replace the 1.5 million gallon waste storage pond.

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Runoff Control and Clean Water Inventory

In order to minimize the collection of clean water, runoff from barn roofs, driveways, and access roads should be diverted through grass areas or ditches as appropriate. Runoff from manured slab areas is collected by slope, curbing and manure conveyance systems at all farmsteads.

Treatment Area	Silage Leachate	Driveway, Parking, High Traffic Areas	Manure Drystack/Storage	Roof	Other
Collected in waste storage system	X		X		
Enters drains for discharge to surface water		X		X	
Enters grass field		X			

Runoff. Runoff from the driveways around the farmstead runs to the ditch or adjacent grass areas. Runoff from other non-manure areas and silage bunkers is collected in a tank from where it is transferred to the adjacent waste storage tank. If corn or grass are ensiled so wet that leachate is produced, the leachate will be caught and stored with the other slab runoff.

Roof water. Roof water is collected by gutters and routed via down spouts and underground pipes routed to a ditch. The waste storage volume and waste application schedule should be reevaluated if additional water is added to the system.

OPERATIONS AND MAINTENANCE

Routine Visual inspections

The following table will be used to dictate inspection frequencies. All inspections will be recorded

Inspection	Frequency
Clean and wastewater lines	Daily
Clean Water diversions (eg roof gutters)	Weekly
Storage tank and Waste Handling Infrastructure	Weekly
Field Discharge prevention	Monthly

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CHEMICAL HANDLING

All crop protection chemicals such as herbicides are field applied by custom applicators employed by the agronomy company who also supply the chemicals on the day of application therefore no chemicals are stored on the farm and no empty containers are left on the farm for disposal.

Chemicals on the farm are therefore limited to the soaps and detergents needed to clean the facility and the animal health chemicals. These are stored in the buildings on concrete floors which drain to the manure storage where they are diluted and broken down sufficiently for disposal on the cropland with the manure.

NORMAL MORTALITY MANAGEMENT

According to WAC 16-25-025 and WAC 246-203-121, disposal of animal mortalities is required within 72 hours after death or discovery.

Mortalities are collected within 72 hours of death by a rendering company.

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LAND TREATMENT INVENTORY - BENCHMARK

Surface Waters

See Farm Plan Maps for more detail.

Location (Field)	Waterbody	Fish Habitat Conservation Area		Frequently Flooded Areas Present
		(HCA) ¹	Salmonid Fish Presence ²	
1, 3a, 4ab, 6ab	Field ditch	1c	No	Yes
3, 4ab, 5	Mormon ditch and Kamm creek tributary	1b	Known Salmonid Fish Presence	Yes

¹**Habitat Conservation Area (HCA)** is the designation of fish and/or wildlife critical areas. For fish, the HCA denotes fish presence and stream type: HCA 1a = shoreline streams (CAO 150 ft buffer); HCA 1b = fish bearing streams (CAO 100 ft buffer); HCA 1c = no salmonid fish presence in stream (CAO 50 ft buffer). Wildlife designations are listed when observed. NA = HCA designation is non-applicable.

²**Salmonid Fish Presence** = Denotes the presence and distribution status of salmonid species found in the waters associated with the farm. NA = designation is non-applicable.

Wetlands

Location (field)		Food Security Act (FSA) Manual Determination ²			Critical Aquifer Recharge Area
	Determination ³	WCO	FSA ⁴	In Field by NRCS	Susceptibility
1	ND	No	ND	2000	Low/Medium
2, 3	NW	No	NW	2000	High
4a, 5	PC	No	PC		Medium/High
4b	ND	No	ND		Medium/High
6a, b	ND	No	ND		Low

¹**WCO = Whatcom County Overlay** notes the presence of wetlands by the National Wetlands Inventory and other sources conducted by analysis of high altitude aerial photographs (see Heading III, Maps).

²A wetland determination should be made by NRCS before undertaking all draining, filling, clearing or land leveling on agricultural lands.

³**FSA = Food Security Act Manual Determination.** ND= No Determination by NRCS or the only determination on record predates 1996 when rules were revised; PC = Prior Converted; NW = No wetlands; PT = Due to the presence or potential presence of hydric soils in the identified field, the potential exists that wetlands may also be present.

⁴No longer considered valid determinations.

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Soils Information and Limitations

The farm fields contain a mix of soil types (*see soils Map*). It is important to understand the limitations of each of these soil types in order to best manage manure applications and crop needs. All parameters and limitations associated with the soil types located in the fields are outlined in Soil Data Mart sheets and ARM Field Risk Analysis in the Nutrient Management Plan.

NUTRIENT MANAGEMENT INVENTORY – BENCHMARK

Farm Nutrient Balance

The table below shows a summary of the farm balance based on best estimates of the manure and crop nutrient values as well as the animal unit and crop acre numbers listed in this Inventory. This inventory excludes the CAFO 35ft and 100ft buffers from the calculated crop areas (*Note: This is a summary of the more in depth calculations of the NRCS WSP sheets. attached*)

Measure	N (lbs.)	P (lbs.)	K (lbs.)
Nutrients Available From All Sources ¹	21,893	3,008	8,339
Nutrients Required to Meet Crop Needs ²	36,208	5,447	28,923
Excess (Deficient) Nutrients	(14,315)	(2,440)	(20,584)
Percent of Nutrients Available to Meet Crop Needs:	60%	55%	29%

¹Nutrients available are the nutrients supplied by cattle manure and nutrients available in the soil profile.

²The nutrients required to meet crop needs are the nutrients that should be supplied by yearly manure/fertilizer application to meet current crop yields.

