Livingston Dairy Consulting, Inc.

1635 E. Propserity Ave., Ste B, Tulare
559-687-1440

F&L Barcellos Dairy WDID 5C54NC00229
14581 Road 80 Tipton, CA 93272

X	Annual Report
X	Water Analysis Samples
N/A	Manure Manifest
N/A	Facility / Land Map
X	CCA Nitrogen Retrofit Report

GEO Tracker Confirmation # **Date:**

Facility Info

Reporting Period: 1/1/2023 **to** 12/31/2023

Name of the Facility

Dairy Name: F&L Barcellos Dairy WDID 5C54NC00229

Facility Address: 14581 Road 80 Tipton, CA 93272

Original Operation Date: 6/6/1974

Facility APN's: x228 x260 x016 xxxx

RWQCB Basin Plan Designation: Tulare Lake Basin

☐ Check if any information has changed

Owner(s)

Owner(s) Name: Frank or Liduina Barcellos

Mailing Address: 14581 Road 80 Tipton, CA 93272

Home Phone Number: 559-752-3227

Cell Phone Number:

☐ Check if any information has changed

Operator(s)

Operator(s) Name: Frank, Liduina or Jerry Barcellos

Mailing Address: 14581 Road 80 Tipton, CA 93272

Home Phone Number: 559-804-5499

Cell Phone Number:

☐ Check if any information has changed

Herd Information

	Milk Cows	Dry Cows	Bred Heifers (12-24 mo)	Heifers (3-12 mo)	Calves (0-3 mo)
Open Confinement:	649	105	340	122	165
Number Under Roof	-	-	-	-	-
Maximum Number	649	105	340	122	165
Average Number	649	105	340	122	165
Average Live Weight (lbs)	1,400	1,450	950	630	

Average Milk Production: 61

Predominant Milk Cow Breed: Holstein

Manure Generated:

Total manure excreted by the herd:	3,665.05 @40% Moisture	*ton/yr*	
Total nitrogen from manure:	214,637	*lbs*	After Ammonia (30% loss applied)
	17,244	*lbs*	
	43,110	*lbs*	150,246 *lbs per reporting period*
Total salt from manure:	-	*lbs*	

Process Wastewater Generated:

Process wastewater generated:	9,475,400	*gal*
Total nitrogen generated:	28,963	*lbs*
	15,571	*lbs*
	50,550	*lbs*
Total salt (TDS) generated:	326,172	*lbs*

List of Land Application Areas

Field Name	APN	APN Acres	Cropable Acres	Total Harvest	Type of Waste Applied
1-101	x228 x260 x009 xxxx	80	75	2	P.W. & D.M.
1-102	x228 x260 x016 xxxx	78	44	2	P.W. & D.M.
2-101	x293 x070 x025 xxxx	239	145	2	P.W. & D.M.
2-102	x293 x070 x025 xxxx		75	2	P.W. & D.M.
4-101	x314 x060 x002 xxxx	166	25	2	Dry Manure
4-102	x314 x060 x002 xxxx		69	8	N/A
4-103	x314 x060 x002 xxxx		61	8	N/A
6-101	x200 x220 x017 xxxx	268	147	8	N/A
6-102	x200 x220 x017 xxxx, x200 x220 x018 xxxx	39	70	8	N/A
6-103	x200 x220 x017 xxxx		73	8	N/A
	Total Crop Acres		784.00		

List of Fresh Water Sources

Source Description	Type	Subsurface (Tile) Drainage Sources
1-101	Ground Water	No
1-102	Ground Water	No
2-101 N	Ground Water	No
2-101 Mid	Ground Water	No
2-101 S	Ground Water	No
4-101	Ground Water	No
4-102	Ground Water	No
6-101 N	Ground Water	No
6-101 S	Ground Water	No
6-102	Ground Water	No
Barn	Ground Water	No
Back Up	Ground Water	No
Domestic	Ground Water	No
Yard (6-101 Mid)	Ground Water	No
Canal	Surface Water	No

(WINTER) PLANT TISSUE ANALYSIS (Recorded As Received)										
Field	**Crop**	**Moist %**	**N%**	**TP %**	**TK%**	**Salt**	**TFS**	**Sample #:**	**Date:**	**Source**
1-101	Wheat, Silage	62.20	0.56	0.12	0.60	-	9.87	5-17H50327	06/02/23	Valley Tech
1-102	Wheat, Silage	68.90	0.53	0.12	0.61	-	10.30	6-2H52142	07/25/23	Valley Tech
2-101	Wheat, Silage	71.80	0.48	0.10	0.47	-	10.70	5-17H50327	06/02/23	Valley Tech
2-102	Wheat, Silage	67.60	0.52	0.12	0.56	-	8.84	6-2H52142	07/25/23	Valley Tech
4-101	Wheat, Silage	60.40	0.55	0.09	0.40	-	7.80	5-17H50327	06/02/23	Valley Tech
4-102	Alfalfa, Green Chop	54.00	1.51	0.15	1.08	-	9.30	4-26H47755	04/26/23	Valley Tech
4-103	Alfalfa	7.20	2.80	0.27	1.82	-	8.80	9-14H65437	09/14/23	Valley Tech
6-101	Alfalfa	8.20	2.85	0.25	1.60	-	8.30	9-14H65437	09/14/23	Valley Tech
6-102	Alfalfa	10.50	2.98	0.24	1.54	-	12.10	11-14H72957	11/14/23	Valley Tech
6-103	Alfalfa	6.90	2.70	0.27	1.74	-	8.99	9-14H65437	09/14/23	Valley Tech
Detectable Lim	*Valley Tech*	*0.10%*	*0.05%*	*0.01%*	*0.01%*		*0.05%*			
	Dellavalle	*0.001%*	*0.01%*	*0.01%*	*0.003%*		*0.001%*			
Detectable Limits										
Valley Tech		*0.10%*	*0.05%*	*0.01%*	*0.01%*		*0.05%*			
Dellavalle		*0.001%*	*0.01%*	*0.01%*	*0.003%*		*0.001%*			

(SUMMER) PLANT TISSUE ANALYSIS (Recorded As Received)										
Field	**Crop**	**Moist %**	**N%**	**TP %**	**TK%**	**Salt**	**TFS**	**Sample #:**	**Date:**	**Source**
1-101	Corn, Silage	59.70	0.57	0.10	0.37	-	5.77	11-14H72962	11/14/23	Valley Tech
1-102	Corn, Silage	60.60	0.51	0.10	0.40	-	5.68	11-14H72962	11/14/23	Valley Tech
2-101	Corn, Silage	58.00	0.61	0.08	0.40	-	4.95	10-19H70147	10/19/23	Valley Tech
2-102	Corn, Silage	61.90	0.47	0.09	0.35	-	5.28	11-14H72962	11/14/23	Valley Tech
4-101	Corn, Silage	67.90	0.34	0.08	0.28	-	4.96	10-27H70869	10/27/23	Valley Tech
4-102	Alfalfa	-	-	-	-	-	-	See Winter		-
4-103	Alfalfa	-	-	-	-	-	-	See Winter		-
6-101	Alfalfa	-	-	-	-	-	-	See Winter		-
6-102	Alfalfa	-	-	-	-	-	-	See Winter		-
6-103	Alfalfa	-	-	-	-	-	-	See Winter		-

Detectable Limits					
Valley Tech	*0.10%*	*0.05%*	*0.01%*	*0.01%*	*0.05%*
Dellavalle	*0.001%*	*0.01%*	*0.01%*	*0.003%*	*0.001%*

Winter Crops & Harvest

Field:	Crop	Plant Date	Harvest Date	Lab #	Moisture %	N (mg//kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS	Reporting Basis
1-101	Wheat, Silage	11/23/22	5/18/23	5-17H50327	62.20	0.56	0.12	0.60	-	9.87	Dry Weight
1-102	Wheat, Silage	11/25/22	5/24/23	6-2H52142	68.90	0.53	0.12	0.61	-	10.30	Dry Weight
2-101	Wheat, Silage	11/30/22	5/22/23	5-17H50327	71.80	0.48	0.10	0.47	-	10.70	Dry Weight
2-102	Wheat, Silage	12/10/22	5/26/23	6-2H52142	67.60	0.52	0.12	0.56	-	8.84	Dry Weight
4-101	Wheat, Silage	10/31/23	5/12/23	5-17H50327	60.40	0.55	0.09	0.40	-	7.80	Dry Weight
4-102	Alfalfa, Green Chop	1/1/23	10/1/23	4-26H47755	54.00	1.51	0.15	1.08	-	9.30	Dry Weight
4-103	Alfalfa	1/1/23	10/1/23	9-14H65437	7.20	2.80	0.27	1.82	-	8.80	Dry Weight
6-101	Alfalfa	1/1/23	8/20/23	9-14H65437	8.20	2.85	0.25	1.60	-	8.30	Dry Weight
6-102	Alfalfa	1/1/23	9/20/23	11-14H72957	10.50	2.98	0.24	1.54	-	12.10	Dry Weight
6-103	Alfalfa	1/1/23	9/15/23	9-14H65437	6.90	2.70	0.27	1.74	-	8.99	Dry Weight

