CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION
1685 E STREET
FRESNO CA 93706

2023 ANNUAL REPORT

PREPARED FOR:

FRED THOMMEN DAIRY

53955 W NEES AVE

FIREBAUGH CA 93622

NOTES:

No irrigation or domestic wells exist onsite, therefore no samples are taken; freshwater source for all uses is the Aqueduct

PREPARED BY:

CAS
CARDOSO AG SERVICES

PO BOX 906
NEWMAN CA 95360

Annual Report - General Order No. R5-2007-0035
Reporting period 01/01/2023 to 12/31/2023.

DAIRY FACILITY INFORMATION

A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY: Fred Thommen Dairy

Physical address of dairy:

53955 W Nees AVE	Firebaugh	Fresno	93622
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address):

Date facility was originally placed in operation: 07/07/1985

Regional Water Quality Control Board Basin Plan designation: San Joaquin River Basin

County Assessor Parcel Number(s) for dairy facility:

X005-X120-X30S-XXXX

B. OPERATORS

Thommen, Fred

Operator name: Thommen, Fred

Telephone no.: (209) 364-0077 (Landline) (Cellular)

53955 W Nees AVE	Firebaugh	CA	93622
Mailing Address Number and Street	City	State	Zip Code

This operator is responsible for paying permit fees.

C. OWNERS

Thommen, Fred

Legal owner name: Thommen, Fred

Telephone no.: (209) 364-0077 (Landline) (Cellular)

53955 W Nees AVE	Firebaugh	CA	93622
Mailing Address Number and Street	City	State	Zip Code

This owner is responsible for paying permit fees.

AVAILABLE NUTRIENTS

A. HERD INFORMATION

	Milk Cows	Dry Cows	Bred Heifers (15-24 mo.)	Heifers (7-14 mo. to breeding)	Calves (4-6 mo.)	Calves (0-3 mo.)
Number open confinement	0	0	0	0	0	0
Number under roof	2,000	290	600	600	300	300
Maximum number	2,000	290	600	600	300	300
Average number	2,000	290	600	600	300	300
Avg live weight (lbs)	1,400	1,500	1,100	775		

Predominant milk cow breed: Holstein

Average milk production: 70 *pounds per cow per day*

B. MANURE GENERATED

Total manure excreted by the herd: 69,976.66 *tons per reporting period*

Total nitrogen from manure: 868,225.20 *lbs per reporting period*

After ammonia losses (30% loss applied): 607,757.64 *lbs per reporting period*

Total phosphorus from manure: 141,981.87 *lbs per reporting period*

Total potassium from manure: 383,018.45 *lbs per reporting period*

Total salt from manure: 1,008,385.50 *lbs per reporting period*

C. PROCESS WASTEWATER GENERATED

Process wastewater generated: 33,540,000 *gallons*

Total nitrogen generated: 55,331.23 *lbs*

Total phosphorus generated: 9,992.75 *lbs*

Total potassium generated: 99,009.48 *lbs*

Total salt generated: 632,246.41 *lbs*

	33,540,000	*gallons applied*
+	0	*gallons exported*
-	0	*gallons imported*
=	33,540,000	*gallons generated*

D. FRESH WATER SOURCES

Source Description	Type
Aquaduct	Surface water

E. SUBSURFACE (TILE) DRAINAGE SOURCES

No subsurface (tile) drainage sources entered.

F. NUTRIENT IMPORTS

No dry manure nutrient imports entered.

No process wastewater nutrient imports entered.

No commercial or other nutrient imports entered.

G. NUTRIENT EXPORTS

Date	Material type	Quantity	Reporting basis	Moisture (%)	Density (lbs/cu ft)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
04/01/2023	Corral solids	12,300.00 *ton*	Dry-weight	12.6		22,200.00	7,090.00	36,100.00		0.00

No liquid nutrient exports entered.

Material type	Total N (lbs)	Total P (lbs)	Total K (lbs)	Total salt (lbs)
Dry manure	477,308.88	152,437.84	776,164.44	0.00
Process wastewater	0.00	0.00	0.00	0.00
Total exports for all materials	477,308.88	152,437.84	776,164.44	0.00

APPLICATION AREA

A. LIST OF LAND APPLICATION AREAS

Field name	Controlled acres	Cropable acres	Total harvests	Type of waste applied	Parcel number
Field 1	17	16	2	process wastewater	X005-X120-X30S-XXXX
Field 2	40	35	2	process wastewater	X005-X120-X30S-XXXX
Field 3	60	60	2	process wastewater	X005-X120-X30S-XXXX
Field 4	46	42	2	process wastewater	X005-X120-X30S-XXXX
Totals for areas that were used for application	163	153	8		
Totals for areas that were not used for application					
Land application area totals	163	153	8		

B. CROPS AND HARVESTS

Field 1

Field name: Field 1

11/24/2022: Wheat, silage, soft dough

Crop: Wheat, silage, soft dough Acres planted: 16 Plant date: 11/24/2022

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
05/23/2023	208.00 *ton*	Dry-weight		58.2	20,100.00	2,610.00	19,800.00		12.50

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	18.00	198.00	30.60	149.40	0.00
Total actual harvest content	13.00	218.45	28.37	215.19	1,358.50

06/01/2023: Sudangrass, silage

Crop: Sudangrass, silage Acres planted: 16 Plant date: 06/01/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
09/29/2023	192.00 *ton*	Dry-weight		70.0	23,300.00	3,630.00	32,700.00		12.60

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	8.00	88.00	13.60	96.00	0.00
Total actual harvest content	12.00	167.76	26.14	235.44	907.20

Field 2

Field name: Field 2

11/25/2022: Wheat, silage, soft dough

Crop: Wheat, silage, soft dough Acres planted: 35 Plant date: 11/25/2022

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
05/23/2023	472.50 *ton*	Dry-weight		59.6	15,700.00	2,720.00	19,100.00		11.50

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	18.00	198.00	30.60	149.40	0.00
Total actual harvest content	13.50	171.26	29.67	208.34	1,254.42

06/01/2023: Sudangrass, silage

Crop: Sudangrass, silage Acres planted: 35 Plant date: 06/01/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
09/29/2023	420.00 *ton*	Dry-weight		70.0	13,100.00	2,880.00	24,400.00		15.30

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	8.00	88.00	13.60	96.00	0.00
Total actual harvest content	12.00	94.32	20.74	175.68	1,101.60

Field 3

Field name: Field 3

11/25/2022: Wheat, silage, soft dough

Crop: Wheat, silage, soft dough Acres planted: 60 Plant date: 11/25/2022

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
05/23/2023	780.00 *ton*	Dry-weight		64.8	18,800.00	5,020.00	43,600.00		18.20

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	18.00	198.00	30.60	149.40	0.00
Total actual harvest content	13.00	172.06	45.94	399.03	1,665.66

Field 3

06/01/2023: Sudangrass, silage

Crop: Sudangrass, silage Acres planted: 60 Plant date: 06/01/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
09/29/2023	720.00 *ton*	Dry-weight		70.0	9,700.00	1,450.00	20,200.00		13.60

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	8.00	88.00	13.60	96.00	0.00
Total actual harvest content	12.00	69.84	10.44	145.44	979.20

Field 4

Field name: Field 4

11/25/2022: Wheat, silage, soft dough

Crop: Wheat, silage, soft dough Acres planted: 42 Plant date: 11/25/2022

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
05/23/2023	588.00 *ton*	Dry-weight		63.4	20,100.00	4,150.00	21,100.00		15.60

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	18.00	198.00	30.60	149.40	0.00
Total actual harvest content	14.00	205.98	42.53	216.23	1,598.69

