

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:** F&S Brasil

Physical address of dairy:

14315 Kent AVE
Number and StreetHanford
CityKings
County93230
Zip Code

Street and nearest cross street (if no address): _____

Date facility was originally placed in operation: 10/30/1989Regional Water Quality Control Board Basin Plan designation: Tulare Basin

County Assessor Parcel Number(s) for dairy facility:

X028-X230-X034-XXXX X028-X230-X035-XXXX**B. OPERATORS****F&S Brasil Dairy**Operator name: F&S Brasil DairyTelephone no.: (209) 629-6305

Landline Cellular

6524 Perrin RDMantecaCA95357

Mailing Address Number and Street

City

State

Zip Code

This operator is responsible for paying permit fees.**C. OWNERS****Philip Verwey Farms Dairy #5**Legal owner name: Philip Verwey Farms Dairy #5Telephone no.: (559) 908-0836

Landline Cellular

19765 13th AVEHanfordCA93230

Mailing Address Number and Street

City

State

Zip Code

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

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	205	415	455	0	0
Number under roof	1,475	0	0	0	0	0
Maximum number	1,510	220	430	480	0	0
Average number	1,475	205	415	455	0	0
Avg live weight (lbs)	1,400	1,450	1,000	750		

Predominant milk cow breed: Holstein

Average milk production: 75 pounds per cow per day

B. MANURE GENERATED

Total manure excreted by the herd: 50,422.87 tons per reporting period

Total nitrogen from manure: 625,977.79 lbs per reporting period

After ammonia losses (30% loss applied): 438,184.45 lbs per reporting period

Total phosphorus from manure: 104,738.77 lbs per reporting period

Total potassium from manure: 287,321.48 lbs per reporting period

Total salt from manure: 741,643.50 lbs per reporting period

C. PROCESS WASTEWATER GENERATED

Process wastewater generated: 59,417,684 gallons

Total nitrogen generated: 166,501.91 lbs

Total phosphorus generated: 56,146.17 lbs

Total potassium generated: 354,388.77 lbs

Total salt generated: 1,640,747.48 lbs

59,417,684 gallons applied
+ 0 gallons exported
- 0 gallons imported
= 59,417,684 gallons generated

D. FRESH WATER SOURCES

Source Description	Type
Barn East	Ground water
Barn West	Ground water
D-1	Ground water
D-2	Ground water
P-1	Ground water

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

Source Description	Type
P-2	Ground water
P-3	Ground water
P-4	Ground water
P-5	Ground water
People's Ditch- Hanford	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***No solid nutrient exports entered.**No liquid nutrient exports entered.*

Annual Report - General Order No. R5-2007-0035*Reporting period 01/01/2023 to 12/31/2023.***APPLICATION AREA****A. LIST OF LAND APPLICATION AREAS**

Field name	Controlled acres	Cropable acres	Total harvests	Type of waste applied	Parcel number
F-1	35	35	1	process wastewater	X028-X230-X034-XXXX
F-10	142	142	0	none	X028-X230-X035-XXXX
F-2	147	147	1	process wastewater	X028-X230-X034-XXXX
F-3	149	149	1	process wastewater	X028-X230-X031-XXXX X028-X230-X032-XXXX X028-X230-X033-XXXX
F-4	149	149	0	none	X028-X230-X031-XXXX X028-X230-X032-XXXX X028-X230-X033-XXXX
F-5	100	100	1	process wastewater	X028-X230-X031-XXXX
F-6	101	101	1	process wastewater	X028-X230-X037-XXXX
F-7	86	86	1	process wastewater	X028-X230-X005-XXXX X028-X230-X036-XXXX X028-X230-X037-XXXX
F-8	90	90	1	process wastewater	X028-X230-X005-XXXX X028-X230-X036-XXXX
F-9	157	157	0	none	X028-X230-X035-XXXX
Totals for areas that were used for application	708	708	7		
Totals for areas that were not used for application	448	448	0		
Land application area totals	1,156	1,156	7		

B. CROPS AND HARVESTS

F-1
Field name: <u>F-1</u>

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-1

06/05/2023: Sorghum-Sudangrass, forage

Crop: Sorghum-Sudangrass, forage Acres planted: 35 Plant date: 06/05/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
11/02/2023	811.00 ton	Dry-weight		75.9	17,700.00	5,000.00	31,600.00		14.90

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	25.00	180.00	35.00	342.50	1,500.00
Total actual harvest content	23.17	197.68	55.84	352.93	1,664.13

F-2

Field name: F-2

06/05/2023: Sorghum-Sudangrass, forage

Crop: Sorghum-Sudangrass, forage Acres planted: 147 Plant date: 06/05/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
11/02/2023	3,510.00 ton	Dry-weight		76.2	18,900.00	4,600.00	31,400.00		14.50

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	25.00	180.00	35.00	342.50	1,500.00
Total actual harvest content	23.88	214.81	52.28	356.88	1,648.03

F-3

Field name: F-3

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-3

06/05/2023: Sorghum-Sudangrass, forage

Crop: Sorghum-Sudangrass, forage Acres planted: 149 Plant date: 06/05/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
11/02/2023	3,442.00 ton	Dry-weight		76.6	19,800.00	5,000.00	33,500.00		14.80

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	25.00	180.00	35.00	342.50	1,500.00
Total actual harvest content	23.10	214.06	54.06	362.17	1,600.04

F-5

Field name: F-5

06/05/2023: Sorghum-Sudangrass, forage

Crop: Sorghum-Sudangrass, forage Acres planted: 100 Plant date: 06/05/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
11/03/2023	2,353.00 ton	Dry-weight		72.0	12,700.00	2,100.00	18,100.00		9.56

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	25.00	180.00	35.00	342.50	1,500.00
Total actual harvest content	23.53	167.35	27.67	238.50	1,259.70

F-6

Field name: F-6

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-6

06/05/2023: Sorghum-Sudangrass, forage

Crop: Sorghum-Sudangrass, forage Acres planted: 101 Plant date: 06/05/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
11/03/2023	2,469.00 ton	Dry-weight		71.7	13,100.00	2,200.00	18,200.00		10.50

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	25.00	180.00	35.00	342.50	1,500.00
Total actual harvest content	24.45	181.25	30.44	251.82	1,452.80

F-7

Field name: F-7

06/05/2023: Sorghum-Sudangrass, forage

Crop: Sorghum-Sudangrass, forage Acres planted: 86 Plant date: 06/05/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
11/03/2023	2,069.00 ton	Dry-weight		71.7	11,800.00	2,000.00	17,500.00		9.39

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	25.00	180.00	35.00	342.50	1,500.00
Total actual harvest content	24.06	160.68	27.23	238.30	1,278.63

F-8

Field name: F-8

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-8

06/05/2023: Sorghum-Sudangrass, forage

Crop: Sorghum-Sudangrass, forage Acres planted: 90 Plant date: 06/05/2023

Harvest date	Yield	Reporting basis	Density (lbs/cu ft)	Moisture (%)	N (mg/kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS (%)
11/03/2023	2,088.00 <i>ton</i>	Dry-weight		71.3	11,900.00	1,900.00	18,400.00		9.15

	Yield (tons/acre)	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Salt (lbs/acre)
Anticipated harvest content	25.00	180.00	35.00	342.50	1,500.00
Total actual harvest content	23.20	158.47	25.30	245.03	1,218.49

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

NUTRIENT BUDGET

A. LAND APPLICATIONS

F-1 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-1

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
05/18/2023	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	Process wastewater	79.76	25.42	174.97	613.16	1,045,390.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	46.22	4,846,810.00 <i>gal</i>
Application event totals		79.76	25.42	174.97	659.38	
07/02/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.94	5,131,917.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	48.94	
07/25/2023	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	Process wastewater	87.01	27.73	190.88	668.90	1,140,426.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	50.76	5,321,988.00 <i>gal</i>
Application event totals		87.01	27.73	190.88	719.66	
08/15/2023	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	Process wastewater	73.27	23.36	160.74	563.28	960,355.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	47.99	5,031,975.00 <i>gal</i>
Application event totals		73.27	23.36	160.74	611.27	

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-1 - 06/05/2023: Sorghum-Sudangrass, forage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
09/12/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	52.57	5,512,059.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	52.57	
10/05/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	46.22	4,846,810.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	46.22	

F-2 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-2

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
05/19/2023	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	Process wastewater	87.01	27.73	190.88	668.90	4,789,789.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	46.22	20,356,604.00 <i>gal</i>
Application event totals		87.01	27.73	190.88	715.12	
06/28/2023	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	Process wastewater	79.76	25.42	174.97	613.16	4,390,640.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.02	21,145,810.00 <i>gal</i>
Application event totals		79.76	25.42	174.97	661.17	

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-2 - 06/05/2023: Sorghum-Sudangrass, forage

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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	47.01	20,702,215.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	47.01	
08/14/2023	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	Process wastewater	100.56	44.41	231.89	1,671.79	5,588,087.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.94	21,554,051.00 <i>gal</i>
Application event totals		100.56	44.41	231.89	1,720.74	
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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	46.22	20,356,604.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	46.22	
10/02/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	45.32	19,957,455.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	45.32	