Detectable L Valley Tech	*0.10%*	*0.05%*	*0.01%*	*0.01%*		*0.05%*
Dellavalle	*0.001%*	*0.01%*	*0.01%*	*0.003%*		*0.001%*

Field:	Crop	Plant Date	Harvest Date	Lab #	Moisture %	N (mg//kg)	P (mg/kg)	K (mg/kg)	Salt (mg/kg)	TFS	Reporting Basis
1-101	Corn, Silage	6/29/23	10/5/23	11-14H72962	59.70	0.57	0.10	0.37	-	5.77	Dry Weight
1-102	Corn, Silage	6/19/23	10/1/23	11-14H72962	60.60	0.51	0.10	0.40	-	5.68	Dry Weight
2-101	Corn, Silage	6/20/23	10/1/23	10-19H70147	58.00	0.61	0.08	0.40	-	4.95	Dry Weight
2-102	Corn, Silage	6/26/23	9/29/23	11-14H72962	61.90	0.47	0.09	0.35	-	5.28	Dry Weight
4-101	Corn, Silage	7/3/23	10/20/23	10-27H70869	67.90	0.34	0.08	0.28	-	4.96	Dry Weight
4-102	Alfalfa			See Winter	-	-	-	-	-	-	
4-103	Alfalfa			See Winter	-	-	-	-	-	-	
6-101	Alfalfa			See Winter	-	-	-	-	-	-	
6-102	Alfalfa			See Winter	-	-	-	-	-	-	
6-103	Alfalfa			See Winter	-	-	-	-	-	-	

Detectable L Valley Tech	*0.10%*	*0.05%*	*0.01%*	*0.01%*		*0.05%*
Dellavalle	*0.001%*	*0.01%*	*0.01%*	*0.003%*		*0.001%*

Well / Canal Analysis

General Minerals

Well Name/Number	NO3-N (mg/L)	EC (umhos/cm)	TDS (mg/L)	NH4-N (mg/L)	TN (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	HCO3 (mg/L)	CO3 (mg/L)	SO4 (mg/L)	Cl (mg/L)	Lab #:	Date:	LAB
1-101	0.40	213	160	-	1.00	-	-	-	-	-	-	-	VI 2344786	7/25/2023	FGL Enviromental
1-102	-	-	-	-	-	-	-	-	-	-	-	-	Non-Op		
2-101 N	16.80	774	490	-	-	81.00	5.00	76.00	270.00	0.01	49.20	47.00	VI 2344721	7/20/2023	FGL Enviromental
2-101 Mid	-	-	-	-	-	-	-	-	-	-	-	-	Didn't Use		
2-101 S	-	-	-	-	-	-	-	-	-	-	-	-	Non-Op		
4-101	3.60	249	150	-	3.60	-	-	-	-	-	-	-	VI 2344716	7/20/2023	FGL Enviromental
4-102	-	-	-	-	-	-	-	-	-	-	-	-	Non-Op		
6-101 N	0.01	850	450	-	-	30.00	13.00	105.00	430.00	0.01	0.90	75.00	VI 2344175	7/7/2023	FGL Enviromental
6-101 S	-	-	-	-	-	-	-	-	-	-	-	-	Non-Op		
6-102	-	-	-	-	-	-	-	-	-	-	-	-	Didn't Use		
Barn	0.01	228	160	-	0.01	-	-	-	-	-	-	-	VI 2340553	1/31/2023	FGL Enviromental
Back Up	20.90	227	160	-	20.90	-	-	-	-	-	-	-	VI 2340553	1/31/2023	FGL Enviromental
Domestic	0.01	236	170	-	0.01	-	-	-	-	-	-	-	VI 2340553	1/31/2023	FGL Enviromental
Yard (6-101 Mid)	-	-	-	-	-	-	-	-	-	-	-	-	Non-Op		
Canal	0.01	138	37	-	-	-	-	-	-	-	-	-	558TRA144	7/18/2023	Other

Detectable Limits												
Dellavalle	*0.01*	*1*	*10*	*0.2*	*NR*	*0.1*	*0.1*	*0.15*	*3*	*0.9*	*0.03*	*0.03*
FGL Enviromental	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Valley Tech	*0.1*	*1*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*	*NR*

Soil Analysis (Winter)

Fields:	0/1ft. NO3-N (mg/kg)	1/2 ft. NO3-N (mg/kg)	0/1 ft. Sol. P (mg/kg)	0/1 ft. K (mg/kg)	0/1 ft. EC (ds/m)	OM %	Lab #	Date	Source
1-101	-	-	-	-	-	-			-
1-102	-	-	-	-	-	-			-
2-101	-	-	-	-	-	-			-
2-102	-	-	-	-	-	-			-
4-101	-	-	-	-	-	-			-
4-102	-	-	-	-	-	-			-
4-103	-	-	-	-	-	-			-
6-101	-	-	-	-	-	-			-
6-102	-	-	-	-	-	-			-
6-103	-	-	-	-	-	-			-

Detectable Limits

Valley Tech	*0.1*	*0.1*				
DellaValle	*0.1*	*0.1*	*1.1*	*0.2*	*0.0015*	*0.0001%*

Soil Analysis (Summer)

Fields:	0/1ft. NO3-N (mg/kg)	1/2 ft. NO3-N (mg/kg)	0/1 ft. Sol. P (mg/kg)	0/1 ft. K (mg/kg)	0/1 ft. EC (ds/m)	OM %	Lab #	Date	Source
1-101	-	-	-	-	-	-			-
1-102	-	-	-	-	-	-			-
2-101	-	-	-	-	-	-			-
2-102	-	-	-	-	-	-			-
4-101	-	-	-	-	-	-			-
4-102	-	-	-	-	-	-			-
4-103	-	-	-	-	-	-			-
6-101	-	-	-	-	-	-			-
6-102	-	-	-	-	-	-			-
6-103	-	-	-	-	-	-			-

Detectable Limits

Valley Tech	*0.1*	*0.1*				
DellaValle	*0.1*	*0.1*	*1.1*	*0.2*	*0.0015*	*0.0001%*

Nutrient Import & Export

Nutrient Export-Did you sell, give away or otherwise remove slurry, process water or dry manure from your property?

X No

___ Yes, Manifest attached (Attachment D)

Total Dry Manure Exported

Nutrient Import

No Dry manure nutient imports entered

No Process wastewater nutrient imports entered

Total Process Water Exported

No Commerical or other nutrient imports entered

Field Name	Type of Manure Applied	As Is / Dry Weight	Source

Process Water & Manure Analysis

Process Water															
Quarters:	NH4N (mg/L)	TKN (mg/L)	TP (mg/L)	TK (mg/L)	NO3N (mg/L)	NH3N (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	CO3 (mg/L)	HCO3 (mg/L)	SO4 (mg/L)	CL (mg/L)	EC (ds/m)	TDS (mg/L)
1	162.0	417.0	62.3	445.0	1.0	-	-	-	-	-	-	-	-	4	2,620
2	245.0	293.0	94.1	719.0	1.0	-	-	-	-	-	-	-	-	7	4,930
3	137.0	159.0	30.9	200.0	1.0	-	0.0	35.7	57.6	0.0	20.2	35.4	2.4	3	2,160
4	150.0	185.0	60.0	169.0	1.0	-	-	-	-	-	-	-	-	-	2,160
Detectable Limits															
Valley Tech	2.0	5.0	0.1	0.2										0.10	10
Dellavalle	0.2	0.7	0.02	0.2	0.01		0.05	0.4	0.10	0.9	3	0.01	0.03	0.001	10