06/01/2023: Sudangrass, silage

Crop: Sudangrass, silage Acres planted: 42 Plant date: 06/01/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
09/29/2023	504.00 *ton*	Dry-weight		70.0	24,300.00	5,480.00	46,300.00		21.00

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	8.00	88.00	13.60	96.00	0.00
Total actual harvest content	12.00	174.96	39.46	333.36	1,512.00

NUTRIENT BUDGET

A. LAND APPLICATIONS

Field 1 - 11/24/2022: Wheat, silage, soft dough

Field name: Field 1

Crop: Wheat, silage, soft dough Plant date: 11/24/2022

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
12/01/2022	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	72.37	14.24	105.23	2,706.91	750,000.00 *gal*
Aquaduct	Surface water	0.70	0.00	0.00	0.00	2,700,000.00 *gal*
Application event totals		73.07	14.24	105.23	2,706.91	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
02/01/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	85.28	10.87	83.32	399.00	750,000.00 *gal*
Aquaduct	Surface water	0.70	0.00	0.00	0.00	2,700,000.00 *gal*
Application event totals		85.98	10.87	83.32	399.00	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
03/01/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	85.28	10.87	83.32	399.00	750,000.00 *gal*
Aquaduct	Surface water	0.70	0.00	0.00	0.00	2,700,000.00 *gal*
Application event totals		85.98	10.87	83.32	399.00	

Field 1 - 06/01/2023: Sudangrass, silage

Field name: Field 1

Crop: Sudangrass, silage Plant date: 06/01/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following

Field 1 - 06/01/2023: Sudangrass, silage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
06/05/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	42.83	20.01	331.52	346.19	562,500.00 *gal*
Aquaduct	Surface water	0.68	0.00	0.00	0.00	2,600,000.00 *gal*
Application event totals		43.51	20.01	331.52	346.19	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
07/22/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	57.50	10.30	100.63	334.45	562,500.00 *gal*
Aquaduct	Surface water	0.68	0.00	0.00	0.00	2,600,000.00 *gal*
Application event totals		58.18	10.30	100.63	334.45	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
08/20/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	57.50	10.30	100.63	334.45	562,500.00 *gal*
Aquaduct	Surface water	0.68	0.00	0.00	0.00	2,600,000.00 *gal*
Application event totals		58.18	10.30	100.63	334.45	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
09/03/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	57.50	10.30	100.63	334.45	562,500.00 *gal*
Aquaduct	Surface water	0.68	0.00	0.00	0.00	2,600,000.00 *gal*
Application event totals		58.18	10.30	100.63	334.45	

Field 2 - 11/25/2022: Wheat, silage, soft dough

Field name: Field 2

Crop: Wheat, silage, soft dough Plant date: 11/25/2022

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following

Field 2 - 11/25/2022: Wheat, silage, soft dough

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
12/01/2022	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	66.16	13.02	96.21	2,474.89	1,500,000.00 *gal*
Aquaduct	Surface water	0.67	0.00	0.00	0.00	5,600,000.00 *gal*
Application event totals		66.83	13.02	96.21	2,474.89	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
02/01/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	77.97	9.94	76.18	364.80	1,500,000.00 *gal*
Aquaduct	Surface water	0.67	0.00	0.00	0.00	5,600,000.00 *gal*
Application event totals		78.63	9.94	76.18	364.80	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
03/01/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	77.97	9.94	76.18	364.80	1,500,000.00 *gal*
Aquaduct	Surface water	0.67	0.00	0.00	0.00	5,600,000.00 *gal*
Application event totals		78.63	9.94	76.18	364.80	

Field 2 - 06/01/2023: Sudangrass, silage

Field name: Field 2

Crop: Sudangrass, silage Plant date: 06/01/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
06/05/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	17.75	8.29	137.41	143.49	510,000.00 *gal*
Aquaduct	Surface water	0.67	0.00	0.00	0.00	5,600,000.00 *gal*
Application event totals		18.42	8.29	137.41	143.49	

Field 2 - 06/01/2023: Sudangrass, silage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
07/23/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	23.83	4.27	41.71	138.62	510,000.00 *gal*
Aquaduct	Surface water	0.67	0.00	0.00	0.00	5,600,000.00 *gal*
Application event totals		24.50	4.27	41.71	138.62	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
08/13/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	23.83	4.27	41.71	138.62	510,000.00 *gal*
Aquaduct	Surface water	0.67	0.00	0.00	0.00	5,600,000.00 *gal*
Application event totals		24.50	4.27	41.71	138.62	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
09/02/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	23.83	4.27	41.71	138.62	510,000.00 *gal*
Aquaduct	Surface water	0.67	0.00	0.00	0.00	5,600,000.00 *gal*
Application event totals		24.50	4.27	41.71	138.62	

Field 3 - 11/25/2022: Wheat, silage, soft dough

Field name: Field 3

Crop: Wheat, silage, soft dough Plant date: 11/25/2022

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
12/04/2022	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	64.33	12.66	93.53	2,406.14	2,500,000.00 *gal*
Aquaduct	Surface water	0.63	0.00	0.00	0.00	9,000,000.00 *gal*
Application event totals		64.95	12.66	93.53	2,406.14	

Field 3 - 11/25/2022: Wheat, silage, soft dough

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
02/01/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	75.80	9.67	74.06	354.66	2,500,000.00 *gal*
Aquaduct	Surface water	0.63	0.00	0.00	0.00	9,000,000.00 *gal*
Application event totals		76.43	9.67	74.06	354.66	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
03/01/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	75.80	9.67	74.06	354.66	2,500,000.00 *gal*
Aquaduct	Surface water	0.63	0.00	0.00	0.00	9,000,000.00 *gal*
Application event totals		76.43	9.67	74.06	354.66	

Field 3 - 06/01/2023: Sudangrass, silage

Field name: Field 3

Crop: Sudangrass, silage Plant date: 06/01/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
06/05/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	15.23	7.11	117.87	123.09	750,000.00 *gal*
Aquaduct	Surface water	0.63	0.00	0.00	0.00	9,000,000.00 *gal*
Application event totals		15.86	7.11	117.87	123.09	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
07/23/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	20.45	3.66	35.78	118.92	750,000.00 *gal*
Aquaduct	Surface water	0.63	0.00	0.00	0.00	9,000,000.00 *gal*
Application event totals		21.07	3.66	35.78	118.92	

Field 3 - 06/01/2023: Sudangrass, silage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
08/13/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	20.45	3.66	35.78	118.92	750,000.00 *gal*
Aquaduct	Surface water	0.63	0.00	0.00	0.00	9,000,000.00 *gal*
Application event totals		21.07	3.66	35.78	118.92	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
09/02/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	20.45	3.66	35.78	118.92	750,000.00 *gal*
Aquaduct	Surface water	0.63	0.00	0.00	0.00	9,000,000.00 *gal*
Application event totals		21.07	3.66	35.78	118.92	

Field 4 - 11/25/2022: Wheat, silage, soft dough

Field name: Field 4

Crop: Wheat, silage, soft dough Plant date: 11/25/2022

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
12/05/2022	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	73.52	14.46	106.90	2,749.88	2,000,000.00 *gal*
Aquaduct	Surface water	0.84	0.00	0.00	0.00	8,500,000.00 *gal*
Application event totals		74.36	14.46	106.90	2,749.88	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
01/01/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	86.63	11.05	84.64	405.33	2,000,000.00 *gal*
Aquaduct	Surface water	0.84	0.00	0.00	0.00	8,500,000.00 *gal*
Application event totals		87.47	11.05	84.64	405.33	

Field 4 - 11/25/2022: Wheat, silage, soft dough

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
02/01/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	86.63	11.05	84.64	405.33	2,000,000.00 *gal*
Aquaduct	Surface water	0.84	0.00	0.00	0.00	8,500,000.00 *gal*
Application event totals		87.47	11.05	84.64	405.33	