F-3 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-3

Crop: Sorghum-Sudangrass, forage Plant date: 06/05/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following
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Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-3 - 06/05/2023: Sorghum-Sudangrass, forage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
05/22/2023	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	Process wastewater	94.10	29.99	206.43	723.38	5,250,377.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.04	21,442,724.00 <i>gal</i>
Application event totals		94.10	29.99	206.43	771.42	
06/27/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	47.61	21,251,883.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	47.61	
07/16/2023	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	Process wastewater	94.26	30.05	206.79	724.64	5,259,536.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.05	21,447,304.00 <i>gal</i>
Application event totals		94.26	30.05	206.79	772.69	
08/10/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	47.13	21,038,144.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	47.13	
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	Process wastewater	71.83	31.72	165.64	1,194.14	4,045,797.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	44.89	20,038,144.00 <i>gal</i>
Application event totals		71.83	31.72	165.64	1,239.03	

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-3 - 06/05/2023: Sorghum-Sudangrass, forage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
10/02/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	45.32	20,228,985.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	45.32	

F-5 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-5

Crop: Sorghum-Sudangrass, forage Plant date: 06/05/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
05/21/2023	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	Process wastewater	84.34	26.88	185.02	648.37	3,158,360.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	49.23	14,748,740.00 <i>gal</i>
Application event totals		84.34	26.88	185.02	697.60	
06/28/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	50.35	15,083,491.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	50.35	
07/16/2023	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	Process wastewater	70.12	14.11	87.38	530.78	1,300,710.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	49.86	14,938,001.00 <i>gal</i>
Application event totals		70.12	14.11	87.38	580.64	

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-5 - 06/05/2023: Sorghum-Sudangrass, forage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
08/02/2023	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	Process wastewater	58.04	25.63	133.84	964.86	2,193,962.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.52	14,535,000.00 <i>gal</i>
Application event totals		58.04	25.63	133.84	1,013.38	
09/01/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.52	14,535,001.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	48.52	
10/03/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	49.43	14,809,246.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	49.43	

F-6 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-6

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application			Precipitation 24 hours following	
05/23/2023	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		Process wastewater	85.65	27.30	187.89	658.43	3,239,434.00 <i>gal</i>
People's Ditch- Hanford		Surface water	0.00	0.00	0.00	51.58	15,606,227.00 <i>gal</i>
Application event totals			85.65	27.30	187.89	710.01	

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-6 - 06/05/2023: Sorghum-Sudangrass, forage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
06/27/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	51.68	15,636,227.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	51.68	
07/14/2023	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	Process wastewater	91.79	18.47	114.38	694.82	1,719,717.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	50.04	15,140,473.00 <i>gal</i>
Application event totals		91.79	18.47	114.38	744.86	
08/04/2023	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	Process wastewater	50.76	16.18	111.35	390.19	1,919,717.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	51.07	15,453,492.00 <i>gal</i>
Application event totals		50.76	16.18	111.35	441.26	
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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.04	14,535,001.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	48.04	
10/02/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	49.03	14,835,002.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	49.03	

F-7 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-7

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-7 - 06/05/2023: Sorghum-Sudangrass, forage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
05/22/2023	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	Process wastewater	79.76	25.42	174.97	613.16	2,568,674.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	50.76	13,076,885.00 <i>gal</i>
Application event totals		79.76	25.42	174.97	663.91	
06/29/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.94	12,609,853.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	48.94	
07/17/2023	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	Process wastewater	63.21	20.15	138.67	485.93	2,035,705.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.04	12,376,337.00 <i>gal</i>
Application event totals		63.21	20.15	138.67	533.97	
08/11/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	46.22	11,909,306.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	46.22	
09/05/2023	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	Process wastewater	61.59	27.20	142.02	1,023.87	2,002,190.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	49.63	12,786,337.00 <i>gal</i>
Application event totals		61.59	27.20	142.02	1,073.50	

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-7 - 06/05/2023: Sorghum-Sudangrass, forage

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
10/04/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	45.06	11,609,306.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	45.06	

F-8 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-8

Crop: Sorghum-Sudangrass, forage Plant date: 06/05/2023

Application date	Application method	Precipitation 24 hours prior	Precipitation during application	Precipitation 24 hours following		
05/22/2023	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	Process wastewater	80.74	25.74	177.13	620.71	2,721,278.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	49.85	13,440,735.00 <i>gal</i>
Application event totals		80.74	25.74	177.13	670.56	
06/25/2023	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
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	50.76	13,685,112.00 <i>gal</i>
Application event totals		0.00	0.00	0.00	50.76	
07/18/2023	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	Process wastewater	76.46	24.37	167.73	587.78	2,576,901.00 <i>gal</i>
People's Ditch- Hanford	Surface water	0.00	0.00	0.00	48.04	12,951,981.00 <i>gal</i>
Application event totals		76.46	24.37	167.73	635.82	

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-8 - 06/05/2023: Sorghum-Sudangrass, forage

Application date	Application method	Precipitation 24 hours prior		Precipitation during application			Precipitation 24 hours following	
08/11/2023	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	
People's Ditch- Hanford		Surface water	0.00	0.00	0.00	50.43	13,596,358.00 <i>gal</i>	
Application event totals			0.00	0.00	0.00	50.43		
09/07/2023	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		Process wastewater	44.40	19.61	102.39	738.17	1,510,639.00 <i>gal</i>	
People's Ditch- Hanford		Surface water	0.00	0.00	0.00	47.13	12,707,604.00 <i>gal</i>	
Application event totals			44.40	19.61	102.39	785.30		
10/05/2023	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	
People's Ditch- Hanford		Surface water	0.00	0.00	0.00	45.32	12,218,850.00 <i>gal</i>	
Application event totals			0.00	0.00	0.00	45.32		

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

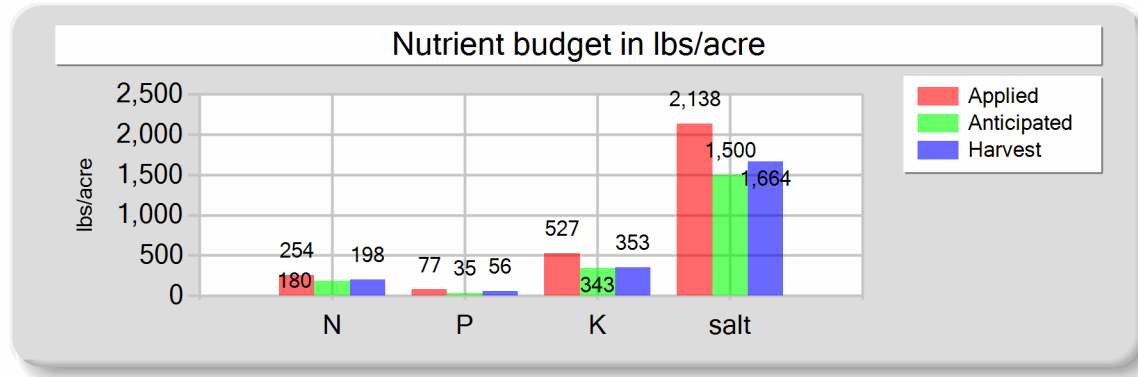
B. NUTRIENT BUDGET

F-1 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-1

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)	Fresh water applied
Existing soil nutrient content	0.00	0.00	0.00	0.00	30,691,559.00 <i>gallons</i>
Plowdown credit	0.00	0.00	0.00	0.00	1,130.27 <i>acre-inches</i>
Commercial fertilizer / Other	0.00	0.00	0.00	0.00	32.29 <i>inches/acre</i>
Dry manure	0.00	0.00	0.00	0.00	
Process wastewater	240.04	76.51	526.60	1,845.34	Process wastewater applied
Fresh water	0.00	0.00	0.00	292.71	3,146,171.00 <i>gallons</i>
Atmospheric deposition	14.00	0.00	0.00	0.00	115.86 <i>acre-inches</i>
Total nutrients applied	254.04	76.51	526.60	2,138.05	3.31 <i>inches/acre</i>
Anticipated crop nutrient removal	180.00	35.00	342.50	1,500.00	
Actual crop nutrient removal	197.68	55.84	352.93	1,664.13	Total harvests for the crop
Nutrient balance	56.36	20.67	173.67	473.92	1 <i>harvests</i>
Applied to removed ratio	1.29	1.37	1.49	1.28	

Annual Report - General Order No. R5-2007-0035

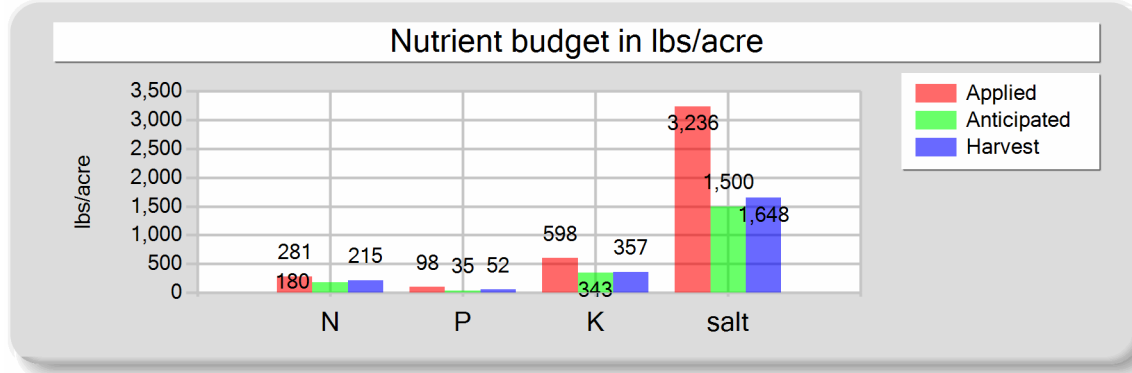
Reporting period 01/01/2023 to 12/31/2023.