				Inorg N	Org N	P2O5	K2O
Qtr	Sample #:	Sample Date:	Source	lbs / Ac In			
1	3-24L44737	3/24/2023	Valley Tech	36.9	57.8	32.4	121.5
2	5-11L49508	5/11/2023	Valley Tech	55.8	10.9	48.9	196.3
3	8-17L62138	8/17/2023	Valley Tech	31.3	5.0	16.0	54.6
4	10-4L67887	10/4/2023	Valley Tech	34.2	7.9	31.2	46.1

Description	Sample #:	Date:	As Is/ Dry Weight	Source	Material Type
Manure	5-11M49472	5/11/2023	Dry Weight	Valley Tech	Corral Solids
Manure	10-4M67878	10/4/2023	Dry Weight	Valley Tech	Corral Solids

Dry Manure: (As Recv'd)	TN %	TP %	TK %	Ca	Mg	Na	S	CL	Salt	TFS	Moisture %
Corral	0.72	0.18	0.25	-	-	-	-	-	-	-	54.90
Corral	1.04	0.29	0.93	1.61	0.49	0.33	0.26	0.68	-	46.00	49.00
Detectable Limits											
Valley Tech	0.01%	0.02%	0.02%								
Dellavalle	0.01%	0.01%	0.003%	0.001%	0.001%	0.001%	0.001%	0.000%		0.001%	0.001%

Nutrient Applications

Field Name/Number: 1-101 **Acres:** 75.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
11/20/22	W. Manure App.	12.00	-	-	-	-	69.3	44.4	59.5	-	-		-
11/23/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
12/1/22	1-101	-	-	-	5.04	-	0.5	-	-	110	-		-
12/1/22	Process Water	-	-	-	-	1.96	129.9	27.7	197.6	1,164	-		-
2/1/23	1-101	-	-	-	6.47	-	0.6	-	-	141	-		-
4/17/23	1-101	-	-	-	6.36	-	0.6	-	-	139	-		-
5/18/23	W. Harvest	-	-	-	-	-	(240.2)	(53.6)	(256.4)	-	9.87		21.47
	-	-	-	-	-	-	-	-	-	-	-		-
6/5/23	S. Manure App.	9.33	-	-	-	-	77.3	53.3	173.3	-	-		-
6/14/23	1-101	-	-	-	6.50	-	0.6	-	-	141	-		-
6/29/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/24/23	1-101	-	-	-	5.12	-	0.5	-	-	111	-		-
7/24/23	Process Water	-	-	-	-	1.99	50.5	13.9	90.2	974	-		-
8/2/23	1-101	-	-	-	5.06	-	0.5	-	-	110	-		-
8/2/23	Process Water	-	-	-	-	1.97	50.0	13.8	89.3	964	-		-
8/17/23	1-101	-	-	-	5.17	-	0.5	-	-	113	-		-
8/17/23	Process Water	-	-	-	-	2.01	51.0	14.1	91.2	984	-		-
9/1/23	1-101	-	-	-	5.01	-	0.5	-	-	109	-		-
9/1/23	Process Water	-	-	-	-	1.95	49.5	13.6	88.3	954	-		-
9/11/23	1-101	-	-	-	5.09	-	0.5	-	-	111	-		-
9/11/23	Process Water	-	-	-	-	1.98	50.3	13.9	89.7	969	-		-
10/5/23	S. Harvest	-	-	-	-	-	(297.0)	(54.8)	(193.8)	-	5.77		26.13
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		**21.3**		**0**	**49.81**	**11.86**	**(5)**	**86**	**429**	**7,095**	**15.64**	**0**	**47.60**

Dry Weight
As Received

Field Name/Number: 1-101 **Acres:** 75

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	532.3	194.7	879.1	7094.6
Nutrients Removed at Harvest	-537.2	-108.3	-450.2	0.0
Nutrient Balance	-4.8	86.4	428.9	7094.6

Winter Nitrogen Crop App / Use Ratio: 0.87 **Summer Nitrogen Crop App / Use Ratio:** 1.14

Field Name/Number: 1-101 **Acres:** 75

Winter Crop Wheat, Silage

Nutrient Summary :		Applied		N		
W. Manure App.		12.0	T/Ac	69.3	101.6	71.4
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	2.0	Ac In /Ac	129.9	63.4	237.1
	Q2	-	Ac In /Ac	-	-	-
Well Water		17.87	Ac In /Ac	1.6		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	11/23/22					
W. Harvest	5/18/23	21.5	T/Ac	(240.2)	(122.6)	(307.7)

Summer Crop Corn, Silage

Nutrient Summary :		Applied		N		
S. Manure App.		9.3	T/Ac	77.3	122.1	207.9
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	9.9	Ac In /Ac	251.3	158.8	538.5
	Q4	-	Ac In /Ac	-	-	-
Well Water		31.9	Ac In /Ac	2.8964373		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
S. Planting	6/29/23					
S. Harvest	10/5/23	26.1	T/Ac	(297.0)	(125.4)	(232.5)

Nutrient Applications

Field Name/Number: 1-102 **Acres:** 44.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
11/15/22	W. Manure App.	10.23	-	-	-	-	59.0	37.8	50.7	-	-		-
11/25/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
12/1/22	1-101	-	-	-	6.37	-	0.6	-	-	139	-		-
1/20/23	1-101	-	-	-	5.24	-	0.5	-	-	114	-		-
1/20/23	Process Water	-	-	-	-	2.04	135.2	28.8	205.6	1,211	-		-
2/5/23	1-101	-	-	-	6.51	-	0.6	-	-	142	-		-
3/5/23	1-101	-	-	-	6.24	-	0.6	-	-	136	-		-
5/24/23	W. Harvest	-	-	-	-	-	(186.1)	(41.4)	(212.3)	-	9.87		17.50
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
6/1/23	S. Manure App.	10.23	-	-	-	-	84.7	58.4	189.9	-	-		-
6/5/23	1-101	-	-	-	6.55	-	0.6	-	-	143	-		-
6/19/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/13/23	1-101	-	-	-	5.20	-	0.5	-	-	113	-		-
7/13/23	Process Water	-	-	-	-	2.02	51.3	14.2	91.6	990	-		-
7/22/23	1-101	-	-	-	5.02	-	0.5	-	-	109	-		-
7/22/23	Process Water	-	-	-	-	1.95	49.5	13.7	88.4	955	-		-
7/31/23	1-101	-	-	-	5.11	-	0.5	-	-	111	-		-
7/31/23	Process Water	-	-	-	-	1.99	50.4	13.9	90.0	972	-		-
8/14/23	1-101	-	-	-	5.06	-	0.5	-	-	110	-		-
8/14/23	Process Water	-	-	-	-	1.97	50.0	13.8	89.2	964	-		-
8/25/23	1-101	-	-	-	6.42	-	0.6	-	-	140	-		-
10/1/23	S. Harvest	-	-	-	-	-	(228.2)	(43.9)	(179.0)	-	5.77		22.27
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		**20.5**		**0**	**57.71**	**9.97**	**71**	**95**	**414**	**6,348**	**15.64**	**0**	**39.77**

Field Name/Number: 1-102 **Acres:** 44.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	485.5	78.8	668.7	6348.2
Nutrients Removed at Harvest	-414.3	-37.2	-324.8	0.0
Nutrient Balance	71.2	41.6	343.9	6348.2

Winter Nitrogen Crop App / Use Ratio: 1.09 **Summer Nitrogen Crop App / Use Ratio:** 1.30

Field Name/Number: 1-102 **Acres:** 44

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		10.2	T/Ac	59.0	86.6	60.9
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	2.0	Ac In /Ac	135.2	65.9	246.8
	Q2	-	Ac In /Ac	-	-	-
Well Water		24.4	Ac In /Ac	2.2		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	11/25/22					
W. Harvest	5/24/23	17.5	T/Ac	(186.1)	(94.7)	(254.7)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		10.2	T/Ac	84.7	133.8	227.8
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	7.9	Ac In /Ac	201.2	127.1	431.2
	Q4	-	Ac In /Ac	-	-	-
Well Water		33.3	Ac In /Ac	3.0		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
S. Planting	6/19/23					
S. Harvest	10/1/23	22.3	T/Ac	(228.2)	(100.5)	(214.8)