Crop Rotation and Field Inventory

Crop	Acres (on which manure can be applied)	Field ID	Estimated Yield (tons/ac)	Irrigated*	Rotation
Grass – high production	68.7	2, 4	6	Yes	Y
Grass – medium production	25.2	1, 5S	5	Yes	Y
Grass – low production	37	3, 6	4 ½	Yes	N
Corn with Cover crop	4.7	5N	23	No	Y

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*Fields on the north side of the E Wiser Lk Rd have interruptible surface water rights. The grass fields are irrigated in the summer months when allowed.

Corn crops generally have a ryegrass relay crop planted between the rows in mid-season to ensure soil is not bare over the winter. Where this is not established, a small grain cover crop will be planted.

See the Nutrient Management spreadsheets for more detailed information on current nutrient requirements, yields, and application rates and timing for crops.

More specific annual Field Nutrient Budgets will be produced each spring in advance of manure applications to the cropland in accordance with the CAFO permit.

Manure Imports and Exports

Activity	Liquid Manure	Solid Manure	Separated Solids	Manure Solids - Bedding	Digestate ¹	Organic Waste ²
Imports						
Manure - Imports	-	-	-	1000 ft ³	-	-
Other Nutrient - Imports	-	-	-	-	-	-
Exports						
Manure – Exports³	-	-	-	-	-	-
Other Nutrient - Exports	-	-	-	-	-	-

Application Methods and Equipment

Applicator	Aerator	Injector	Splash-plate	Surface Band	Tank	Big Gun	Solids Spreader	Other
Custom								
Operator			X		X	X	X	

All manure setbacks and restriction dates are followed. Records of application rates and dates are kept.

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SAMPLING, CALIBRATION, AND OTHER STATEMENTS

Manure Testing Frequency

Sampling and Testing regimes will follow CAFO permit guidelines in place at the time of sampling. Representative manure samples will be taken at least three times per year (spring, summer and fall). Manure is applied from more than one waste storage facility and samples are taken from each. Lab tests includes analysis for: total nitrogen, ammonia nitrogen, phosphorus, potassium, and percent solids. Samples are taken before or during manure application.

Soil Testing Frequency

Soil Sampling and Testing regimes will follow prevailing CAFO permit guidelines in place at the time of sampling for areas with more than 25 inches of Precipitation. Soil samples are currently taken in the spring prior to application and in the fall. All samples are taken from the top foot of soil unless sampling is after 30th September when a sample is also taken of the second foot.

Equipment Calibration Method and Frequency

Manure application equipment is calibrated yearly to ensure uniform distribution of material at planned rates.

Application Rates and Restrictions

Crop	Season Dates	Set-Back Distance (ft)	Filter Strip width (ft)	Application Equipment
Grass	Dry: April 16 – Aug 31	35	35	Sprinkler, drag hose, tanker, spreader
	Wet: Sept 1 – April 15	35	35	Sprinkler, drag hose
	Winter: Nov 1 – Feb 28	70	35	No Application
Corn with Cover crop	Dry: April 16 – Aug 31	100	10	Injector
	Wet: Sept 1 – April 15	100	45	No Application
	Winter: Nov 1 – Feb 28	100	45	No Application

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1. The rate and timing of organic nutrient application shall comply with agronomic application guidelines. Nitrogen application rates, above what is specified, shall be based on a soil test documenting the additional N need. When the actual rates used differ from the recommended rates, records will indicate the reasons for the difference.
2. Observe manure application set-backs from streams, ditches and other sensitive areas. Refer to Manure Application Setback Distances in your Dairy Nutrient Management Plan to determine the required setback distance.
3. Completing an Application Risk Management (ARM) worksheet is advised prior to every spring application.
4. Manure application equipment, shall be calibrated to determine actual application rates (gallons, tons, cubic yards or inches applied per acre).
5. Records of manure, fertilizer, and other nutrient applications shall be recorded and maintained for a minimum of 5 years. If manure is exported off-farm, a record of the volumes, dates, and persons or locations receiving manure shall also be kept.
6. Soil tests will be used as the basis for nutrient application. Each field or management unit shall be tested for OM, nitrate-N, ammonium-N, and P (Bray P1). Collection and handling of soil samples shall comply with Cooperative Extension protocols.
7. Annual post-harvest soil nitrate tests shall be taken in the fall in each field according to procedures outlined in the CAFO Permit S4.I.
8. Each source of manure shall be tested according to the CAFO permit conditions S4.H. at least three times annually (spring, summer, fall).
9. Forage testing and determination of crop yield are required where nutrient budgets are beyond the scope of local averages. A minimum test should include: percent moisture, and crude protein for each harvest.
10. All test results shall be maintained with application records.
11. Adaptive Management strategies outlined in the permit will be followed to prevent the excessive build-up of nutrients in the soil.
12. Manure must only be applied between Tsum 200 and October 1st. The only exception to this is on perennial crops or cover crops where a fall soil sample shows the need for additional nutrients. In this situation, a separate nutrient budget must be prepared.
13. No manure should be applied to bare ground unless a crop is due to be planted within the following 30 days. Discharges through overland flow or drain tile must be prevented.
14. Manure shall not be applied on soil that is frozen (to 2" or greater or below 32 degrees F), snow-covered, saturated or with a water table within 12" of the surface, or when precipitation is forecast within 24 hours that would cause a discharge.
15. Irrigation water should be managed to a level lower than the water holding capacity of the top two feet of soil.

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SIGNATORY AND CERTIFICATION

Certification

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Jeff &/or Suzzi Snyder, Snyder Farms LLC

____/____/____
Date