F-2 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-2

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)	Fresh water applied
Existing soil nutrient content	0.00	0.00	0.00	0.00	124,072,739.00 <i>gallons</i>
Plowdown credit	0.00	0.00	0.00	0.00	4,569.18 <i>acre-inches</i>
Commercial fertilizer / Other	0.00	0.00	0.00	0.00	31.08 <i>inches/acre</i>
Dry manure	0.00	0.00	0.00	0.00	
Process wastewater	267.33	97.57	597.75	2,953.85	Process wastewater applied
Fresh water	0.00	0.00	0.00	281.74	14,768,516.00 <i>gallons</i>
Atmospheric deposition	14.00	0.00	0.00	0.00	543.87 <i>acre-inches</i>
Total nutrients applied	281.33	97.57	597.75	3,235.59	3.70 <i>inches/acre</i>
Anticipated crop nutrient removal	180.00	35.00	342.50	1,500.00	
Actual crop nutrient removal	214.81	52.28	356.88	1,648.03	Total harvests for the crop
Nutrient balance	66.52	45.29	240.87	1,587.56	1 <i>harvests</i>
Applied to removed ratio	1.31	1.87	1.67	1.96	

Annual Report - General Order No. R5-2007-0035

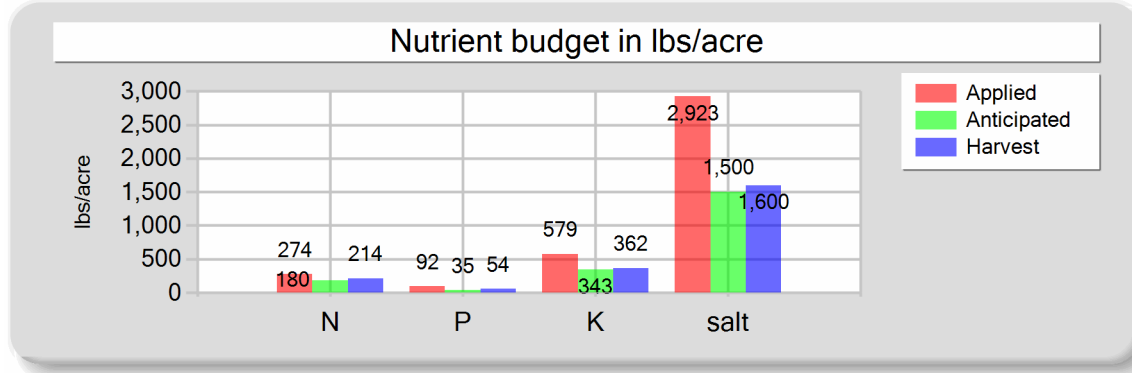
Reporting period 01/01/2023 to 12/31/2023.

F-3 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-3

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)	Fresh water applied
Existing soil nutrient content	0.00	0.00	0.00	0.00	125,447,184.00 <i>gallons</i>
Plowdown credit	0.00	0.00	0.00	0.00	4,619.79 <i>acre-inches</i>
Commercial fertilizer / Other	0.00	0.00	0.00	0.00	31.01 <i>inches/acre</i>
Dry manure	0.00	0.00	0.00	0.00	
Process wastewater	260.19	91.76	578.85	2,642.16	Process wastewater applied
Fresh water	0.00	0.00	0.00	281.04	14,555,710.00 <i>gallons</i>
Atmospheric deposition	14.00	0.00	0.00	0.00	536.04 <i>acre-inches</i>
Total nutrients applied	274.19	91.76	578.85	2,923.19	3.60 <i>inches/acre</i>
Anticipated crop nutrient removal	180.00	35.00	342.50	1,500.00	
Actual crop nutrient removal	214.06	54.06	362.17	1,600.04	Total harvests for the crop
Nutrient balance	60.13	37.71	216.68	1,323.15	1 <i>harvests</i>
Applied to removed ratio	1.28	1.70	1.60	1.83	

Annual Report - General Order No. R5-2007-0035

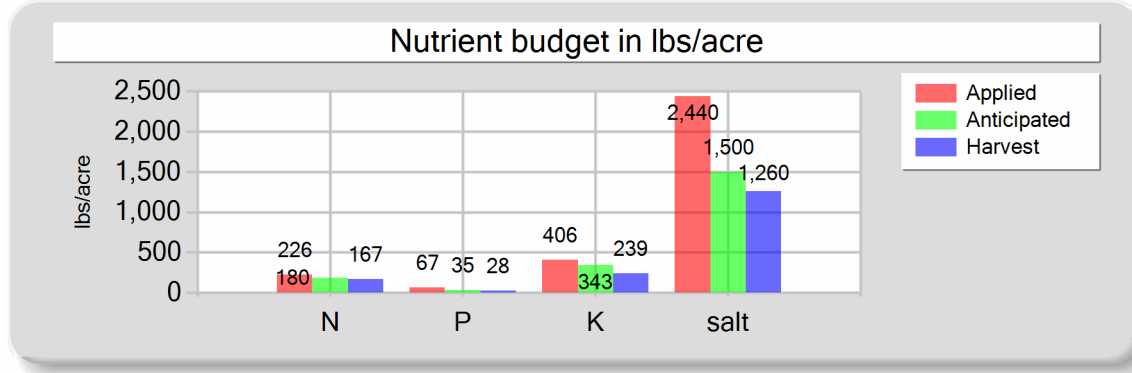
Reporting period 01/01/2023 to 12/31/2023.

F-5 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-5

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023



	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	212.50	66.63	406.24	2,144.02
Fresh water	0.00	0.00	0.00	295.91
Atmospheric deposition	14.00	0.00	0.00	0.00
Total nutrients applied	226.50	66.63	406.24	2,439.93
Anticipated crop nutrient removal	180.00	35.00	342.50	1,500.00
Actual crop nutrient removal	167.35	27.67	238.50	1,259.70
Nutrient balance	59.15	38.96	167.74	1,180.23
Applied to removed ratio	1.35	2.41	1.70	1.94

Fresh water applied
88,649,479.00 <i>gallons</i>
3,264.66 <i>acre-inches</i>
32.65 <i>inches/acre</i>

Process wastewater applied
6,653,032.00 <i>gallons</i>
245.01 <i>acre-inches</i>
2.45 <i>inches/acre</i>

Total harvests for the crop
1 <i>harvests</i>

Annual Report - General Order No. R5-2007-0035

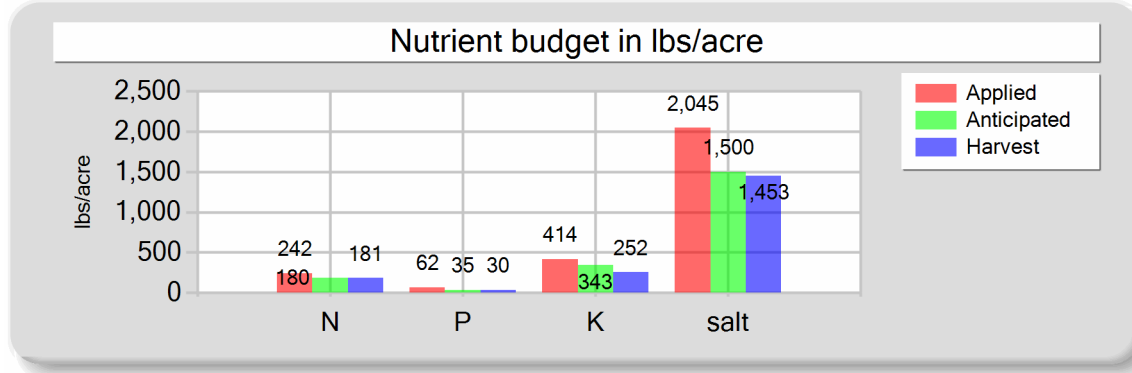
Reporting period 01/01/2023 to 12/31/2023.

F-6 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-6

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023



	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	228.20	61.95	413.62	1,743.44
Fresh water	0.00	0.00	0.00	301.43
Atmospheric deposition	14.00	0.00	0.00	0.00
Total nutrients applied	242.20	61.95	413.62	2,044.87
Anticipated crop nutrient removal	180.00	35.00	342.50	1,500.00
Actual crop nutrient removal	181.25	30.44	251.82	1,452.80
Nutrient balance	60.94	31.51	161.80	592.07
Applied to removed ratio	1.34	2.04	1.64	1.41

Fresh water applied
91,206,422.00 <i>gallons</i>
3,358.82 <i>acre-inches</i>
33.26 <i>inches/acre</i>

Process wastewater applied
6,878,868.00 <i>gallons</i>
253.33 <i>acre-inches</i>
2.51 <i>inches/acre</i>

Total harvests for the crop
1 <i>harvests</i>

Annual Report - General Order No. R5-2007-0035

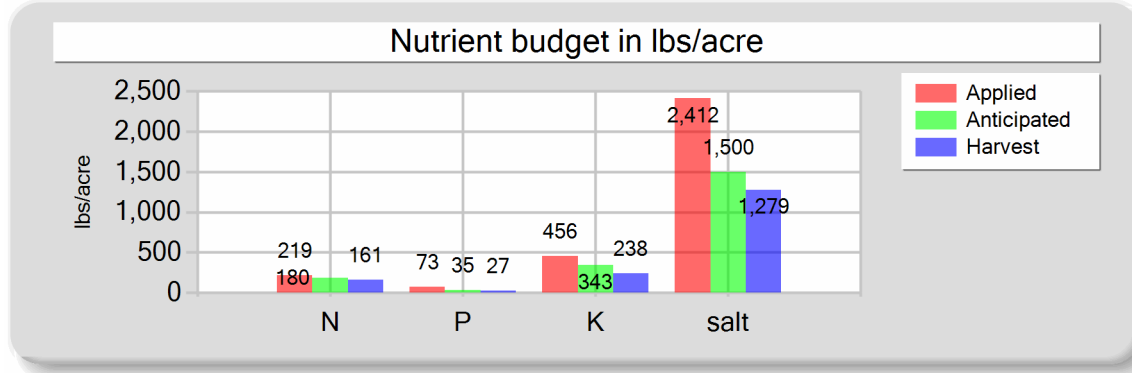
Reporting period 01/01/2023 to 12/31/2023.