Nutrient Applications

Field Name/Number: 2-101 **Acres:** 145.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
11/30/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/4/23	2-101 N	-	-	-	5.03	-	19.1	-	-	335	-		-
1/4/23	Process Water	-	-	-	-	1.76	116.7	24.9	177.5	1,045	-		-
2/22/23	2-101 N	-	-	-	6.09	-	23.2	-	-	406	-		-
3/15/23	2-101 N	-	-	-	6.02	-	22.9	-	-	401	-		-
4/20/23	2-101 N	-	-	-	6.13	-	23.3	-	-	408	-		-
5/22/23	W. Harvest	-	-	-	-	-	(172.6)	(37.6)	(170.6)	-	9.87		18.00
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
6/1/23	S. Manure App.	9.66	-	-	-	-	80.0	55.2	179.2	-	-		-
6/5/23	2-101 N	-	-	-	6.32	-	24.1	-	-	422	-		-
6/20/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/12/23	2-101 N	-	-	-	5.07	-	19.3	-	-	338	-		-
7/12/23	Process Water	-	-	-	-	1.78	82.9	12.4	80.5	870	-		-
8/2/23	2-101 N	-	-	-	5.15	-	19.6	-	-	343	-		-
8/2/23	Process Water	-	-	-	-	1.80	45.8	12.6	81.7	883	-		-
8/14/23	2-101 N	-	-	-	5.10	-	19.4	-	-	340	-		-
8/14/23	Process Water	-	-	-	-	1.79	45.4	12.5	81.0	875	-		-
9/11/23	2-101 N	-	-	-	5.09	-	19.4	-	-	339	-		-
9/11/23	Process Water	-	-	-	-	1.78	45.2	12.5	80.8	872	-		-
10/1/23	S. Harvest	-	-	-	-	-	(346.9)	(45.5)	(229.7)	-	5.77		28.48
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		9.7		0	50.01	8.91	87	47	281	7,878	15.64	0	46.48

Field Name/Number: 2-101 **Acres:** 145.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	606.3	56.8	565.1	7878.2
Nutrients Removed at Harvest	-519.5	-36.2	-332.2	0.0
Nutrient Balance	86.8	20.5	232.9	7878.2

Winter Nitrogen Crop App / Use Ratio: 1.23 **Summer Nitrogen Crop App / Use Ratio:** 1.18

Field Name/Number: 2-101 **Acres:** 145

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	1.8	Ac In /Ac	116.7	56.9	213.0
	Q2	-	Ac In /Ac	-	-	-
Well Water		23.3	Ac In /Ac	88.6		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	11/30/22					
W. Harvest	5/22/23	18.0	T/Ac	(172.6)	(86.0)	(204.7)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		9.7	T/Ac	80.0	126.3	215.1
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	7.1	Ac In /Ac	219.2	114.6	388.8
	Q4	-	Ac In /Ac	-	-	-
Well Water		26.7	Ac In /Ac	101.8		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
S. Planting	6/20/23					
S. Harvest	10/1/23	28.5	T/Ac	(346.9)	(104.1)	(275.6)

Nutrient Applications

Field Name/Number: 2-102 **Acres:** 75.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
12/1/22	2-101 N	-	-	-	-	-	-	-	-	-	-		-
12/10/22	W. Planting	-	-	-	-	-	-	-	-	-	-		-
1/15/23	2-101 N	-	-	-	5.15	-	19.6	-	-	344	-		-
1/15/23	Process Water	-	-	-	-	1.80	119.7	25.5	182.0	1,072	-		-
2/15/23	2-101 N	-	-	-	6.22	-	23.7	-	-	414	-		-
3/1/23	2-101 N	-	-	-	6.13	-	23.3	-	-	408	-		-
4/5/23	2-101 N	-	-	-	6.04	-	23.0	-	-	403	-		-
5/26/23	W. Harvest	-	-	-	-	-	(206.1)	(49.2)	(222.9)	-	9.87		20.00
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
6/10/23	S. Manure App.	10.67	-	-	-	-	88.3	60.9	198.0	-	-		-
6/15/23	2-101 N	-	-	-	6.24	-	23.8	-	-	416	-		-
6/26/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/19/23	2-101 N	-	-	-	6.16	-	23.4	-	-	410	-		-
7/30/23	2-101 N	-	-	-	5.21	-	19.9	-	-	348	-		-
7/30/23	Process Water	-	-	-	-	1.83	85.1	12.8	82.7	894	-		-
8/13/23	2-101 N	-	-	-	5.30	-	20.2	-	-	353	-		-
8/13/23	Process Water	-	-	-	-	1.86	47.1	13.0	84.1	909	-		-
9/16/23	2-101 N	-	-	-	6.33	-	24.1	-	-	422	-		-
9/29/23	S. Harvest	-	-	-	-	-	(302.4)	(58.5)	(226.8)	-	5.77		32.00
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		**10.7**		**0**	**52.79**	**5.49**	**33**	**4**	**97**	**6,393**	**15.64**	**0**	**52.00**

Field Name/Number: 2-102 **Acres:** 75.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	541.3	49.0	454.0	6393.2
Nutrients Removed at Harvest	-508.4	-47.0	-373.3	0.0
Nutrient Balance	32.9	1.9	80.7	6393.2

Winter Nitrogen Crop App / Use Ratio: 1.05 **Summer Nitrogen Crop App / Use Ratio:** 1.12

Field Name/Number: 2-102 **Acres:** 75

Winter Crop **Wheat, Silage**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	1.8	Ac In /Ac	119.7	58.4	218.4
	Q2	-	Ac In /Ac	-	-	-
Well Water		23.5	Ac In /Ac	89.6		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	12/10/22					
W. Harvest	5/26/23	20.0	T/Ac	(206.1)	(112.8)	(267.5)

Summer Crop **Corn, Silage**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		10.7	T/Ac	88.3	139.5	237.6
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	3.7	Ac In /Ac	132.3	59.0	200.3
	Q4	-	Ac In /Ac	-	-	-
Well Water		29.3	Ac In /Ac	111.4		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
S. Planting	6/26/23					
S. Harvest	9/29/23	32.0	T/Ac	(302.4)	(134.0)	(272.1)

Nutrient Applications

Field Name/Number: 4-101 **Acres:** 25.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
10/1/22	W. Manure App.	12.00	-	-	-	-	69.3	44.4	59.5	-	-		-
2/3/23	W. Comm Fert App.	-	-	100	-	-	100.0	-	-	-	-		-
10/5/22	4-101	-	-	-	6.36	-	5.2	-	-	130	-		-
10/31/23	W. Planting	-	-	-	-	-	-	-	-	-	-		-
12/15/22	4-101	-	-	-	6.79	-	5.5	-	-	139	-		-
2/3/23	4-101	-	-	-	6.50	-	5.3	-	-	133	-		-
3/2/23	4-101	-	-	-	6.57	-	5.4	-	-	134	-		-
5/12/23	W. Harvest	-	-	-	-	-	(190.7)	(30.0)	(137.6)	-	9.87		17.20
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
8/8/23	S. Comm Fert App.	-	-	80	-	-	80.0	-	-	-	-		-
6/23/23	4-101	-	-	-	6.50	-	5.3	-	-	133	-		-
7/3/23	S. Planting	-	-	-	-	-	-	-	-	-	-		-
7/23/23	4-101	-	-	-	6.72	-	5.5	-	-	137	-		-
8/8/23	4-101	-	-	-	6.43	-	5.2	-	-	131	-		-
8/19/23	4-101	-	-	-	6.57	-	5.4	-	-	134	-		-
9/8/23	4-101	-	-	-	6.65	-	5.4	-	-	136	-		-
10/6/23	4-101	-	-	-	6.29	-	5.1	-	-	128	-		-
10/20/23	S. Harvest	-	-	-	-	-	(156.6)	(36.6)	(128.8)	-	5.77		22.80
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
Totals:		**12.0**		**180**	**65.39**	**0.00**	**(45)**	**(22)**	**(207)**	**1,335**	**15.64**	**0**	**40.00**

Field Name/Number: 4-101 **Acres:** 25.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	302.6	19.4	49.4	1334.6
Nutrients Removed at Harvest	-347.3	-29.0	-221.1	0.0
Nutrient Balance	-44.7	-9.7	-171.7	1334.6

Winter Nitrogen Crop App / Use Ratio: 0.92 **Summer Nitrogen Crop App / Use Ratio:** 1.27

Field Name/Number: 4-101 **Acres:** 25

Winter Crop **Wheat, Silage**

Nutrient Summary :		Applied		N		
W. Manure App.		12.0	T/Ac	69.3	101.6	71.4
W. Comm Fert App.		100.0	lbs/Ac	100.0		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	10/31/23					
W. Harvest	5/12/23	17.2	T/Ac	(190.7)	(68.6)	(165.1)