Field 4 - 06/01/2023: Sudangrass, silage

Field name: Field 4

Crop: Sudangrass, silage Plant date: 06/01/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
06/04/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	43.51	20.33	336.78	351.68	1,500,000.00 *gal*
Aquaduct	Surface water	0.84	0.00	0.00	0.00	8,500,000.00 *gal*
Application event totals		44.36	20.33	336.78	351.68	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
07/20/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	58.42	10.46	102.23	339.76	1,500,000.00 *gal*
Aquaduct	Surface water	0.84	0.00	0.00	0.00	8,500,000.00 *gal*
Application event totals		59.26	10.46	102.23	339.76	

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
08/03/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	58.42	10.46	102.23	339.76	1,500,000.00 *gal*
Aquaduct	Surface water	0.84	0.00	0.00	0.00	8,500,000.00 *gal*
Application event totals		59.26	10.46	102.23	339.76	

Field 4 - 06/01/2023: Sudangrass, silage

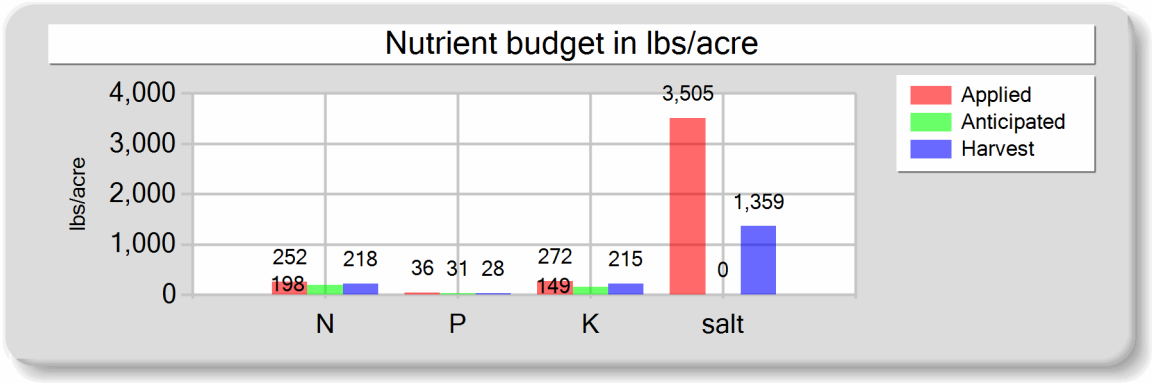
Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
09/20/2023	Surface (irrigation)	No precipitation	No precipitation	No precipitation

Source description	Material type	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Salt (lbs/acre)	Amount
Lagoon Water	Process wastewater	58.42	10.46	102.23	339.76	1,500,000.00 *gal*
Aquaduct	Surface water	0.84	0.00	0.00	0.00	8,500,000.00 *gal*
Application event totals		59.26	10.46	102.23	339.76	

B. NUTRIENT BUDGET

Field 1 - 11/24/2022: Wheat, silage, soft dough

Field name: Field 1 Crop: Wheat, silage, soft dough Plant date: 11/24/2022



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	242.92	35.99	271.86	3,504.90
Fresh water	2.11	0.00	0.00	0.00
Atmospheric deposition	7.00	0.00	0.00	0.00
Total nutrients applied	252.03	35.99	271.86	3,504.90
Anticipated crop nutrient removal	198.00	30.60	149.40	0.00
Actual crop nutrient removal	218.45	28.37	215.19	1,358.50
Nutrient balance	33.58	7.62	56.68	2,146.40
Applied to removed ratio	1.15	1.27	1.26	2.58

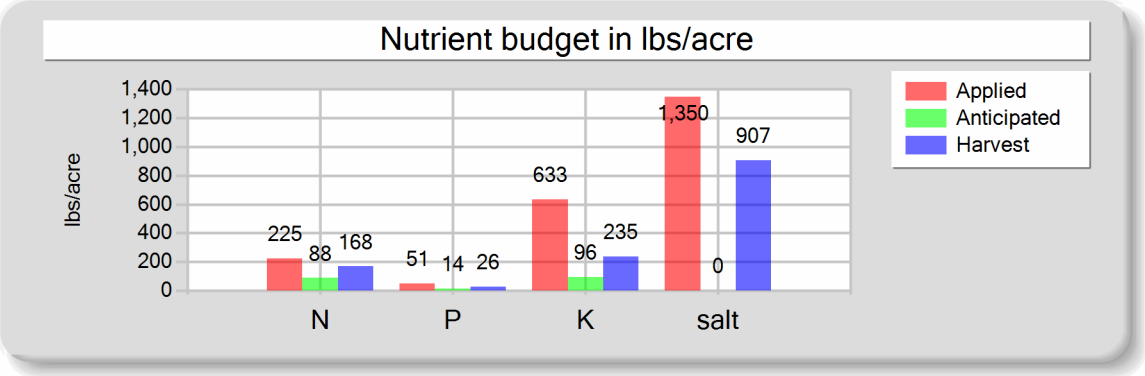
Fresh water applied	
8,100,000.00	*gallons*
298.30	*acre-inches*
18.64	*inches/acre*

Process wastewater applied	
2,250,000.00	*gallons*
82.86	*acre-inches*
5.18	*inches/acre*

Total harvests for the crop	
1	*harvests*

Field 1 - 06/01/2023: Sudangrass, silage

Field name: Field 1 Crop: Sudangrass, silage Plant date: 06/01/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	215.34	50.90	633.41	1,349.54
Fresh water	2.71	0.00	0.00	0.00
Atmospheric deposition	7.00	0.00	0.00	0.00
Total nutrients applied	225.05	50.90	633.41	1,349.54
Anticipated crop nutrient removal	88.00	13.60	96.00	0.00
Actual crop nutrient removal	167.76	26.14	235.44	907.20
Nutrient balance	57.29	24.77	397.97	442.34
Applied to removed ratio	1.34	1.95	2.69	1.49

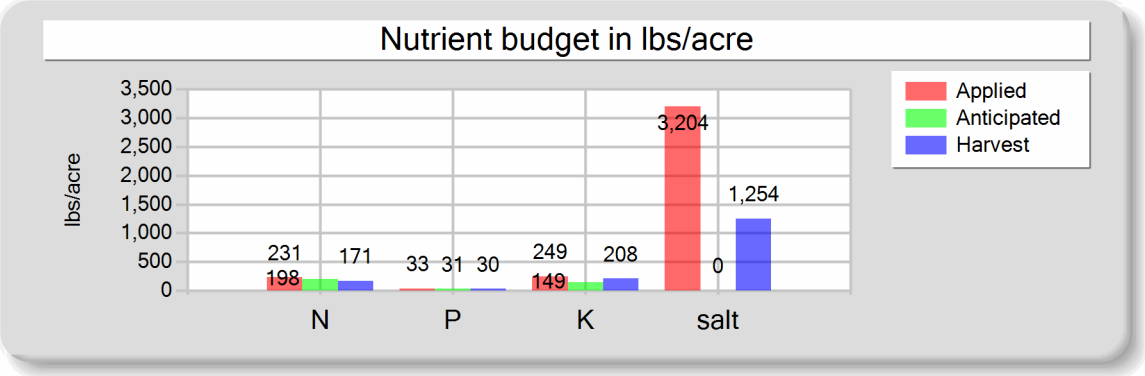
Fresh water applied	
10,400,000.00	*gallons*
383.00	*acre-inches*
23.94	*inches/acre*

Process wastewater applied	
2,250,000.00	*gallons*
82.86	*acre-inches*
5.18	*inches/acre*