F-7 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-7

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)	Fresh water applied
Existing soil nutrient content	0.00	0.00	0.00	0.00	74,368,024.00 <i>gallons</i>
Plowdown credit	0.00	0.00	0.00	0.00	2,738.72 <i>acre-inches</i>
Commercial fertilizer / Other	0.00	0.00	0.00	0.00	31.85 <i>inches/acre</i>
Dry manure	0.00	0.00	0.00	0.00	
Process wastewater	204.56	72.77	455.66	2,122.96	Process wastewater applied
Fresh water	0.00	0.00	0.00	288.65	6,606,569.00 <i>gallons</i>
Atmospheric deposition	14.00	0.00	0.00	0.00	243.30 <i>acre-inches</i>
Total nutrients applied	218.56	72.77	455.66	2,411.61	2.83 <i>inches/acre</i>
Anticipated crop nutrient removal	180.00	35.00	342.50	1,500.00	
Actual crop nutrient removal	160.68	27.23	238.30	1,278.63	Total harvests for the crop
Nutrient balance	57.88	45.54	217.37	1,132.98	1 <i>harvests</i>
Applied to removed ratio	1.36	2.67	1.91	1.89	

Annual Report - General Order No. R5-2007-0035

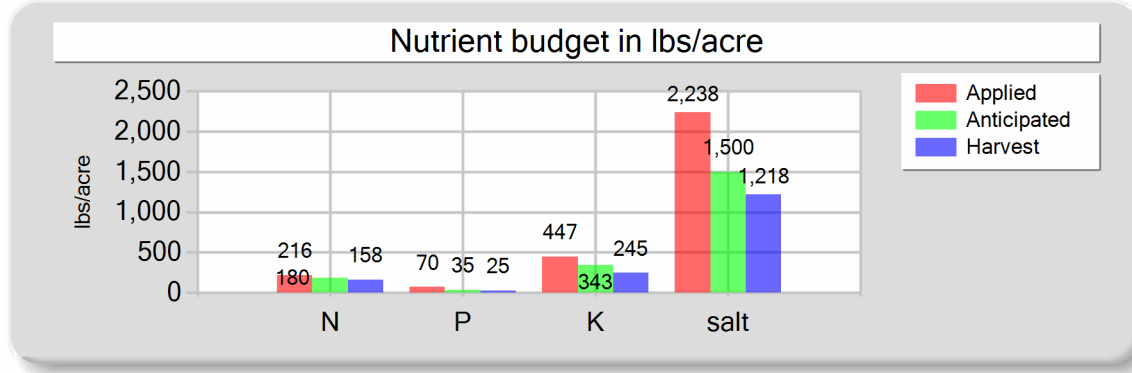
Reporting period 01/01/2023 to 12/31/2023.

F-8 - 06/05/2023: Sorghum-Sudangrass, forage

Field name: F-8

Crop: Sorghum-Sudangrass, forage

Plant date: 06/05/2023



	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	Total salt (lbs/acre)	Fresh water applied
Existing soil nutrient content	0.00	0.00	0.00	0.00	78,600,640.00 <i>gallons</i>
Plowdown credit	0.00	0.00	0.00	0.00	2,894.59 <i>acre-inches</i>
Commercial fertilizer / Other	0.00	0.00	0.00	0.00	32.16 <i>inches/acre</i>
Dry manure	0.00	0.00	0.00	0.00	
Process wastewater	201.60	69.72	447.25	1,946.66	Process wastewater applied
Fresh water	0.00	0.00	0.00	291.52	6,808,818.00 <i>gallons</i>
Atmospheric deposition	14.00	0.00	0.00	0.00	250.75 <i>acre-inches</i>
Total nutrients applied	215.60	69.72	447.25	2,238.19	2.79 <i>inches/acre</i>
Anticipated crop nutrient removal	180.00	35.00	342.50	1,500.00	
Actual crop nutrient removal	158.47	25.30	245.03	1,218.49	Total harvests for the crop
Nutrient balance	57.14	44.42	202.23	1,019.70	1 <i>harvests</i>
Applied to removed ratio	1.36	2.76	1.83	1.84	

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

NUTRIENT ANALYSES

A. MANURE ANALYSES

Manure

Sample and source description: Manure

Sample date: 11/15/2022 Material type: Corral solids Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 33.7 %

	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	27,100.00	9,500.00	34,700.00							
DL	100.00	200.00	200.00							

Manure

Sample and source description: Manure

Sample date: 05/01/2023 Material type: Corral solids Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 14.5 %

	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	9,200.00	3,900.00	10,700.00							
DL	100.00	200.00	200.00							

Dry Manure

Sample and source description: Dry Manure

Sample date: 10/13/2023 Material type: Corral solids Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 27.4 %

	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	26,600.00	9,600.00	26,800.00							
DL	100.00	200.00	200.00							

B. PROCESS WASTEWATER ANALYSES

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

Lagoon

Sample and source description: LagoonSample date: 11/15/2022 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	369.00	189.00	0.00	0.00	89.00	657.00								8,510.00	5,650
DL	10.00	2.00	0.10	0.10	0.20	0.50								100.00	10

Lagoon

Sample and source description: LagoonSample date: 02/21/2023 Material type: Process wastewater Source of analysis: Lab analysis pH: 7.40

	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	301.00	173.00	0.00	0.00	66.00	809.00								7,620.00	5,060
DL	10.00	2.00	0.10	0.10	0.20	0.50								100.00	10

Lagoon

Sample and source description: LagoonSample date: 05/01/2023 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	320.00	199.00	0.00	0.00	102.00	702.00								3,710.00	2,460
DL	10.00	2.00	0.10	0.10	0.20	0.50								100.00	10

Lagoon

Sample and source description: LagoonSample date: 08/11/2023 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	317.00	208.00	0.00	0.00	140.00	731.00								7,940.00	5,270
DL	10.00	2.00	0.10	0.10	0.20	0.50								100.00	10

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

Lagoon

Sample and source description: Lagoon

Sample date: 11/03/2023 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	253.00	247.00	0.00	0.00	69.90	560.00								7,000.00	4,650
DL	10.00	2.00	2.00	2.00	0.20	0.50								100.00	10

C. FRESH WATER ANALYSES

Barn West

Domestic Well

Sample description: Domestic Well

Sample date: 12/07/2023 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	0.00	0.00	0.00	4.00	1.00	211.00	440.00	40.00	0.30	25.00	985.00	660
DL	0.20	0.20	0.20	1.00	1.00	1.00	10.00	10.00	0.17	1.00	1.00	20

D-1

Domestic Well

Sample description: Domestic Well

Sample date: 12/07/2023 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	0.00	0.00	0.00	4.00	1.00	259.00	550.00	10.00	1.00	25.00	996.00	650
DL	0.20	0.20	0.20	1.00	1.00	1.00	10.00	10.00	0.17	1.00	1.00	20

People's Ditch- Hanford

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

People's Ditch- Hanford

People's Ditch - Hanford

Sample description: People's Ditch - Hanford

Sample date: 07/18/2023 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	0.00		0.00								31.00	40
DL	0.50		0.40								1.00	20

D. SOIL ANALYSES

No soil analyses entered.

E. PLANT TISSUE ANALYSES

F-1 - 06/05/2023: Sorghum-Sudangrass, forage

Milo

Sample and source description: Milo

Sample date: 11/02/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 75.9 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	17,700.00	5,000.00	31,600.00		14.90
DL	500.00	200.00	200.00		0.05

F-2 - 06/05/2023: Sorghum-Sudangrass, forage

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-2 - 06/05/2023: Sorghum-Sudangrass, forage

Milo

Sample and source description: Milo

Sample date: 11/02/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 76.2 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	18,900.00	4,600.00	31,400.00		14.50
DL	500.00	200.00	200.00		0.05

F-3 - 06/05/2023: Sorghum-Sudangrass, forage

Milo

Sample and source description: Milo

Sample date: 11/02/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 76.6 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	19,800.00	5,000.00	33,500.00		14.80
DL	500.00	200.00	200.00		0.05

F-5 - 06/05/2023: Sorghum-Sudangrass, forage

Milo

Sample and source description: Milo

Sample date: 11/03/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 72.0 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	12,700.00	2,100.00	18,100.00		9.56
DL	500.00	200.00	200.00		0.05

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

F-6 - 06/05/2023: Sorghum-Sudangrass, forage

Milo

Sample and source description: Milo

Sample date: 11/03/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 71.7 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	13,100.00	2,200.00	18,200.00		10.50
DL	500.00	200.00	200.00		0.05

F-7 - 06/05/2023: Sorghum-Sudangrass, forage

Milo

Sample and source description: Milo

Sample date: 11/03/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 71.7 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	11,800.00	2,000.00	17,500.00		9.39
DL	500.00	200.00	200.00		0.05

F-8 - 06/05/2023: Sorghum-Sudangrass, forage

Milo

Sample and source description: Milo

Sample date: 11/03/2023 Source of analysis: Lab analysis Method of reporting: Dry-weight

Moisture: 71.3 %

	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Total salt (mg/kg)	TFS (%)
Value	11,900.00	1,900.00	18,400.00		9.15
DL	500.00	200.00	200.00		0.05

F. SUBSURFACE (TILE) DRAINAGE ANALYSES

No subsurface (tile) drainage analyses entered.