Summer Crop **Corn, Silage**

Nutrient Summary :		Applied		N		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		80.0	lbs/Ac	80.0	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		39.2	Ac In /Ac	112.0		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
S. Planting	7/3/23					
S. Harvest	10/20/23	22.8	T/Ac	(156.6)	(83.8)	(154.6)

Nutrient Applications

Field Name/Number: 4-102 **Acres:** 69.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
1/1/23	W. Planting	-	-	-	-	-	-	-	-	-	-		-
3/7/23	4-101 ,	-	-	-	6.25	-	5.1	-	-	128	-		-
4/11/23	4-101	-	-	-	6.02	-	4.9	-	-	123	-		-
5/4/23	4-101	-	-	-	6.35	-	5.2	-	-	130	-		-
6/12/23	4-101	-	-	-	6.17	-	5.0	-	-	126	-		-
7/13/23	4-101	-	-	-	6.12	-	5.0	-	-	125	-		-
8/10/23	4-101	-	-	-	6.22	-	5.1	-	-	127	-		-
9/14/23	4-101	-	-	-	6.07	-	5.0	-	-	124	-		-
10/1/23	W. Harvest	-	-	-	-	-	(380.0)	(38.2)	(271.1)	-	9.87		12.59
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Totals:		0.0		0	43.21	0.00	(345)	(38)	(271)	882	9.87	0	12.59

Field Name/Number: 4-102 **Acres:** 69.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	35.3	0.0	0.0	881.9
Nutrients Removed at Harvest	-380.0	-16.7	-225.1	0.0
Nutrient Balance	-344.8	-16.7	-225.1	881.9

Winter Nitrogen Crop App / Use Ratio: 0.11 **Summer Nitrogen Crop App / Use Ratio:** #N/A

Field Name/Number: 4-102 **Acres:** 69

Winter Crop **Alfalfa, Green Chop**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		43.2	Ac In /Ac	35.3		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	1/1/23					
W. Harvest	10/1/23	12.6	T/Ac	(380.0)	(87.6)	(325.4)

Summer Crop **Alfalfa**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		-	Ac In /Ac	-		
Atm. Depos.		#N/A		#N/A		
S. Planting	#N/A					
S. Harvest	#N/A	#N/A	T/Ac	#N/A	#N/A	#N/A

Nutrient Applications

Field Name/Number: 4-103 **Acres:** 61.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
1/1/23	W. Planting	-	-	-	-	-	-	-	-	-	-		-
3/15/23	4-101	-	-	-	6.52	-	5.3	-	-	133	-		-
4/10/23	4-101	-	-	-	6.37	-	5.2	-	-	130	-		-
5/4/23	4-101	-	-	-	6.43	-	5.2	-	-	131	-		-
6/12/23	4-101	-	-	-	6.23	-	5.1	-	-	127	-		-
7/13/23	4-101	-	-	-	6.32	-	5.2	-	-	129	-		-
8/10/23	4-101	-	-	-	6.40	-	5.2	-	-	131	-		-
9/14/23	4-101	-	-	-	6.46	-	5.3	-	-	132	-		-
10/1/23	W. Harvest	-	-	-	-	-	(615.6)	(59.1)	(399.6)	-	9.87		10.98
	-	-	-	-	-	-	-	-	-	-	-		-
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Totals:		0.0		0	44.74	0.00	(579)	(59)	(400)	913	9.87	0	10.98

Field Name/Number: 4-103 **Acres:** 61.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	36.5	0.0	0.0	913.0
Nutrients Removed at Harvest	-615.6	-25.8	-331.7	0.0
Nutrient Balance	-579.1	-25.8	-331.7	913.0

Winter Nitrogen Crop App / Use Ratio: 0.07 **Summer Nitrogen Crop App / Use Ratio:** #N/A

Field Name/Number: 4-103 **Acres:** 61

Winter Crop **Alfalfa**

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		44.7	Ac In /Ac	36.5		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	1/1/23					
W. Harvest	10/1/23	11.0	T/Ac	(615.6)	(135.4)	(479.5)

Summer Crop **Alfalfa**

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		-	Ac In /Ac	-		
Atm. Depos.		#N/A		#N/A		
S. Planting	#N/A					
S. Harvest	#N/A	#N/A	T/Ac	#N/A	#N/A	#N/A

Nutrient Applications

Field Name/Number: 6-101 **Acres:** 147.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Yield Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
1/1/23	W. Planting	-	-	-	-	-	-	-	-	-	-		-
2/20/23	6-101 N	-	-	-	6.01	-	0.0	-	-	368	-		-
3/8/23	6-101 N	-	-	-	6.19	-	0.0	-	-	379	-		-
4/15/23	6-101 N	-	-	-	6.13	-	0.0	-	-	375	-		-
5/12/23	6-101 N	-	-	-	6.31	-	0.0	-	-	386	-		-
6/8/23	6-101 N	-	-	-	6.24	-	0.0	-	-	382	-		-
7/10/23	6-101 N	-	-	-	6.28	-	0.0	-	-	385	-		-
8/1/23	6-101 N	-	-	-	6.09	-	0.0	-	-	373	-		-
8/20/23	W. Harvest	-	-	-	-	-	(656.5)	(57.0)	(367.3)	-	9.87		11.50
	-	-	-	-	-	-	-	-	-	-	-		-
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Totals:		0.0		0	43.25	0.00	(656)	(57)	(367)	2,648	9.87	0	11.50

Field Name/Number: 6-101 **Acres:** 147.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	0.1	0.0	0.0	2648.2
Nutrients Removed at Harvest	-656.5	-24.9	-304.9	0.0
Nutrient Balance	-656.4	-24.9	-304.9	2648.2

Winter Nitrogen Crop App / Use Ratio: 0.01 **Summer Nitrogen Crop App / Use Ratio:** #N/A

Field Name/Number: 6-101 **Acres:** 147

Winter Crop Alfalfa

Nutrient Summary :		**Applied**		**N**		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		43.3	Ac In /Ac	0.1		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	1/1/23					
W. Harvest	8/20/23	11.5	T/Ac	(656.5)	(130.5)	(440.7)

Summer Crop Alfalfa

Nutrient Summary :		**Applied**		**N**		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		-	Ac In /Ac	-		
Atm. Depos.		#N/A		#N/A		
S. Planting	#N/A					
S. Harvest	#N/A	#N/A	T/Ac	#N/A	#N/A	#N/A

Nutrient Applications

Field Name/Number: 6-102 **Acres:** 70.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data					Yield	
							N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
1/1/23	W. Planting	-	-	-	-	-	-	-	-	-	-		-
3/2/23	6-101 N	-	-	-	6.34	-	0.0	-	-	388	-		-
4/7/23	6-101 N	-	-	-	6.63	-	0.0	-	-	406	-		-
5/5/23	6-101 N	-	-	-	6.41	-	0.0	-	-	392	-		-
6/15/23	6-101 N	-	-	-	6.56	-	0.0	-	-	402	-		-
7/10/23	6-101 N	-	-	-	6.47	-	0.0	-	-	396	-		-
8/12/23	6-101 N	-	-	-	6.60	-	0.0	-	-	404	-		-
9/1/23	6-101 N	-	-	-	6.38	-	0.0	-	-	390	-		-
9/20/23	W. Harvest	-	-	-	-	-	(664.2)	(53.9)	(343.1)	-	9.87		11.14
	-	-	-	-	-	-	-	-	-	-	-		-
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Totals:		0.0		0	45.38	0.00	#N/A	-	-	#N/A	9.87	0	11.14

Field Name/Number: 6-102 **Acres:** 70.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	0.1	0.0	0.0	2778.7
Nutrients Removed at Harvest	-664.2	-23.5	-284.8	0.0
Nutrient Balance	-664.1	-23.5	-284.8	2778.7

Winter Nitrogen Crop App / Use Ratio: 0.01 **Summer Nitrogen Crop App / Use Ratio:** #N/A

Field Name/Number: 6-102 **Acres:** 70

Winter Crop Alfalfa

Nutrient Summary :		Applied		N		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		45.4	Ac In /Ac	0.1		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	1/1/23					
W. Harvest	9/20/23	11.1	T/Ac	(664.2)	(123.3)	(411.7)

Summer Crop Alfalfa

Nutrient Summary :		Applied		N		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		-	Ac In /Ac	-		
Atm. Depos.		#N/A		#N/A		
S. Planting	#N/A					
S. Harvest	#N/A	#N/A	T/Ac	#N/A	#N/A	#N/A