Total harvests for the crop	
1	*harvests*

Field 2 - 11/25/2022: Wheat, silage, soft dough

Field name: Field 2 Crop: Wheat, silage, soft dough Plant date: 11/25/2022



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	222.10	32.90	248.56	3,204.48
Fresh water	2.00	0.00	0.00	0.00
Atmospheric deposition	7.00	0.00	0.00	0.00
Total nutrients applied	231.10	32.90	248.56	3,204.48
Anticipated crop nutrient removal	198.00	30.60	149.40	0.00
Actual crop nutrient removal	171.26	29.67	208.34	1,254.42
Nutrient balance	59.84	3.23	40.22	1,950.06
Applied to removed ratio	1.35	1.11	1.19	2.55

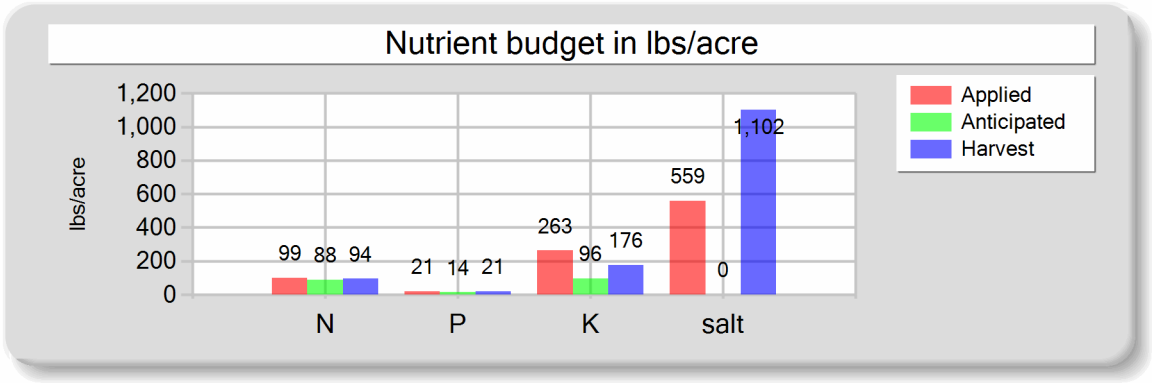
Fresh water applied	
16,800,000.00	*gallons*
618.69	*acre-inches*
17.68	*inches/acre*

Process wastewater applied	
4,500,000.00	*gallons*
165.72	*acre-inches*
4.73	*inches/acre*

Total harvests for the crop	
1	*harvests*

Field 2 - 06/01/2023: Sudangrass, silage

Field name: Field 2 Crop: Sudangrass, silage Plant date: 06/01/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	89.25	21.10	262.53	559.35
Fresh water	2.67	0.00	0.00	0.00
Atmospheric deposition	7.00	0.00	0.00	0.00
Total nutrients applied	98.92	21.10	262.53	559.35
Anticipated crop nutrient removal	88.00	13.60	96.00	0.00
Actual crop nutrient removal	94.32	20.74	175.68	1,101.60
Nutrient balance	4.60	0.36	86.85	-542.25
Applied to removed ratio	1.05	1.02	1.49	0.51

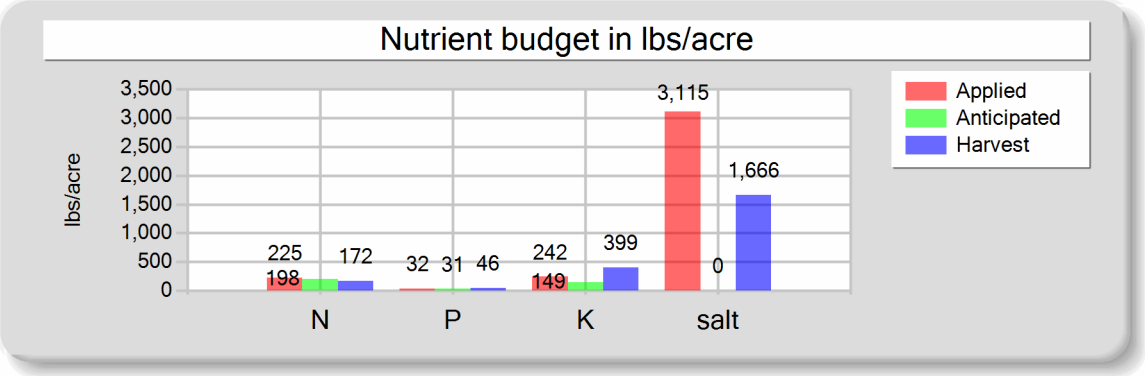
Fresh water applied	
22,400,000.00	*gallons*
824.92	*acre-inches*
23.57	*inches/acre*

Process wastewater applied	
2,040,000.00	*gallons*
75.13	*acre-inches*
2.15	*inches/acre*

Total harvests for the crop	
1	*harvests*

Field 3 - 11/25/2022: Wheat, silage, soft dough

Field name: Field 3 Crop: Wheat, silage, soft dough Plant date: 11/25/2022



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	215.93	31.99	241.66	3,115.47
Fresh water	1.88	0.00	0.00	0.00
Atmospheric deposition	7.00	0.00	0.00	0.00
Total nutrients applied	224.80	31.99	241.66	3,115.47
Anticipated crop nutrient removal	198.00	30.60	149.40	0.00
Actual crop nutrient removal	172.06	45.94	399.03	1,665.66
Nutrient balance	52.75	-13.95	-157.37	1,449.80
Applied to removed ratio	1.31	0.70	0.61	1.87

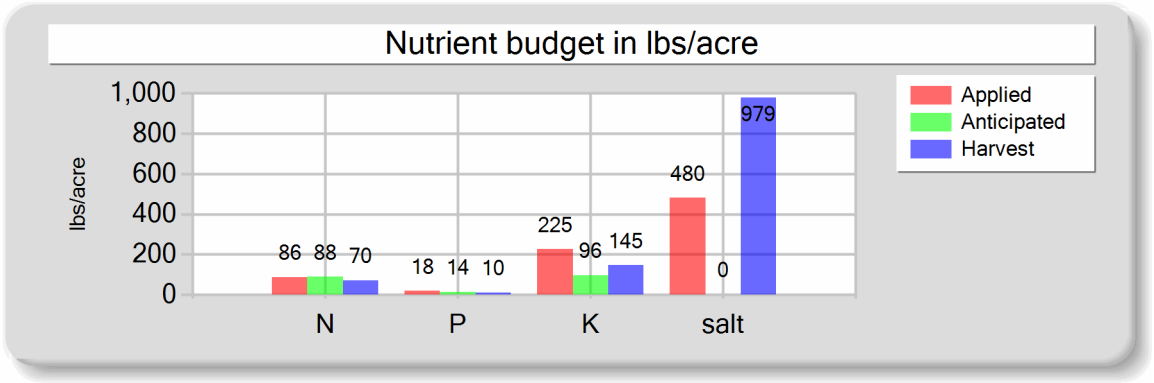
Fresh water applied	
27,000,000.00	*gallons*
994.32	*acre-inches*
16.57	*inches/acre*

Process wastewater applied	
7,500,000.00	*gallons*
276.20	*acre-inches*
4.60	*inches/acre*

Total harvests for the crop	
1	*harvests*

Field 3 - 06/01/2023: Sudangrass, silage

Field name: Field 3 Crop: Sudangrass, silage Plant date: 06/01/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	76.57	18.10	225.21	479.84
Fresh water	2.50	0.00	0.00	0.00
Atmospheric deposition	7.00	0.00	0.00	0.00
Total nutrients applied	86.07	18.10	225.21	479.84
Anticipated crop nutrient removal	88.00	13.60	96.00	0.00
Actual crop nutrient removal	69.84	10.44	145.44	979.20
Nutrient balance	16.23	7.66	79.77	-499.36
Applied to removed ratio	1.23	1.73	1.55	0.49