Annual Report - General Order No. R5-2007-0035

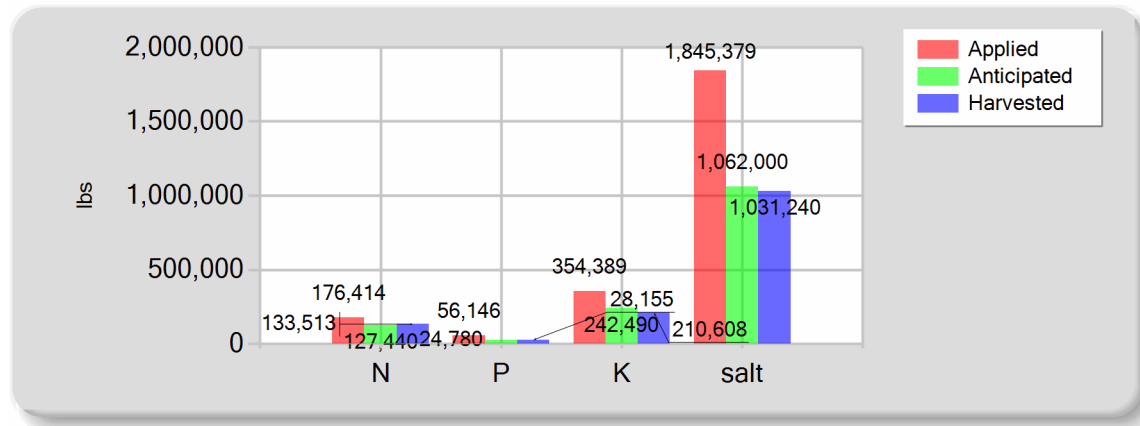
Reporting period 01/01/2023 to 12/31/2023.

NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

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

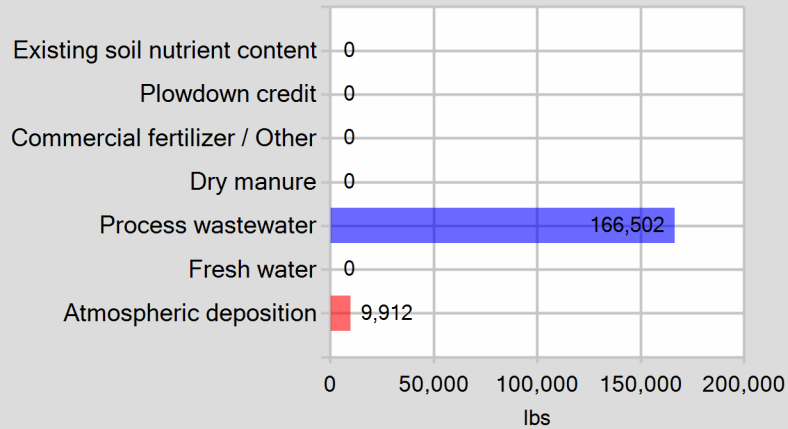
	Total N (lbs)	Total P (lbs)	Total K (lbs)	Total salt (lbs)
Existing soil nutrient content	0.00	0.00	0.00	0.00
Plowdown credit	0.00	0.00	0.00	0.00
Commercial fertilizer / Other	0.00	0.00	0.00	0.00
Dry manure	0.00	0.00	0.00	0.00
Process wastewater	166,501.91	56,146.17	354,388.77	1,640,747.48
Fresh water	0.00	0.00	0.00	204,631.43
Atmospheric deposition	9,912.00	0.00	0.00	0.00
Total nutrients applied	176,413.91	56,146.17	354,388.77	1,845,378.91
Anticipated crop nutrient removal	127,440.00	24,780.00	242,490.00	1,062,000.00
Actual crop nutrient removal	133,513.19	28,155.09	210,607.78	1,031,239.98
Nutrient balance	42,900.72	27,991.08	143,780.99	814,138.93
Applied to removed ratio	1.32	1.99	1.68	1.79

B. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL

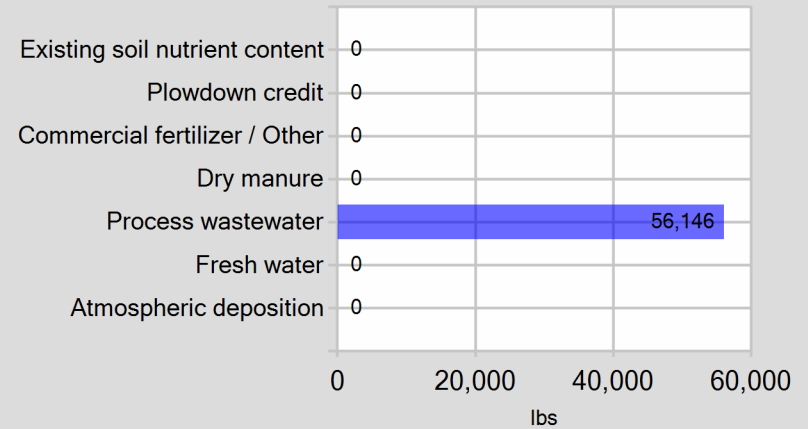


C. POUNDS OF NUTRIENT APPLIED BY MATERIAL TYPE

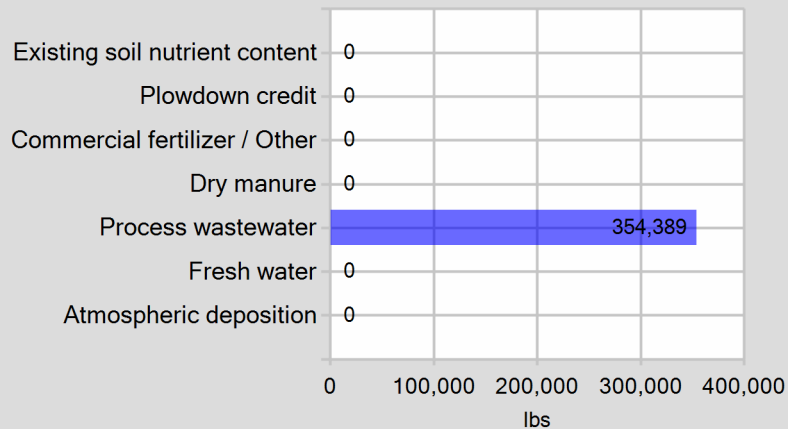
Pounds of nitrogen applied



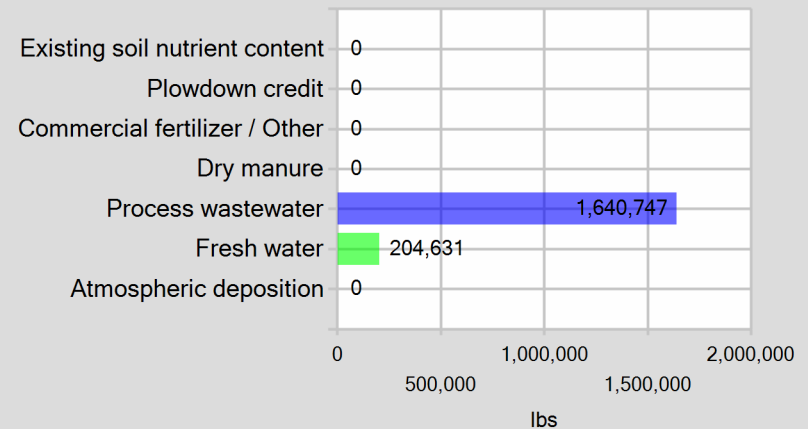
Pounds of phosphorus applied



Pounds of potassium applied



Pounds of salt applied



Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

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

Annual Report - General Order No. R5-2007-0035

Reporting period 01/01/2023 to 12/31/2023.

ADDITIONAL NOTES

A. NOTES

Wells P-1, P-2, P-3, P-4, P-5, D-2, Barn East were out of service in 2023.

Fields 4, 9, and 10 were fallow in 2023.

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.


SIGNATURE OF OWNER OF FACILITY

Philip Verwey Farms Dairy #5

PRINT OR TYPE NAME

10-24-24
DATE


SIGNATURE OF OPERATOR OF FACILITY

F&S Brasil Dairy

PRINT OR TYPE NAME

6-27-24
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.