Nutrient Applications

Field Name/Number: 6-103 **Acres:** 73.00

Date	Event / Source	Dry Manure Applied (tons/ac)	Moist. %	Chem Fert total lbs	Fresh Water Applied (ac-in/ac)	Lagoon Water Applied (ac-in/ac)	Lab Sample Data: N (lbs/Ac)	Total P (lbs/Ac)	Total K (lbs/Ac)	Salt (Lbs/Ac)	TFS %	Yield: Expected Yield (tons/ac)	Actual Yield (tons/ac)
	-	-	-	-	-	-	-	-	-	-	-		-
	-	-	-	-	-	-	-	-	-	-	-		-
1/1/23	W. Planting	-	-	-	-	-	-	-	-	-	-		-
3/4/23	6-101 N	-	-	-	6.36	-	0.0	-	-	389	-		-
4/13/23	6-101 N	-	-	-	6.14	-	0.0	-	-	376	-		-
5/6/23	6-101 N	-	-	-	6.42	-	0.0	-	-	393	-		-
6/13/23	6-101 N	-	-	-	6.29	-	0.0	-	-	385	-		-
7/13/23	6-101 N	-	-	-	6.20	-	0.0	-	-	380	-		-
8/8/23	6-101 N	-	-	-	6.05	-	0.0	-	-	371	-		-
9/1/23	6-101 N	-	-	-	6.26	-	0.0	-	-	384	-		-
9/15/23	W. Harvest	-	-	-	-	-	(474.9)	(47.5)	(306.2)	-	9.87		8.79
	-	-	-	-	-	-	-	-	-	-	-		-
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Totals:		0.0		0	43.73	0.00	(475)	(47)	(306)	2,677	9.87	0	8.79

Field Name/Number: 6-103 **Acres:** 73.00

	Total N (lbs/ac)	Total P (lbs/ac)	Total K Lbs/ac)	Total Salts (lbs/ac)
Nutrients Applied	0.1	0.0	0.0	2677.4
Nutrients Removed at Harvest	-474.9	-20.7	-254.2	0.0
Nutrient Balance	-474.8	-20.7	-254.2	2677.4

Winter Nitrogen Crop App / Use Ratio: 0.01 **Summer Nitrogen Crop App / Use Ratio:** #N/A

Field Name/Number: 6-103 **Acres:** 73

Winter Crop Alfalfa

Nutrient Summary :		Applied		N		
W. Manure App.		-	T/Ac	-	-	-
W. Comm Fert App.		-	lbs/Ac	-		
Process Water	Q1	-	Ac In /Ac	-	-	-
	Q2	-	Ac In /Ac	-	-	-
Well Water		43.7	Ac In /Ac	0.1		
Canal		-	Ac In /Ac	-		
Atm. Depos.		Yes		7.0		
W. Planting	1/1/23					
W. Harvest	9/15/23	8.8	T/Ac	(474.9)	(108.7)	(367.5)

Summer Crop Alfalfa

Nutrient Summary :		Applied		N		
S. Manure App.		-	T/Ac	-	-	-
S. Comm Fert App.		-	lbs/Ac	-	-	-
Process Water	Q2	-	Ac In /Ac	-	-	-
	Q3	-	Ac In /Ac	-	-	-
	Q4	-	Ac In /Ac	-	-	-
Well Water		-	Ac In /Ac	-		
Canal		-	Ac In /Ac	-		
Atm. Depos.		#N/A		#N/A		
S. Planting	#N/A					
S. Harvest	#N/A	#N/A	T/Ac	#N/A	#N/A	#N/A

Notes

Without allowance for the significant amount of rainfall during the winter months of 2022/2023, the irrigation logs on each field page of the annual report, reflect canal and/or well used only during that time frame. The facility did not irrigate during the "Significant Storm Events".

It is inaccurate to present "salt" application without acknowledging that there is substantial uptake and utilization of "salts" by crops. If it is possible to calculate "salt" application, it is also possible to calculate "salt" utilization. That calculation should be included in this report. To calculate "salt" utilization is a lengthy process and cannot be done with the constituents required in the Revised General Order sampling requirements.

The signature(s) affixed to this report does not affirmatively refer to those references to "salt" that we know to be incorrect.

RB *(Initial)*

Exception Reporting

Manure , Process Water and Other Dairy Waste Discharges:

The following is a summary of all manure and process water 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 water discharges occurred during the reporting period

Storm Water Discharges:

The follow 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, storm water discharges occurred durging the reporting period

Land Application Area To Surface Water Discharges:

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

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

Nutrient Management Plan (NMP) & Written Agreement Statement

Nutrient Management Plan Statement:

Was the faciltiy NMP updated in the reporting period? Yes

Was the facility's NMP developed and approved by a certified nutrient management specialist? Yes

Written Agreements:

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

Owner and/or Operator Certification

**I certify under penalty of law that all information submitted as part of this document is accurate and true. Certification signatures by a California Registered Professional have been supplied as needed in Part II. I have personally examined and am familiar with the information submitted in Parts I and II of 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.*

Liduina Barcellos	Liduina Barcellos
Signature of Owner of Facility	**Signature of Operator of Facility**
Frank or Liduina Barcellos	Frank, Liduina or Jerry Barcellos
Print Name	**Print Name**
4-15-24	4-15-24
Date	**Date**

F&L Barcellos #1

FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

February 17, 2023

Lab No. : VI 2340553
Customer No. : 4018505

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Laboratory Report

Introduction: This report package contains a total of 5 pages divided into 3 sections:

Case Narrative	(1 page)	: An overview of the work performed at FGL.
Sample Results	(3 pages)	: 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
Domestic	01/31/2023	01/31/2023	VI 2340553-001	DW
Barn (Dom)	01/31/2023	01/31/2023	VI 2340553-002	DW
Back Up (Dom)	01/31/2023	01/31/2023	VI 2340553-003	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

	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)
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-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: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-02-17

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February 17, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Description : Domestic
Project : W-6 F & L Barcellos #1

Lab No. : VI 2340553-001
Customer No. : 4018505

Sampled On : January 31, 2023 at 09:32
Sampled By : Marlene / Kaylin
Received On : January 31, 2023 at 14:03
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
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	UI	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:15	lcr
Nitrate Nitrogen	ND	0.4	mg/L	10	1	U	02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	15:41	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	UI	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:15	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L	10	1	U	02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	15:41	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	UI	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:15	lcr
Conductivity	236	1	umhos/cm	1600[2]	1		02/15/2023	13:59	sta		02/15/2023	13:59	sta
Solids, Total Dissolved (TDS)	170	20	mg/L	1000[2]	1		02/02/2023	13:49	ctl	SM 2540 C	02/03/2023	12:15	ctl

DQF Flags Definition:
U Constituent results were non-detect.
I The MS/MSD did not meet QC criteria.

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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February 17, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Description : Barn (Dom)
Project : W-6 F & L Barcellos #1

Lab No. : VI 2340553-002
Customer No. : 4018505

Sampled On : January 31, 2023 at 09:42
Sampled By : Marlene / Kaylin
Received On : January 31, 2023 at 14:03
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
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	UI	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:18	lcr
Nitrate Nitrogen	ND	0.4	mg/L	10	1	U	02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	15:44	lfs
Nitrogen, Total as Nitrogen	ND	0.5	mg/L		1	UI	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:18	lcr
Nitrate + Nitrite as N	ND	0.4	mg/L	10	1	U	02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	15:44	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	UI	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:18	lcr
Conductivity	228	1	umhos/cm	1600[2]	1		02/15/2023	13:59	sta		02/15/2023	13:59	sta
Solids, Total Dissolved (TDS)	160	20	mg/L	1000[2]	1		02/02/2023	13:49	ctl	SM 2540 C	02/03/2023	12:17	ctl

DQF Flags Definition:
U Constituent results were non-detect.
I The MS/MSD did not meet QC criteria.

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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February 17, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Description : Back Up (Dom)
Project : W-6 F & L Barcellos #1

Lab No. : VI 2340553-003
Customer No. : 4018505

Sampled On : January 31, 2023 at 09:53
Sampled By : Marlene / Kaylin
Received On : January 31, 2023 at 14:03
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
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:20	lcr
Nitrate Nitrogen	20.9	0.4	mg/L	10	1		02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	15:46	lfs
Nitrogen, Total as Nitrogen	20.9	0.5	mg/L		1	l	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:20	lcr
Nitrate + Nitrite as N	20.9	0.4	mg/L	10	1		02/01/2023	13:00	lfs	SM 4500-NO3 F	02/01/2023	15:46	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	02/10/2023	09:50	sta	EPA 351.2	02/12/2023	20:20	lcr
Conductivity	227	1	umhos/cm	1600[2]	1		02/16/2023	14:02	sta		02/16/2023	14:02	sta
Solids, Total Dissolved (TDS)	160	20	mg/L	1000[2]	1		02/03/2023	11:24	ctl	SM 2540 C	02/06/2023	13:01	ctl

DQF Flags Definition:
U Constituent results were non-detect.
l The MS/MSD did not meet QC criteria.