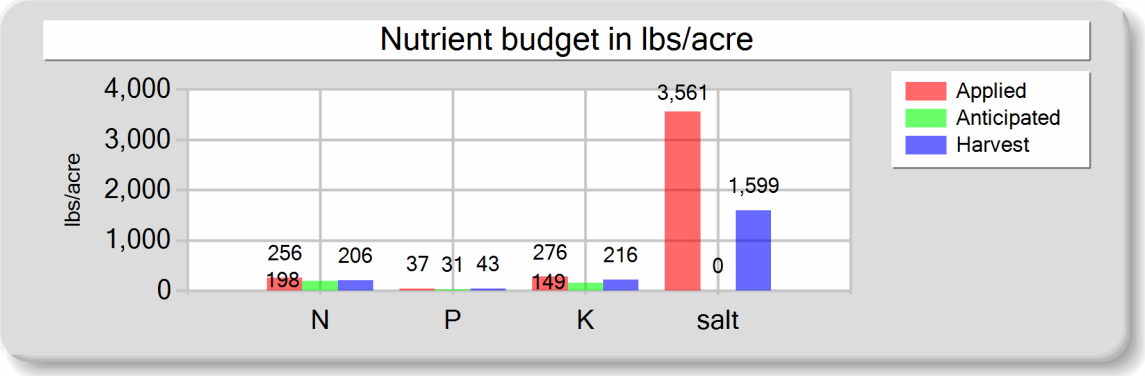
Fresh water applied	
36,000,000.00	*gallons*
1,325.76	*acre-inches*
22.10	*inches/acre*

Process wastewater applied	
3,000,000.00	*gallons*
110.48	*acre-inches*
1.84	*inches/acre*

Total harvests for the crop	
1	*harvests*

Field 4 - 11/25/2022: Wheat, silage, soft dough

Field name: Field 4 Crop: Wheat, silage, soft dough Plant date: 11/25/2022



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	246.77	36.56	276.18	3,560.53
Fresh water	2.53	0.00	0.00	0.00
Atmospheric deposition	7.00	0.00	0.00	0.00
Total nutrients applied	256.31	36.56	276.18	3,560.53
Anticipated crop nutrient removal	198.00	30.60	149.40	0.00
Actual crop nutrient removal	205.98	42.53	216.23	1,598.69
Nutrient balance	50.32	-5.97	59.95	1,961.85
Applied to removed ratio	1.24	0.86	1.28	2.23

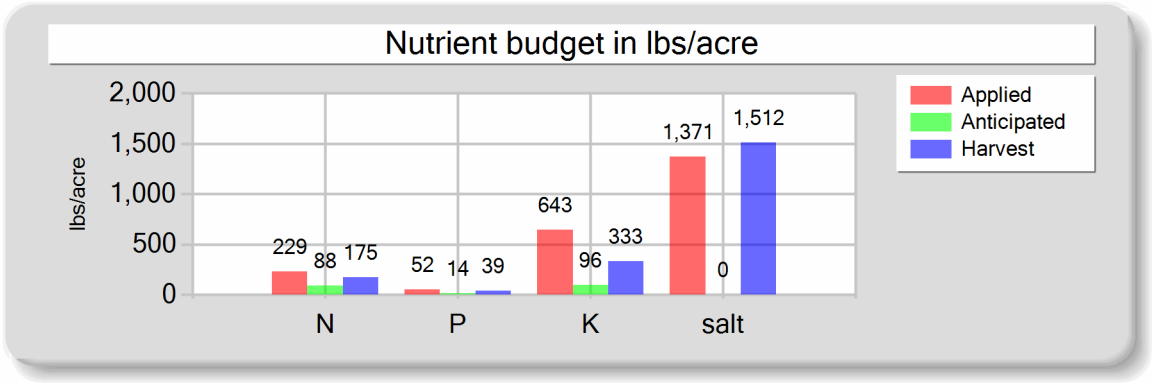
Fresh water applied	
25,500,000.00	*gallons*
939.08	*acre-inches*
22.36	*inches/acre*

Process wastewater applied	
6,000,000.00	*gallons*
220.96	*acre-inches*
5.26	*inches/acre*

Total harvests for the crop	
1	*harvests*

Field 4 - 06/01/2023: Sudangrass, silage

Field name: Field 4 Crop: Sudangrass, silage Plant date: 06/01/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	218.76	51.71	643.46	1,370.96
Fresh water	3.38	0.00	0.00	0.00
Atmospheric deposition	7.00	0.00	0.00	0.00
Total nutrients applied	229.14	51.71	643.46	1,370.96
Anticipated crop nutrient removal	88.00	13.60	96.00	0.00
Actual crop nutrient removal	174.96	39.46	333.36	1,512.00
Nutrient balance	54.18	12.25	310.10	-141.04
Applied to removed ratio	1.31	1.31	1.93	0.91

Fresh water applied	
34,000,000.00	*gallons*
1,252.10	*acre-inches*
29.81	*inches/acre*

Process wastewater applied	
6,000,000.00	*gallons*
220.96	*acre-inches*
5.26	*inches/acre*

Total harvests for the crop	
1	*harvests*

NUTRIENT ANALYSES

A. MANURE ANALYSES

Export Manure - 2022

Sample and source description: Export Manure - 2022

Sample date: 10/27/2022 Material type: Corral solids Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 13.5 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Calcium (mg/kg)	Magnesium (mg/kg)	Sodium (mg/kg)	Sulfur (mg/kg)	Chloride (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	22,300.00	2,740.00	17,300.00							0.00
DL	100.00	100.00	100.00							1.00

Export Manure

Sample and source description: Export Manure

Sample date: 03/30/2023 Material type: Corral solids Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 46.6 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Calcium (mg/kg)	Magnesium (mg/kg)	Sodium (mg/kg)	Sulfur (mg/kg)	Chloride (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	27,200.00	7,440.00	33,900.00							0.00
DL	100.00	100.00	100.00							1.00

Export Manure

Sample and source description: Export Manure

Sample date: 05/23/2023 Material type: Corral solids Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 42.2 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Calcium (mg/kg)	Magnesium (mg/kg)	Sodium (mg/kg)	Sulfur (mg/kg)	Chloride (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	15,800.00	7,370.00	31,800.00							0.00
DL	100.00	100.00	100.00							1.00

Export Manure

Sample and source description: Export Manure

Sample date: 09/29/2023 Material type: Corral solids Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 12.6 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Calcium (mg/kg)	Magnesium (mg/kg)	Sodium (mg/kg)	Sulfur (mg/kg)	Chloride (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	22,200.00	7,090.00	36,100.00							0.00
DL	100.00	100.00	100.00							1.00

B. PROCESS WASTEWATER ANALYSES

Lagoon Q4 - 2022

Sample and source description: Lagoon Q4 - 2022

Sample date: 10/27/2022 Material type: Process wastewater Source of analysis: Lab analysis pH:

	Kjeldahl-N (mg/L)	NH4-N (mg/L)	NH3-N (mg/L)	Nitrate-N (mg/L)	Total P (mg/L)	Total K (mg/L)	Calcium (mg/L)	Magnes. (mg/L)	Sodium (mg/L)	Bicarb. (mg/L)	Carb. (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	EC (µmhos/cm)	TDS (mg/L)
Value	185.00	94.90	0.00	0.00	36.40	269.00								25,900.00	6,920
DL	0.01	0.01	0.01	0.01	0.01	0.01								0.01	1