August 11, 2023

Sentry Ag Services
 Attn: Monique Baldiviez
 P.O. Box 7750
 Visalia, CA 93290

Lab No. : VI 2344656
Customer No. : 4019696
Reference : 3058

Laboratory Report

Introduction: This report package contains a total of 3 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
People's Ditch - Hanford	07/18/2023	07/18/2023	VI 2344656-001	AGW

Sampling and Receipt Information:

The Sample was received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. The Sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary

EPA 351.2	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-NO3 F	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2023-08-14

August 11, 2023

Sentry Ag Services

Attn: Monique Baldiviez

P.O. Box 7750

Visalia, CA 93290

Description : People's Ditch - Hanford

Project : People's Ditch - Hanford

Lab No. : VI 2344656-001

Customer No. : 4019696

Reference : 3058

Sampled On : July 18, 2023 at 12:45

Sampled By : Jeremy

Received On : July 18, 2023 at 15:17

Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	08/08/2023	08:55	sta	EPA 351.2	08/10/2023	17:11	lcr
Nitrate Nitrogen	ND	0.4	mg/L		1	U	07/19/2023	12:15	lfs	SM 4500-NO3 F	07/19/2023	13:53	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	U	08/08/2023	08:55	sta	Calc.	08/10/2023	17:11	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L		1	U	07/19/2023	12:15	lfs	SM 4500-NO3 F	07/19/2023	13:53	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	08/08/2023	08:55	sta	EPA 351.2	08/10/2023	17:11	lcr
Conductivity	31	1	umhos/cm		1		07/31/2023	14:51	amm	SM 4500-H+B	07/31/2023	17:48	amm
Solids, Total Dissolved (TDS)	40	20	mg/L		1		07/20/2023	16:15	ctl	SM 2540 C	07/21/2023	11:10	ctl

DQF Flags Definition:

U Constituent results were non-detect.

ND=Non-Detected, RL=Reporting Level , Dil.=Dilution

Corporate Offices & Laboratory

853 Corporation Street

Santa Paula, CA 93060

TEL: (805)392-2000

Env FAX: (805)525-4172 / Ag FAX: (805)392-2063

CA ELAP Certification No. 1573

Office & Laboratory

2500 Stagecoach Road

Stockton, CA 95215

TEL: (209)942-0182

FAX: (209)942-0423

CA ELAP Certification No. 1563

Office & Laboratory

563 E. Lindo Avenue

Chico, CA 95926

TEL: (530)343-5818

FAX: (530)343-3807

CA ELAP Certification No. 2670

Office & Laboratory

3442 Empresa Drive, Suite D

San Luis Obispo, CA 93401

TEL: (805)783-2940

FAX: (805)783-2912

CA ELAP Certification No. 2775

Office & Laboratory

9415 W. Goshen Avenue

Visalia, CA 93291

TEL: (559)734-9473

FAX: (559)734-8435

CA ELAP Certification No. 2810

August 11, 2023
Sentry Ag Service

Lab No. : VI 2344656
Customer No. : 4019696

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2344788-008)	Dup	umhos/cm		0.1%	5	
Solids, Total Dissolved	2540CE	07/20/2023:207946CTL (STK2339578-001) (STK2339578-001)	Blank	mg/L	993.7	ND	<20	
			LCS	mg/L		102%	90-110	
			Dup	mg/L		0.4%	5	
			Dup	mg/L		1.98%	5	
Nitrogen, Total Kjeldahl	351.2	08/08/2023:208707STA (VI 2344654-002) (VI 2344644-003)	Blank	mg/L	12.00	ND	<0.5	
			LCS	mg/L		91.3%	73-124	
			MS	mg/L		85.5%	54-136	
			MSD	mg/L		85.3%	54-136	
			MSRPD	mg/L		0.3%	≤27	
			MS	mg/L		82.8%	54-136	
			MSD	mg/L		82.5%	54-136	
			MSRPD	mg/L		0.3%	≤27	
Nitrate + Nitrite as N	4500NO3F	07/19/2023:207926LFS (SP 2312214-001)	Blank	mg/L	11.22	ND	<0.4	
			LCS	mg/L		97.7%	80-120	
			MS	mg/L		90.8%	66-125	
			MSD	mg/L		92.7%	66-125	
			MSRPD	mg/L		1.0%	≤30.4	
Nitrate Nitrogen	4500NO3F	07/19/2023:207926LFS (SP 2312214-001)	Blank	mg/L	11.22	ND	<0.4	
			LCS	mg/L		97.7%	80-120	
			MS	mg/L		90.8%	66-125	
			MSD	mg/L		92.7%	66-125	
			MSRPD	mg/L		1.0%	≤30.4	

Definition

- Blank** : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- DQO** : Data Quality Objective - This is the criteria against which the quality control data is compared.
- Dup** : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
- LCS** : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS** : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD** : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSRPD** : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
- ND** : Non-detect - Result was below the DQO listed for the analyte.



Laboratory Analysis Work Order

3058

SITE NAME: People's Ditch - Hartford

LABORATORY: VT | FGL 4-19696

Billing: Sentry Ag Services, LLC
P.O. Box 7750, Visalia, CA 93290

Authorized Copy Release to:
labs@sentryagservices.com

ANALYSIS TO BE COMPLETED

Irrigation/Ground Water (ELAP Standards)

- W1 EC, NO₃N (Dom)
- W2 EC, NO₃N, TDS, TN (Irr)
- W3 NH₄-N (Ammonium)
- W4 EC, NO₃N, Ca, Mg, Na, HCO₃, CO₃, SO₄S, Cl, TDS (Dom, GM)
- W5 EC, NO₃N, TDS, TN, Ca, Mg, Na, HCO₃, CO₃, SO₄S, Cl (Irr, GM)
- W6 NO₃N, NO₂ (Dom ILRP, Annually)
- W7 Ca, Mg, Na, K, HCO₃, CO₃, SO₄, Cl + Lab Filtering (GWM)
- W8 Other: _____

Plant Tissue

- P1 TN, NO₃N, PO₄P, K (Mid Season - Wheat)
- P2 TN, P, K (Mid-season - Corn)
- P3 TN, TP, TK, Ash, %M (At Harvest)
- P4 TN, %M
- P5 % Moisture
- P6 NIR
- P7 Other: _____

Process Waste Water (lagoon)

- L1 EC, NH₄N, TKN, TP, TK, TDS (Quarterly)
- L2 EC, NO₃N, NH₄N, TKN, TP, TK, TDS, pH (Annually)
- L3 Ca, Mg, Na, HCO₃, CO₃, SO₄S, Cl (Biennially)
- L4 Other: _____

Manure

- M1 TN, TP, TK, %M (2/year)
- M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)
- M3 Other: _____

Soil

- S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO₃N, PO₄P, K-AA, Zn, Mn, Fe, Cu, SO₄S
- S2 S1 + CEC, CaCO₃, OM, C:N, TN
- S3 NO₃N, NH₄N
- S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	SAS USE ONLY: FIELD TESTS		
						NH ₃ N *	pH	Temp
1	People's Ditch - Hartford	Canal	W2	7/18/23 12:45	Jeremy	—		
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of samples, please note below.

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1 st	<i>W D. H.</i>	SAS		7/18/23 3:27 pm
2 nd	SRO	FGL	7/18/23 1517	
3 rd	SRO	FGL		7/18/23 1730
4 th		GLS	7/18/23 1730	

LABORATORY USE ONLY

Logged In By: _____ Total Samples: _____ Laboratory No.: _____

ROI 5.3°C GLS 7/19/23
MLC 1100

Inter-Laboratory Condition Upon Receipt (Attach to COC)

Sample Receipt at: STK CC

CH VI

1. Number of ice chests/packages received: 1 Shipping tracking # OTC

2. Were samples received in a chilled condition? Temps: 201 / 5.3°C / / /
Surface water SWTR bact samples: A sample that has a temperature upon receipt of >10° C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.

- | | | | |
|---|------------|----|------------|
| 3. Do the number of bottles received agree with the COC? | <u>Yes</u> | No | N/A |
| 4. Were samples received intact? (i.e. no broken bottles, leaks etc.) | <u>Yes</u> | No | |
| 5. VOAs checked for Headspace? | Yes | No | <u>N/A</u> |
| 6. Were sample custody seals intact? | Yes | No | <u>N/A</u> |
| 7. If required, was sample split for pH analysis? | Yes | No | <u>N/A</u> |
| 8. Were all analyses within holding times at time of receipt? | <u>Yes</u> | No | |
| 9. Verify sample date, time and sampler name | <u>Yes</u> | No | |

Sign and date the COC, place in a ziplock and put in the same ice chest as the samples.