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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February 17, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2340553
Customer No. : 4018505

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2510B	02/15/2023:201667STA	Blank	umhos/cm		ND	<1	
		(VI 2340657-002)	Dup	umhos/cm		1.03%	5	
	2510B	02/16/2023:201743STA	Blank	umhos/cm		ND	<1	
		(VI 2340545-001)	Dup	umhos/cm		0.7%	5	
Solids, Total Dissolved	2540CE	02/02/2023:201179CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	990.8	101 %	90-110	
		(VI 2340550-002)	Dup	mg/L		0.4%	5	
		(VI 2340550-002)	Dup	mg/L		0.5%	5	
	2540CE	02/03/2023:201214CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	990.8	100 %	90-110	
		(VI 2340568-001)	Dup	mg/L		2.7%	5	
		(VI 2340568-001)	Dup	mg/L		1.6%	5	
Nitrogen, Total Kjeldahl	351.2	02/10/2023:201482STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	93.0%	73-124	
			MS	mg/L	12.00	75.3%	54-136	
		(VI 2340549-001)	MSD	mg/L	12.00	79.7%	54-136	
			MSRPD	mg/L	12.00	5.7%	≤27	
			MS	mg/L	12.00	26.9%	<Â¼	
		(VI 2340550-001)	MSD	mg/L	12.00	42.9%	54-136	435
			MSRPD	mg/L	12.00	46.4%	≤27	435
Nitrate + Nitrite as N	4500NO3F	02/01/2023:201107LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	93.8%	80-120	
			MS	mg/L	5.609	90.4%	66-125	
		(VI 2340568-001)	MSD	mg/L	5.609	90.2%	66-125	
			MSRPD	mg/L	5.609	0.1%	≤30.4	
Nitrate Nitrogen	4500NO3F	02/01/2023:201107LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	93.8%	80-120	
			MS	mg/L	5.609	90.4%	66-125	
		(VI 2340568-001)	MSD	mg/L	5.609	90.2%	66-125	
			MSRPD	mg/L	5.609	0.1%	≤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 analyted. 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

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

Page 5 of 5

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FGL ENVIRONMENTAL AGRICULTURAL
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Laboratory Copy (1 of 3)

Client:	**Livingston Dairy Consulting, Inc.**
Address:	Livingston Dairy Consulting, Inc 1635 E. Prosperity Suite B Tulare, CA 93274
Phone:	(559)687-1440 Fax:
Contact Person:	Noreen Livingston
Project Name:	W-6 F & L Barcellos #1
Purchase Order Number:	
Quote Number:	**VI 20210208-01**
Sampler(s)	Marlene & Kaylin
Sampling Fee:	Pickup Fee:
Compositor Setup Date:	___/___/___ Time: ___/___
Lab Number:	**VI 2340553** **4-18505**

42086:03/01/2022

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	**SEE REVERSE SIDE** Type of Sample	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Dairy Analysis-W-6-Conductivity,NO3-N,Total N,TDS 16oz(P)	Sampling-W-6 - Total N - Split Bottle ***VI Lab to Split for Total N*** 8oz(P)-H2SO4
1	Domestic	1/31	9:37AM	G	DW	P			1	1
2	Barn (DAM)	1/31	9:42AM	G	DW	P			1	1
3	Back up (DAM)	1/31	9:53AM	G	DW	P			1	1
4				G					1	1
5				G					1	1
6				G					1	1
7				G					1	1
8				G					1	1
9				G					1	1
10				G					1	1

Remarks:

	Relinquished	Date:	Time:	Received By:	Date:	Time:
		1/31/23	1:33		1/31/23	1:33
		1/31/23	1403		1/31/23	1403
		1/31/23	20		1/31/23	

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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: 20.1 / 4.3 / ____ / ____ / ____
   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?	Yes	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	Yes	No	
5.	VOAs checked for Headspace?	Yes	No	N/A
6.	Were sample custody seals intact?	Yes	No	N/A
7.	If required, was sample split for pH analysis?	Yes	No	N/A
8.	Were all analyses within holding times at time of receipt?	Yes	No	
9.	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): AM

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 2c / ____ / ____ / ____ / ____
   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: 558722593 590 584

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

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? [Exception: Oil & Grease, VOA and CrVI verified in lab]	Yes	No	N/A	FGL
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): 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 co contacts)

(4018505)
Livingston Dairy Consulting, Inc.
VI 2340553
da0 02/01/2023 12:12:26
VI_2340553

T+L RARCELLOS

FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

July 28, 2023

Lab No. : **VI 2344721**
Customer No. : **4018505**

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Laboratory Report

Introduction: This report package contains a total of 4 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	(2 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
2-101 N	07/20/2023	07/20/2023	VI 2344721-001	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 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 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)

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: 2023-07-31

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CA ELAP Certification No. 2810

July 28, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Lab No. : VI 2344721-001
Customer No. : 4018505

Sampled On : July 20, 2023 at 06:51
Sampled By : Marlene & Noreen
Received On : July 20, 2023 at 10:32
Matrix : Ag Water

Description : 2-101 N
Project : W-4 F&L Barcellos

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Alkalinity (as CaCO3)	220	10	mg/L		1		07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	18:11	amm
Bicarbonate	270	10	mg/L		1		07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	18:11	amm
Carbonate	ND	10	mg/L		1	U	07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	18:11	amm
Hydroxide	ND	10	mg/L		1	U	07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	18:11	amm
Chloride	47	1	mg/L		1	b	07/21/2023	15:50	lfs	EPA 300.0	07/22/2023	02:41	lfs
Nitrate Nitrogen	16.8	0.1	mg/L		1		07/21/2023	15:50	lfs	EPA 300.0	07/22/2023	02:41	lfs
Conductivity	774	1	umhos/cm		1		07/25/2023	14:54	amm	SM 4500-H+B	07/25/2023	18:11	amm
Sulfate	49.2	0.5	mg/L		1		07/21/2023	15:50	lfs	EPA 300.0	07/22/2023	02:41	lfs
Solids, Total Dissolved (TDS)	490	20	mg/L		1		07/24/2023	12:50	ctl	SM 2540 C	07/25/2023	10:50	ctl
Calcium	81	1	mg/L		1		07/26/2023	04:45	ejc	EPA 200.7	07/26/2023	20:00	ac
Magnesium	5	1	mg/L		1		07/26/2023	04:45	ejc	EPA 200.7	07/26/2023	20:00	ac
Sodium	76	1	mg/L		1		07/26/2023	04:45	ejc	EPA 200.7	07/26/2023	20:00	ac

DQF Flags Definition:
U Constituent results were non-detect.
b The Blank was positive for constituent but less than the PQL

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

Page 2 of 4

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July 28, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2344721
Customer No. : 4018505

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	07/26/2023:208188EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.3%	85-115	
			MS	mg/L	12.00	96.3%	75-125	
		(SP 2312627-001)	MSD	mg/L	12.00	90.7%	75-125	
			MSRPD	mg/L		2.2%	≤20.0	
			MS	mg/L	12.00	79.6%	75-125	
		(STK2339623-007)	MSD	mg/L	12.00	75.3%	75-125	
			MSRPD	mg/L		0.6%	≤20.0	
Magnesium	200.7	07/26/2023:208188EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.5%	85-115	
			MS	mg/L	12.00	101%	75-125	
		(SP 2312627-001)	MSD	mg/L	12.00	98.8%	75-125	
			MSRPD	mg/L		1.5%	≤20	
			MS	mg/L	12.00	95.4%	75-125	
		(STK2339623-007)	MSD	mg/L	12.00	94.6%	75-125	
			MSRPD	mg/L		0.3%	≤20	
Sodium	200.7	07/26/2023:208188EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	95.8%	85-115	
			MS	mg/L	12.00	93.3%	75-125	
		(SP 2312627-001)	MSD	mg/L	12.00	92.1%	75-125	
			MSRPD	mg/L		0.5%	≤20.0	
			MS	mg/L	12.00	68.4%	<¼	406
		(STK2339623-007)	MSD	mg/L	12.00	28.8%	<1/4	
			MSRPD	mg/L		2.1%	≤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 analyted. 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.