Lagoon Q1

Sample and source description: Lagoon Q1

Sample date: 03/30/2023 Material type: Process wastewater Source of analysis: Lab analysis pH:

	Kjeldahl-N (mg/L)	NH4-N (mg/L)	NH3-N (mg/L)	Nitrate-N (mg/L)	Total P (mg/L)	Total K (mg/L)	Calcium (mg/L)	Magnes. (mg/L)	Sodium (mg/L)	Bicarb. (mg/L)	Carb. (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	EC (µmhos/cm)	TDS (mg/L)
Value	218.00	75.60	0.00	0.00	27.80	213.00								1,880.00	1,020
DL	0.01	0.01	0.01	0.01	0.01	0.01								0.01	1

Lagoon Q2

Sample and source description: Lagoon Q2

Sample date: 05/23/2023 Material type: Process wastewater Source of analysis: Lab analysis pH:

	Kjeldahl-N (mg/L)	NH4-N (mg/L)	NH3-N (mg/L)	Nitrate-N (mg/L)	Total P (mg/L)	Total K (mg/L)	Calcium (mg/L)	Magnes. (mg/L)	Sodium (mg/L)	Bicarb. (mg/L)	Carb. (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	EC (µmhos/cm)	TDS (mg/L)
Value	146.00	64.40	0.00	0.00	68.20	1,130.00								1,570.00	1,180
DL	0.01	0.01	0.01	0.01	0.01	0.01								0.01	1

Lagoon Q3

Sample and source description: Lagoon Q3

Sample date: 09/29/2023 Material type: Process wastewater Source of analysis: Lab analysis pH:

	Kjeldahl-N (mg/L)	NH4-N (mg/L)	NH3-N (mg/L)	Nitrate-N (mg/L)	Total P (mg/L)	Total K (mg/L)	Calcium (mg/L)	Magnes. (mg/L)	Sodium (mg/L)	Bicarb. (mg/L)	Carb. (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	EC (µmhos/cm)	TDS (mg/L)
Value	196.00	89.60	0.00	0.00	35.10	343.00								2,450.00	1,140
DL	0.01	0.01	0.01	0.01	0.01	0.01								0.01	1

C. FRESH WATER ANALYSES

Aquaduct

Aquaduct

Sample description: Aquaduct

Sample date: 03/18/2021 Source of analysis: Lab analysis

	Total N (mg/L)	NH4-N (mg/L)	Nitrate-N (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	EC (µmhos/cm)	TDS (mg/L)
Value	0.50	0.00	0.50								6,770.00	0
DL	0.01	0.01	0.01								0.01	1

D. SOIL ANALYSES

No soil analyses entered.

E. PLANT TISSUE ANALYSES

Field 1 - 11/24/2022: Wheat, silage, soft dough

Field 1 Wheat Silage

Sample and source description: Field 1 Wheat Silage

Sample date: 05/23/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 58.2 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	20,100.00	2,610.00	19,800.00		12.50
DL	100.00	100.00	100.00		1.00

Field 1 - 06/01/2023: Sudangrass, silage

Field 1 Sudan Silage

Sample and source description: Field 1 Sudan Silage

Sample date: 09/29/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 70.0 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	23,300.00	3,630.00	32,700.00		12.60
DL	100.00	100.00	100.00		1.00

Field 2 - 11/25/2022: Wheat, silage, soft dough

Field 2 Wheat Silage

Sample and source description: Field 2 Wheat Silage

Sample date: 05/23/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 59.6 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	15,700.00	2,720.00	19,100.00		11.50
DL	100.00	100.00	100.00		1.00

Field 2 - 06/01/2023: Sudangrass, silage

Field 2 Sudan Silage

Sample and source description: Field 2 Sudan Silage

Sample date: 09/29/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 70.0 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	13,100.00	2,880.00	24,400.00		15.30
DL	100.00	100.00	100.00		1.00

Field 3 - 11/25/2022: Wheat, silage, soft dough

Field 3 Wheat Silage

Sample and source description: Field 3 Wheat Silage

Sample date: 05/23/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 64.8 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	18,800.00	5,020.00	43,600.00		18.20
DL	100.00	100.00	100.00		1.00

Field 3 - 06/01/2023: Sudangrass, silage

Field 3 Sudan Silage

Sample and source description: Field 3 Sudan Silage

Sample date: 09/29/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 70.0 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	9,700.00	1,450.00	20,200.00		13.60
DL	100.00	100.00	100.00		1.00

Field 4 - 11/25/2022: Wheat, silage, soft dough

Field 4 Wheat Silage

Sample and source description: Field 4 Wheat Silage

Sample date: 05/23/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 63.4 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	20,100.00	4,150.00	21,100.00		15.60
DL	100.00	100.00	100.00		1.00

Field 4 - 06/01/2023: Sudangrass, silage

Field 4 Sudan Silage

Sample and source description: Field 4 Sudan Silage

Sample date: 09/29/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 70.0 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	24,300.00	5,480.00	46,300.00		21.00
DL	100.00	100.00	100.00		1.00

F. SUBSURFACE (TILE) DRAINAGE ANALYSES

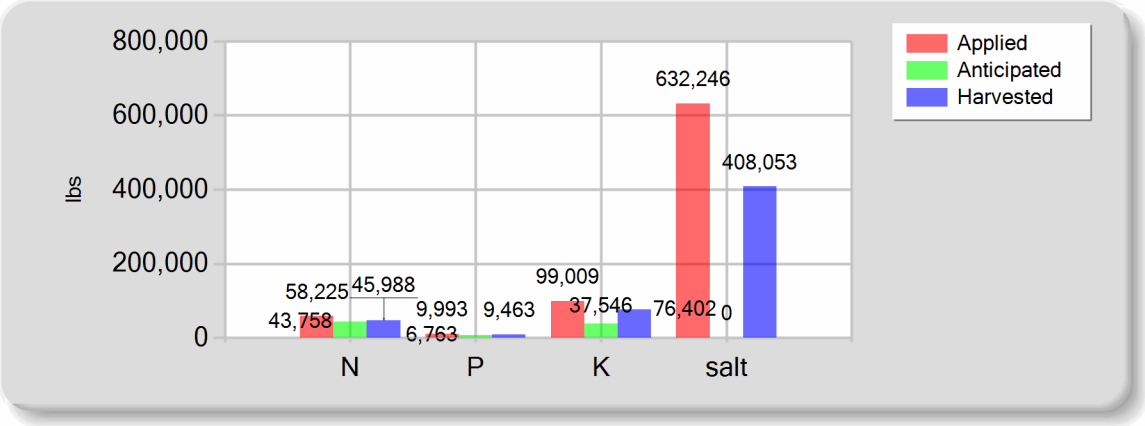
No subsurface (tile) drainage analyses entered.

NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

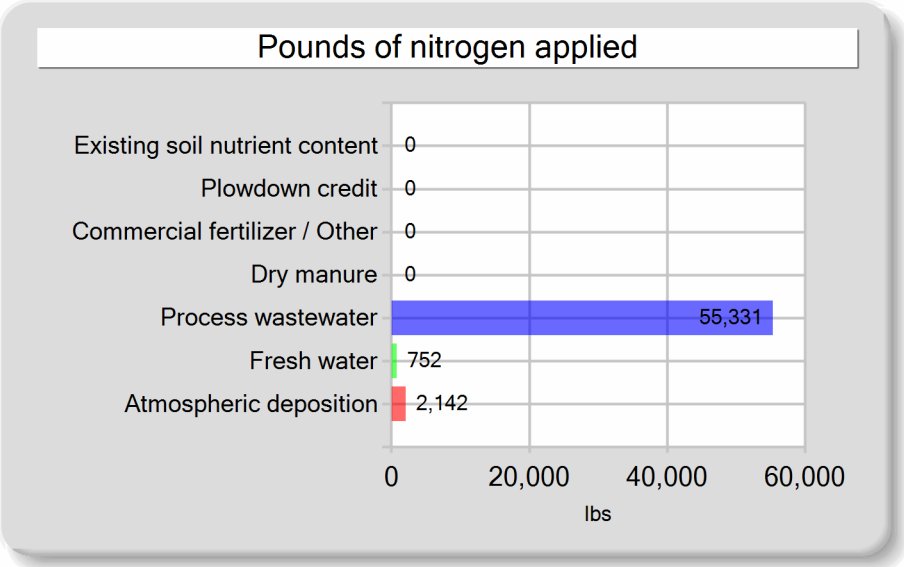
A. SUMMARY OF NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

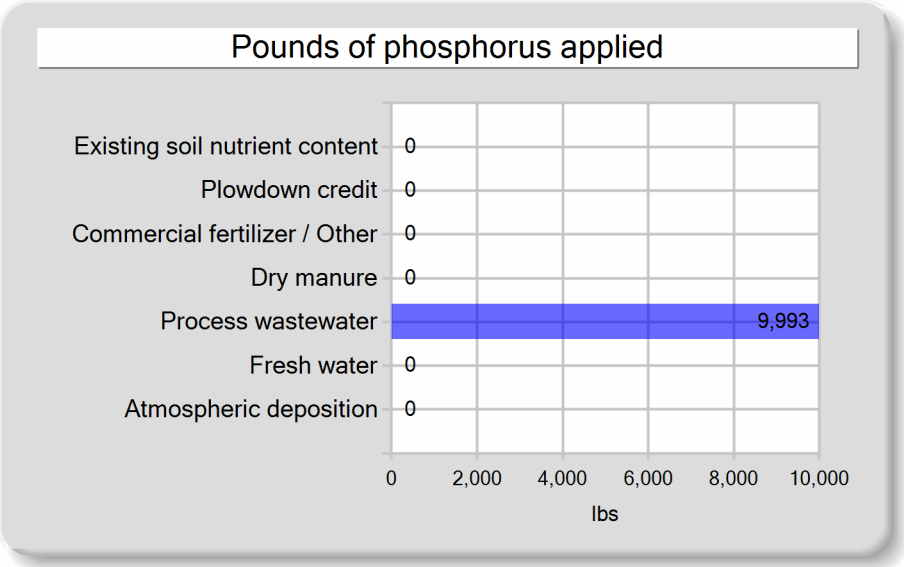
	Total N (lbs)	Total P (lbs)	Total K (lbs)	Total salt (lbs)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	55,331.23	9,992.75	99,009.48	632,246.41
Fresh water	751.88	0.00	0.00	0.00
Atmospheric deposition	2,142.00	0.00	0.00	0.00
Total nutrients applied	58,225.11	9,992.75	99,009.48	632,246.41
Anticipated crop nutrient removal	43,758.00	6,762.60	37,546.20	0.00
Actual crop nutrient removal	45,987.99	9,462.59	76,401.75	408,052.64
Nutrient balance	12,237.12	530.17	22,607.73	224,193.77
Applied to removed ratio	1.27	1.06	1.30	1.55

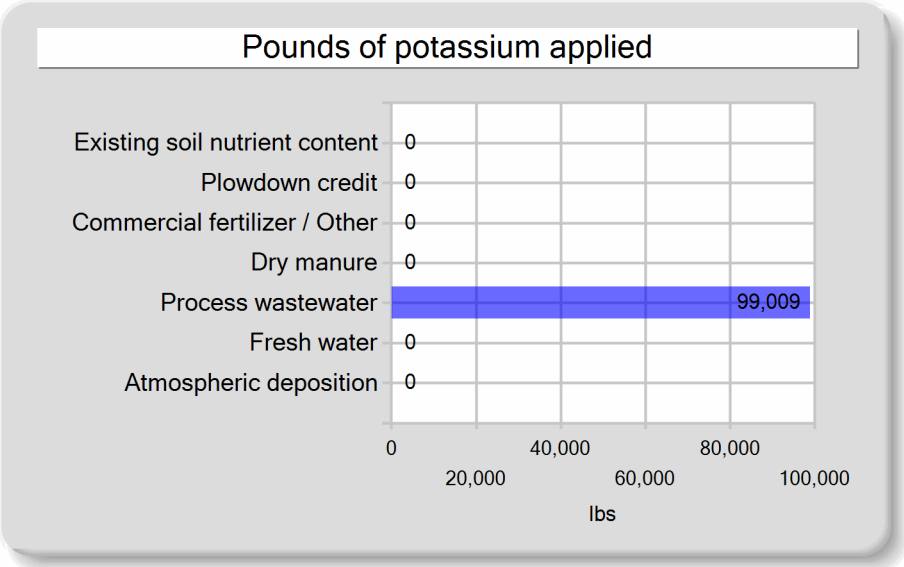
B. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL

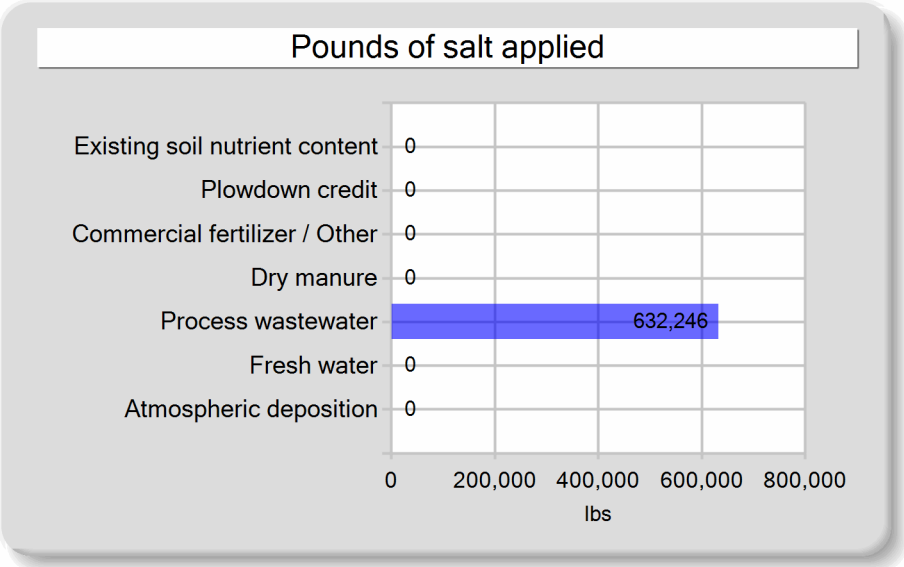


C. POUNDS OF NUTRIENT APPLIED BY MATERIAL TYPE









EXCEPTION REPORTING

A. MANURE, PROCESS WASTEWATER, AND OTHER DAIRY WASTE DISCHARGES

The following is a summary of all manure and process wastewater discharges from the production area to surface water or to land areas (land application areas or otherwise) when not in accordance with the facility's Nutrient Management Plan.

No manure or process wastewater discharges occurred during the reporting period.

B. STORM WATER DISCHARGES

The following is a summary of all storm water discharges from the production area to surface water during the reporting period when not in accordance with the facility 's Nutrient Management Plan.

No stormwater discharges occurred during the reporting period.

C. LAND APPLICATION AREA TO SURFACE WATER DISCHARGES

The following is a summary of all discharges from the land application area to surface water that have occurred during the reporting period when not in accordance with the facility's Nutrient Management Plan.

No land application area to surface water discharges occurred during the reporting period.