Sample Receipt Review completed by (initials): SPO

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 30 / / / /
Acceptable is above freezing to 6°C. If many packages are received at one time check for tests/H.T.'s/rushes/
2. Shipping tracking numbers: 559787246
6815

- | | | | |
|---|------------|----|------------|
| 3. Do the number of bottles received agree with the COC? | <u>Yes</u> | No | N/A |
| 4. Were samples received intact? (i.e. no broken bottles, leaks etc.) | <u>Yes</u> | No | |
| 5. Were sample custody seals intact? | Yes | No | <u>N/A</u> |

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

- | | | | |
|---|------------|----|------------|
| 1. Were all requested analyses understood and acceptable? | <u>Yes</u> | No | |
| 2. Did bottle labels correspond with the client's ID's? | <u>Yes</u> | No | |
| 3. Were all bottles requiring sample preservation properly preserved?
<small>[Exception: Oil & Grease, VOA and CrVI verified in lab]</small> | <u>Yes</u> | No | N/A FGL |
| 4. VOAs checked for Headspace? | Yes | No | <u>N/A</u> |
| 5. Have rush or project due dates been checked and accepted? | Yes | No | <u>N/A</u> |
| 6. Were all analyses within holding times at time of receipt? | <u>Yes</u> | No | |

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials): MX

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____
Resolution: _____
2. Person Contacted: _____ Phone Number: _____
Initiated By: _____
Problem: _____
Resolution: _____

(Please use the back of this sheet for additional cc contacts)

(4019696)
Sentry Ag Service
VI 2344656

iv 07/19/2023 08:11:30



VI 2344656

January 8, 2024

Sentry Ag Services
 Attn: Monique Baldiviez
 P.O. Box 7750
 Visalia, CA 93290

Lab No. : VI 2348338
Customer No. : 4019696
Reference : 3471

Laboratory Report

Introduction: This report package contains a total of 6 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(2 pages)	: Results for each sample submitted.
Quality Control	(3 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
DW1	12/07/2023	12/07/2023	VI 2348338-001	DW
Barn West	12/07/2023	12/07/2023	VI 2348338-002	DW

Sampling and Receipt Information:

All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples were received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the associated Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to established quality control criteria. Any exceptions are noted in the Quality Control Section of this report.

Test Summary

EPA 200.7	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
EPA 300.0	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2320 B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 2540 C	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-H+B	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
SM 4500-NH3 G	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

Certification: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above and in the QC Section. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature. This report shall not be reproduced except in full, without the written approval of the laboratory.

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.**


 Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2024-01-08

Section: Case Narrative

Page 1 of 6

Page 1 of 6

Corporate Offices & Laboratory
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 CA ELAP Certification No. 2810

January 8, 2024

Sentry Ag Services

Attn: Monique Baldiviez
 P.O. Box 7750
 Visalia, CA 93290

Description : DW1
 Project : F&S Brasil

Lab No. : VI 2348338-001
 Customer No. : 4019696
 Reference : 3471
 Sampled On : December 7, 2023 at 11:30
 Sampled By : Jeremy
 Received On : December 7, 2023 at 15:14
 Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Ammonia-N	0.4	0.2	mg/L		1		12/20/2023	19:20	lcr	SM 4500-NH3 G	12/20/2023	20:12	lcr
Alkalinity (as CaCO3)	480	10	mg/L		1		12/20/2023	15:37	amm	SM 2320 B	12/20/2023	16:45	amm
Bicarbonate	550	10	mg/L		1		12/20/2023	15:37	amm	SM 2320 B	12/20/2023	16:45	amm
Carbonate	10	10	mg/L		1		12/20/2023	15:37	amm	SM 2320 B	12/20/2023	16:45	amm
Hydroxide	10	10	mg/L		1		12/20/2023	15:37	amm	SM 2320 B	12/20/2023	16:45	amm
Chloride	25	1	mg/L	500 ²	1		12/08/2023	16:02	ldm	EPA 300.0	12/09/2023	10:38	ldm
Nitrate Nitrogen	ND	0.1	mg/L	10	1	U	12/08/2023	16:02	ldm	EPA 300.0	12/09/2023	10:38	ldm
Conductivity	996	1	umhos/cm	1600 ²	1		12/22/2023	09:20	krh	SM 4500-H+B	12/22/2023	13:05	krh
Sulfate Sulfur	1.0	0.17	mg/L		1		12/08/2023	16:02	ldm	EPA 300.0	12/09/2023	10:38	ldm
Solids, Total Dissolved (TDS)	650	20	mg/L	1000 ²	1		12/11/2023	11:20	ctl	SM 2540 C	12/12/2023	11:20	ctl
Calcium	4	1	mg/L		1		12/21/2023	07:00	ac	EPA 200.7	12/22/2023	20:41	ac
Magnesium	1	1	mg/L		1		12/21/2023	07:00	ac	EPA 200.7	12/22/2023	20:41	ac
Potassium	1	1	mg/L		1		12/21/2023	07:00	ac	EPA 200.7	12/22/2023	20:41	ac
Sodium	259	1	mg/L		1		12/21/2023	07:00	ac	EPA 200.7	12/22/2023	20:41	ac

DQF Flags Definition:

U Constituent results were non-detect.

ND=Non-Detected, RL=Reporting Level, Dil.=Dilution

MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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January 8, 2024

Sentry Ag Services

Attn: Monique Baldiviez
 P.O. Box 7750
 Visalia, CA 93290

Description : Barn West
 Project : F&S Brasil

Lab No. : VI 2348338-002
 Customer No. : 4019696
 Reference : 3471
 Sampled On : December 7, 2023 at 11:40
 Sampled By : Jeremy
 Received On : December 7, 2023 at 15:14
 Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Ammonia-N	0.4	0.2	mg/L		1		12/20/2023	19:20	lcr	SM 4500-NH3 G	12/20/2023	20:14	lcr
Alkalinity (as CaCO3)	430	10	mg/L		1		12/20/2023	15:37	amm	SM 2320 B	12/20/2023	16:45	amm
Bicarbonate	440	10	mg/L		1		12/20/2023	15:37	amm	SM 2320 B	12/20/2023	16:45	amm
Carbonate	40	10	mg/L		1		12/20/2023	15:37	amm	SM 2320 B	12/20/2023	16:45	amm
Hydroxide	40	10	mg/L		1		12/20/2023	15:37	amm	SM 2320 B	12/20/2023	16:45	amm
Chloride	25	1	mg/L	500 ²	1		12/08/2023	16:02	ldm	EPA 300.0	12/09/2023	10:17	ldm
Nitrate Nitrogen	ND	0.1	mg/L	10	1	U	12/08/2023	16:02	ldm	EPA 300.0	12/09/2023	10:17	ldm
Conductivity	985	1	umhos/cm	1600 ²	1		12/22/2023	09:20	krh	SM 4500-H+B	12/22/2023	12:13	krh
Sulfate Sulfur	0.3	0.17	mg/L		1		12/08/2023	16:02	ldm	EPA 300.0	12/09/2023	10:17	ldm
Solids, Total Dissolved (TDS)	660	20	mg/L	1000 ²	1		12/11/2023	11:20	ctl	SM 2540 C	12/12/2023	11:20	ctl
Calcium	4	1	mg/L		1		12/18/2023	07:55	ejc	EPA 200.7	12/19/2023	12:32	ac
Magnesium	1	1	mg/L		1		12/18/2023	07:55	ejc	EPA 200.7	12/19/2023	12:32	ac
Potassium	ND	1	mg/L		1	U	12/18/2023	07:55	ejc	EPA 200.7	12/19/2023	12:32	ac
Sodium	211	1	mg/L		1		12/18/2023	07:55	ejc	EPA 200.7	12/19/2023	12:32	ac

DQF Flags Definition:

U Constituent results were non-detect.

ND=Non-Detected, RL=Reporting Level, Dil.=Dilution

MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

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January 8, 2024
Sentry Ag Service

Lab No. : VI 2348338
Customer No. : 4019696

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals Calcium	200.7	12/18/2023:214203EJC (VI 2348524-001) (SP 2320618-001)	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.1%	85-115	
			MS	mg/L	12.00	95.7%	75-125	
			MSD	mg/L	12.00	75.8%	75-125	
			MSRPD	mg/L		3.1%	≤20.0	
			MS	mg/L	12.00	123%	75-125	
			MSD	mg/L	12.00	92.7%	75-125	
			MSRPD	mg/L		3.2%	≤20.0	
			Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	97.8%	85-115	
Magnesium	200.7	12/21/2023:214384AC (CC 2384553-001) (CC 2384520-001)	MS	mg/L	12.00	69.2%	<¼	406
			MSD	mg/L	12.00	87.6%	75-125	
			MSRPD	mg/L		2.5%	≤20.0	
			MS	mg/L	12.00	103%	75-125	
			MSD	mg/L	12.00	85.8%	75-125	
			MSRPD	mg/L		2.3%	≤20.0	
			Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	97.8%	85-115	
			MS	mg/L	12.00	103%	75-125	
			MSD	mg/L	12.00	99.2%	75-125	
Potassium	200.7	12/18/2023:214203EJC (VI 2348524-001) (SP 2320618-001)	MSRPD	mg/L		3.1%	≤20	
			MS	mg/L	12.00	112%	75-125	
			MSD	mg/L	12.00	92.4%	75-125	
			MSRPD	mg/L		5.1%	≤20	
			Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	101%	85-115	
			MS	mg/L	12.00	95.6%	75-125	
			MSD	mg/L	12.00	105%	75-125	
			MSRPD	mg/L		2.2%	≤20	
			MS	mg/L	12.00	108%	75-125	
Potassium	200.7	12/21/2023:214384AC (CC 2384553-001) (CC 2384520-001)	MSD	mg/L	12.00	84.9%	75-125	
			MSRPD	mg/L		5.6%	≤20	
			Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	98.4%	85-115	
			MS	mg/L	12.00	100%	75-125	
			MSD	mg/L	12.00	97.3%	75-125	
			MSRPD	mg/L		3.0%	≤20.0	
			MS	mg/L	12.00	105%	75-125	
			MSD	mg/L	12.00	100%	75-125	
			MSRPD	mg/L		3.0%	≤20.0	
Potassium	200.7	12/21/2023:214384AC (CC 2384553-001)	MS	mg/L	12.00	110%	75-125	
			MSD	mg/L	12.00	104%	75-125	
			MSRPD	mg/L		1.6%	≤20.0	
			Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	97.2%	85-115	
			MS	mg/L	12.00	98.9%	75-125	
			MSD	mg/L	12.00	104%	75-125	
			MSRPD	mg/L		1.6%	≤20.0	
			MS	mg/L	12.00	110%	75-125	
			MS	mg/L	12.00	110%	75-125	

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Sodium	200.7	(CC 2384520-001)	MSD	mg/L	12.00	79.2%	75-125	406
			MSRPD	mg/L		10.9%	≤20.0	
		12/18/2023:214203EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	93.7%	85-115	
			MS	mg/L	12.00	101%	75-125	
		(VI 2348524-001)	MSD	mg/L	12.00	85.0%	75-125	
			MSRPD	mg/L		2.9%	≤20.0	
			MS	mg/L	12.00	158%	<¼	
		(SP 2320618-001)	MSD	mg/L	12.00	56.2%	<1/4	
			MSRPD	mg/L		6.2%	≤20.0	
	200.7	12/21/2023:214384AC	Blank	mg/L		ND	<1	406
			LCS	mg/L	12.00	96.1%	85-115	
			MS	mg/L	12.00	31.4%	<¼	
		(CC 2384553-001)	MSD	mg/L	12.00	41.2%	<1/4	
			MSRPD	mg/L		0.8%	≤20.0	
			MS	mg/L	12.00	110%	75-125	
		(CC 2384520-001)	MSD	mg/L	12.00	82.7%	75-125	
			MSRPD	mg/L		2.2%	≤20.0	

Definition

- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
- ND : Non-detect - Result was below the DQO listed for the analyte.

Explanation

- 406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO ₃)	2320B	(VI 2348338-001)	Dup	mg/L		0%	10	
Bicarbonate	2320B	(VI 2348338-001)	Dup	mg/L		0%	10	
Carbonate	2320B	(VI 2348338-001)	Dup	mg/L		0%	10	
E. C.	2320B	(VI 2348803-002)	Dup	umhos/cm		0.1%	5	
		(VI 2348744-001)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	12/11/2023:213920CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	103%	90-110	
		(SP 2320220-001)	Dup	mg/L		0.4%	5	
		(SP 2320220-001)	Dup	mg/L		1.44%	5	
Chloride	300.0	12/08/2023:213947LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	100%	90-110	
			MS	mg/L	0.000	0.0%	<¼	
			(CH 2373990-001)	MSD	mg/L	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
			MS	mg/L	0.000	0.0%	<¼	
			(STK2356821-001)	MSD	mg/L	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
Nitrate Nitrogen	300.0	12/08/2023:213947LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	101%	90-110	
			MS	mg/L	0.000	0.0%	<¼	
			(CH 2373990-001)	MSD	mg/L	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
			MS	mg/L	0.000	0.0%	<¼	
			(STK2356821-001)	MSD	mg/L	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
Sulfate Sulfur	300.0	12/08/2023:213947LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	102%	90-110	
			MS	mg/L	0.000	0.0%	<¼	
			(CH 2373990-001)	MSD	mg/L	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
			MS	mg/L	0.000	0.0%	<¼	
			(STK2356821-001)	MSD	mg/L	0.0%	<¼	
			MSRPD	mg/L		0.0%	≤7	
Ammonia Nitrogen	4500NH3G	12/20/2023:214382LCR	Blank	mg/L		ND	<0.2	
			LCS	mg/L	2.000	95.2%	90-110	
			MS	mg/L	2.000	96.7%	46-139	
			(STK2356822-001)	MSD	2.000	97.9%	46-139	
			MSRPD	mg/L		1.3%	≤20	

Definition

- <¼ : High Sample Background - Spike concentration was less than one forth of the sample concentration.
- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.



Laboratory Analysis Work Order

3471

SITE NAME: F&S Brasil

LABORATORY: VT | FGL 4-19696

Billing: Sentry Ag Services, LLC
P.O. Box 7750, Visalia, CA 93290

Authorized Copy Release to:
labs@sentryagservices.com

ANALYSIS TO BE COMPLETED

Irrigation/Ground Water (ELAP Standards)

- W1 EC, NO₃N (Dom)
W2 EC, NO₃N, TDS, TN (Irr)
W3 NH₄-N (Ammonium)
W4 EC, NO₃N, Ca, Mg, Na, HCO₃, CO₃, SO₄S, Cl, TDS (Dom, GM)
W5 EC, NO₃N, TDS, TN, Ca, Mg, Na, HCO₃, CO₃, SO₄S, Cl (Irr, GM)
W6 NO₃N, NO₂ (Dom ILRP, Annually)
W7 Ca, Mg, Na, K, HCO₃, CO₃, SO₄, Cl + Lab Filtering (GWM)
W8 Other: _____

Plant Tissue

- P1 TN, NO₃N, PO₄P, K (Mid Season - Wheat)
P2 TN, P, K (Mid-season - Corn)
P3 TN, TP, TK, Ash, %M (At Harvest)
P4 TN, %M
P5 % Moisture
P6 NIR
P7 Other: _____

Process Waste Water (lagoon)

- L1 EC, NH₄N, TKN, TP, TK, TDS (Quarterly)
L2 EC, NO₃N, NH₄N, TKN, TP, TK, TDS, pH (Annually)
L3 Ca, Mg, Na, HCO₃, CO₃, SO₄S, Cl (Biennially)
L4 Other: _____

Manure

- M1 TN, TP, TK, %M (2/year)
M2 TN, TP, K, %M, Ca, Mg, Na, S, Cl, ash (Biennially)
M3 Other: _____

Soil

- S1 SP%, pH, EC, Ca, Mg, Na, K, ESP, LP, B, NO₃N, PO₄P, K-AA, Zn, Mn, Fe, Cu, SO₄S
S2 S1 + CEC, CaCO₃, OM, C:N, TN
S3 NO₃N, NH₄N
S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	SAS USE ONLY: FIELD TESTS		
						NH ₃ N*	pH	Temp
1	DW1	DW	W3 & W4	12/7/23 11:30	Geremy	+		
2	Barn Wat	DW	W3 & W4	12/7/23 11:40	"	+		
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

* Field Test of ammonium nitrogen may only be made by a trained technician. Positive test to be analyzed for ammonium nitrogen by the laboratory.

All samples are to follow the procedures noted in the Sampling & Analysis Plan of the NMP and the RWQCB specifications. Any samples taken outside of these procedures shall provide the procedures on the notes below. Additionally, if any preservatives are used in the collections or processing of samples, please note below.

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1 st	<i>[Signature]</i>	SAB	12/7/23 1514	12/7/23 15:14
2 nd	<i>[Signature]</i>	FGL	12/7/23 1514	
3 rd	<i>[Signature]</i>		12/7/23 1730	12/7/23 1740
4 th	<i>[Signature]</i>			

LABORATORY USE ONLY

Logged In By: _____ Total Samples: _____ Laboratory No.: _____

GLS 12/8/23
mc 1237

Inter-Laboratory Condition Upon Receipt (Attach to COC)

Sample Receipt at: CC CH STK VI

1. Number of ice chests/packages received: 1 Shipping tracking #(s): OTC

2. Temp IR Gun ID #: 467

3. Were samples received on ice? ☒ Yes ☐ No Temps: 7.7c / / /

Surface water SWTR bact samples: A sample that has a temperature upon receipt of >10° C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.

4. Do the number of bottles received agree with the COC? ☒ Yes ☐ No ☐ N/A

5. Were samples received intact? (i.e. no broken bottles, leaks etc.) ☒ Yes ☐ No ☐ N/A

6. VOAs checked for Headspace? ☐ Yes ☐ No ☒ N/A

7. Were all analyses within holding times at time of receipt? ☒ Yes ☐ No

8. Verify sample date, time and sampler name ☒ Yes ☐ No

Sign and date the COC, place in a ziplock and put in the same ice chest as the samples.

Sample Receipt Review completed by (initials): ADA

Sample Receipt at SP:

1. Number of ice chests/packages received: 2 Shipping tracking #(s): 560595648

664

2. Temp IR Gun ID #: TH261

3. Were samples received on ice? ☒ Yes ☐ No Temps: 2c / / /

Acceptable is above freezing to 6°C. If many packages are received at one time check for tests/H.T.'s/rushes/

4. Do the number of bottles received agree with the COC? ☒ Yes ☐ No ☐ N/A

5. Were samples received intact? (i.e. no broken bottles, leaks etc.) ☒ Yes ☐ No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? ☒ Yes ☐ No

2. Did bottle labels correspond with the client's ID's? ☒ Yes ☐ No

3. Were all bottles requiring sample preservation properly preserved? ☒ Yes ☐ No ☐ N/A ☐ FGL

[Exception: Oil & Grease, VOA and CrVI verified in lab]

4. VOAs checked for Headspace? ☐ Yes ☐ No ☒ N/A

5. Have rush or project due dates been checked and accepted? ☐ Yes ☐ No ☒ N/A

6. Were all analyses within holding times at time of receipt? ☒ Yes ☐ No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials): VR

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____

Initiated By: _____ Date: _____

Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____

Initiated By: _____ Date: _____

Problem: _____

Resolution: _____