NUTRIENT MANAGEMENT PLAN AND EXPORT AGREEMENT STATEMENTS

A. NUTRIENT MANAGEMENT PLAN STATEMENTS

Was the facility's NMP updated in the reporting period?	Yes
Was the facility's NMP developed by a certified nutrient management planner (specialist) as specified in Attachment C of the General Order?	Yes
Was the facility's NMP approved by a certified nutrient management planner (specialist) as specified in Attachment C of the General Order?	Yes

B. EXPORT AGREEMENT STATEMENT

Are there any written agreements with third parties to receive manure or process wastewater that are new or were revised within the reporting period?	No

ADDITIONAL NOTES

A. NOTES

No irrigation or domestic wells exists onsite, all freshwater is from Aqueduct.

CERTIFICATION

A. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Fred Thommen

SIGNATURE OF OWNER OF FACILITY	SIGNATURE OF OPERATOR OF FACILITY
Fred Thommen	SAME AS OWNER
PRINT OR TYPE NAME	PRINT OR TYPE NAME
Jun 27, 2024	
DATE	DATE

Annual Report - General Order No. R5-2007-0035
Reporting period 01/01/2023 to 12/31/2023.

ATTACHMENTS

A. REQUIRED ATTACHMENTS

The following lists the required documents that should be attached to the Annual Report when submitted .

Annual Dairy Facility Assessment

Provide an Annual Dairy Facility Assessment (an update to the Preliminary Dairy Facility Assessment in Attachment A) for each reporting period. On the PDFA Final page, click on the ADFA Report button to generate an ADFA report after updating information as needed .

Manure/Process Wastewater Tracking Manifests

Provide copies of all manure/process wastewater tracking manifests for the reporting period, signed by both the owner/operator and the hauler.

Corrective Actions Documents

Provide records documenting any corrective actions taken to correct deficiencies noted as a result of the inspections required in the Monitoring Requirements of the General Order. Deficiencies not corrected in 30 days must be accompanied by an explanation of the factors preventing immediate correction.

Groundwater Monitoring

Dischargers that monitor supply wells or subsurface (tile) drainage systems, or that have monitoring well systems must submit monitoring results as directed in the General Order, Groundwater Reporting Section starting on page MRP-13.

Storm Water Monitoring

Dischargers that are required to monitor storm water more frequently than required in the General Order must submit monitoring results as directed in the General Order, Storm Water Reporting Section on page MRP-14.

Manure / Process Wastewater Tracking Manifest
For
Existing Milk Cow Dairies

General Order No. R5-2007-0035, Attachment D

INSTRUCTIONS

1) Complete one manifest for each hauling event, for each destination. A hauling event may last for several days, as long as the manure is being hauled to the same destination.
2) If there are multiple destinations, complete a separate form for each destination.
3) The operator must obtain the signature of the hauler upon completion of each manure/process wastewater hauling event.
4) The operator shall submit copies of manure/process wastewater tracking manifest(s) with the Annual Monitoring Report for Existing Milk Cow Dairies.

OPERATOR INFORMATION

Name of Operator: Fred Thommen

Name of Dairy Facility: Fred Thommen Dairy

Facility Address:

53955 W Nees AVE	Firebaugh	Fresno	93622
Number and Street	City	County	Zip Code

Contact Person Name and Phone Number:

Fred Thommen	(209) 364-0077
Name	Phone Number

MANURE HAULER INFORMATION

Name of Hauling Company/Person: Robby Thommen

Address of Hauling Company/Person:

712 Coastal CT	Los Banos	CA	93635
Number and Street	City	State	Zip Code

Contact Person:

Robby Thommen	(209) 364-0077
Name	Phone Number

DESTINATION INFORMATION

Composting Facility / Broker / Farmer / Other (identify): Broker

Contact information of Composting Facility, Broker, Farmer, or Other (as identified above):

Coit Farming Company	(559) 655-3231
Name	Phone Number

2578 S Lyon AVE	Mendota	CA	93640
Address	City	State	Zip Code

Destination Address or Assessor's Parcel Number:

	Mendota	93640
Address	City	Zip Code

Belmont & Lyon	Fresno
Street and nearest cross street (if no address)	County

Assessor's Parcel Number Assessor's Parcel Number County

Last date hauled: 04/01/2023

Manure / Process Wastewater Tracking Manifest
For
Existing Milk Cow Dairies

General Order No. R5-2007-0035, Attachment D

MANURE AMOUNT HAULED

Enter the amount of manure hauled in tons, manure solids content, and the method used to calculate the amount:

Manure: 12,300.00 tons

Manure Solids Content: 87.4 %

Method used to determine amount of manure:

tons per load

CERTIFICATION

I declare under penalty of law that I personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true , accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

SEE ATTACHED SIGNED MANIFEST

Operator Signature Date

Hauler Signature Date

2023 Thommen

ATTACHMENT D
Manure/Process Wastewater Tracking Manifest For Existing Milk Cow Dairies

Instructions:

1) Complete one manifest for each hauling event, for each destination. A hauling event may last for several days, as long as the manure is being hauled to the same destination.
2) If there are multiple destinations, **complete a separate form for each destination**.
3) The operator must obtain the signature of the hauler upon completion of each manure-hauling event.
4) The operator shall submit copies of manure/process wastewater tracking manifest(s) with the Annual Monitoring Report for Existing Milk Cow Dairies.

Operator Information:

Name of Operator: FRED THOMMEN

Name of Dairy Facility: THOMMEN DAIRY

Facility Address: 53955 W NEES AVE (Number and Street) FIREBAUGH (City) 93622 (Zip Code)

Contact Person Name and Phone Number: FRED THOMMEN (Name) 209-364-0077 (Phone Number)

Manure/Process Wastewater Hauler Information:

Name of Hauling Company/Person: Thommen compost

Address of Hauling Company /Person: Co, T FARming (Number and Street) (City) (Zip Code)

Contact Person: Co, t FARMing (Name) (Phone Number)

Destination Information:

Composting Facility / Broker / Farmer / Other (identify) Thommen (please circle one)

Contact information of Composting Facility, Broker, Farmer, or Other (as identified above):

composted @ Thommen DAIRY (Name) (Number and Street) (City) (Zip Code) (Phone Number)

Manure/Process Wastewater Destination Address or Assessor's Parcel Number:

Belmont & Lyon Fresno (Number and Street) (City) (Zip Code) (Assessor's Parcel Number)

Dates Hauled: 4-1-23 → 12-1-23

Amount Hauled:

Enter the amount of manure hauled in tons or cubic yards (indicate the units used), the manure solids content (if amount reported in tons) or manure density (if amount reported in cubic yards), and the method used to calculate the amount:

Manure: 12,300 compost Tons or Cubic Yards (indicate which units used)

Manure Solids Content (if amount reported in tons): _____

Manure Density (if amount reported in cubic yards): _____

2023 Thommen

Attachment D

Waste Discharge Requirements General Order No. R5-2007-0035 Existing Milk Cow Dairies

Method used to determine amount of manure: Truck loads

Enter the amount of process wastewater hauled in gallons and the method used to determine the amount.

Process Wastewater: _____ Gallons

Method used to determine volume of process wastewater: /

Written Agreement:

Does the Operator have a written agreement (in compliance with Land Application Specification C.2 of Waste Discharge Requirements General Order No. R5-2007-0035) with any party that receives process wastewater from the Operator for its own use? (please check one)

____ Yes ___X___ No

If the answer is no, the Operator agrees to have such a written agreement with any such party for any process wastewater transferred after **31 December 2007** to such party.

_____ (Operator shall provide initials here to acknowledge this requirement).

Certification:

I declare under the penalty of law that I personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Operator's Signature: Fred Thommen Date: 12-1-23

Hauler's Signature: Fred Thommen Date: 12-1-23