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July 28, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2344721
Customer No. : 4018505

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	07/25/2023:208164AMM	ND	mg/L		1.78%	10	406
Bicarbonate	2320B	(STK2339847-001)	Dup	mg/L		1.73%	10	
E. C.	2320B	(STK2339847-001)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	07/24/2023:208076CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	98.4 %	90-110	
		(SP 2312486-005)	Dup	mg/L		2.1%	5	
		(SP 2312486-005)	Dup	mg/L		1.5%	5	
Chloride	300.0	07/21/2023:208029LFS	Blank	mg/L		1	<1	
			LCS	mg/L	25.00	101 %	90-110	
			MS	mg/L	50.00	92.4 %	85-121	
		(STK2339751-002)	MSD	mg/L	50.00	107 %	85-121	
			MSRPD	mg/L	10.00	13.8%	≤19	
			MS	mg/L	50.00	99.9 %	85-121	
		(STK2339623-009)	MSD	mg/L	50.00	91.9 %	85-121	
			MSRPD	mg/L	10.00	8.3%	≤19	
Nitrate Nitrogen	300.0	07/21/2023:208029LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	99.8 %	90-110	
			MS	mg/L	40.00	93.3 %	85-119	
		(STK2339751-002)	MSD	mg/L	40.00	108 %	85-119	
			MSRPD	mg/L	10.00	13.9%	≤19	
			MS	mg/L	40.00	100 %	85-119	
		(STK2339623-009)	MSD	mg/L	40.00	92.3 %	85-119	
			MSRPD	mg/L	10.00	8.3%	≤19	
Sulfate	300.0	07/21/2023:208029LFS	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	101 %	90-110	
			MS	mg/L	100.0	93.3 %	82-124	
		(STK2339751-002)	MSD	mg/L	100.0	108 %	82-124	
			MSRPD	mg/L	10.00	14.0%	≤23	
			MS	mg/L	100.0	101 %	82-124	
		(STK2339623-009)	MSD	mg/L	100.0	92.8 %	82-124	
			MSRPD	mg/L	10.00	8.2%	≤23	

Definition

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 analyted. 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.

Page 4 of 4

FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

Special

CHAIN OF CUSTODY
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Laboratory Copy (1 of 2)

42086:04/01/2023

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Client: **Livingston Dairy Consulting, Inc.**
Address: Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Phone: (559)687-1440 Fax:
Contact Person: Noreen Livingston
Project Name: **W-6** Oasis Dairy
Purchase Order Number:
Quote Number: **VI 20210208-01**
Sampler(s) Marlene

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **VI** 2344021 **4-18505**

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Dairy Analysis-W-6-Conductivity,NO3-N,Total N,TDS 16oz(P)	Bottles/Containers Split Fee 8oz(P)-H2SO4
1	Cow well #2	6/30	7:36AM	G	AgW	NP			1	1
2	Gray well #6	6/30	7:42AM	G	AgW	NP			1	1
3				G					1	1
4				G					1	1
5				G					1	1
6				G					1	1
7				G					1	1
8				G					1	1
9				G					1	1
10				G					1	1

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
[signature]	6/30/23	11:47	SRO	6/30/23	1730	GLS	7/1/23	1340
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
SRO	6/30/23	1147	GLS	6/30/23	1730	[signature]	7/1/23	1340

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R01
4.9

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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: R01 / 4.9 / ____ / ____ / ____
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?	(Yes)	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	(Yes)	No	
5.	VOAs checked for Headspace?	Yes	No	(N/A)
6.	Were sample custody seals intact?	Yes	No	(N/A)
7.	If required, was sample split for pH analysis?	Yes	No	(N/A)
8.	Were all analyses within holding times at time of receipt?	(Yes)	No	
9.	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): SRO

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 2 / ____ / ____ / ____ / ____
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: 775160140714

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

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? [Exception: Oil & Grease, VOA and CrVI verified in lab]	(Yes)	No	N/A	FGL
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): CC

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: _____
Initiated By: _____
Problem:
Resolution:

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

(4018505)
Livingston Dairy Consulting, Inc.
VI 2344021
cda 06/30/2023 15:49:15

F + L Barrellos

FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

August 16, 2023

Lab No. : VI 2344716
Customer No. : 4018505

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

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
4-101	07/20/2023	07/20/2023	VI 2344716-001	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: 2023-08-17

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F+L Barcellos

FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

August 16, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Description : 4-101
Project : W-6 F&L Barcellos

Lab No. : VI 2344716-001
Customer No. : 4018505

Sampled On : July 20, 2023 at 07:37
Sampled By : Marlene / Noreen
Received On : July 20, 2023 at 10:32
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
							Date	Time	Who	Method	Date	Time	Who
Dairy Analysis													
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	08/10/2023	14:22	sta	EPA 351.2	08/12/2023	15:33	lcr
Nitrate Nitrogen	3.6	0.4	mg/L		1		07/21/2023	13:00	lfs	SM 4500-NO3 F	07/21/2023	15:50	lfs
Nitrogen, Total as Nitrogen	3.6	0.5	mg/L		1		08/10/2023	14:22	sta	Calc.	08/12/2023	15:33	lcr
Nitrate + Nitrite as N	3.6	0.4	mg/L		1		07/21/2023	13:00	lfs	SM 4500-NO3 F	07/21/2023	15:50	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	08/10/2023	14:22	sta	EPA 351.2	08/12/2023	15:33	lcr
Conductivity	249	1	umhos/cm		1		07/31/2023	21:43	amm	SM 4500-H+B	08/01/2023	00:29	amm
Solids, Total Dissolved (TDS)	150	20	mg/L		1		07/24/2023	12:50	ctl	SM 2540 C	07/25/2023	10:50	ctl

DQF Flags Definition:
U Constituent results were non-detect.

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

Page 2 of 3

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August 16, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2344716
Customer No. : 4018505

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2344724-001)	Dup	umhos/cm		0.1%	5	
Solids, Total Dissolved	2540CE	07/24/2023:208076CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	98.4 %	90-110	
		(SP 2312486-005)	Dup	mg/L		2.1%	5	
		(SP 2312486-005)	Dup	mg/L		1.5%	5	
Nitrogen, Total Kjeldahl	351.2	08/10/2023:208886STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	88.3%	73-124	
			MS	mg/L	12.00	91.6%	54-136	
		(VI 2344744-001)	MSD	mg/L	12.00	92.6%	54-136	
			MSRPD	mg/L		1.1%	≤27	
			MS	mg/L	12.00	88.1%	54-136	
		(VI 2344744-003)	MSD	mg/L	12.00	88.0%	54-136	
			MSRPD	mg/L		0.1%	≤27	
Nitrate + Nitrite as N	4500NO3F	07/21/2023:208010LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.3%	80-120	
			MS	mg/L	5.609	95.8%	66-125	
		(CH 2375628-001)	MSD	mg/L	5.609	97.2%	66-125	
			MSRPD	mg/L		1.5%	≤30.4	
Nitrate Nitrogen	4500NO3F	07/21/2023:208010LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.3%	80-120	
			MS	mg/L	5.609	95.8%	66-125	
		(CH 2375628-001)	MSD	mg/L	5.609	97.2%	66-125	
			MSRPD	mg/L		1.5%	≤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 analyted. 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.

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Laboratory Copy (1 of 3)

42086:03/01/2022

Client: **Livingston Dairy Consulting, Inc.**

Address: Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Phone: (559)687-1440 Fax:

Contact Person: Noreen Livingston

Project Name: W-6 F&L Barcellos

Purchase Order Number:

Quote Number: **VI 20210208-01**

Sampler(s) Marlene & Noreen

Sampling Fee: _____ Pickup Fee: _____

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **VI 2344716** **4-18505**

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Dairy Analysis-W-6-Conductivity,NO3-N,Total N,TDS 16oz(P)	Sampling-W-6 - Total N - Split Bottle ***VI Lab to Split for Total N*** 8oz(P)-H2SO4
1	4-101	7/20	7:37PM	G	AgW	NP			1	1
2				G					1	1
3				G					1	1
4				G					1	1
5				G					1	1
6				G					1	1
7				G					1	1
8				G					1	1
9				G					1	1
10				G					1	1

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Marlene	7/20/23	10:32	SRO	7/20/23	1730	GLS	7/21/23	1120
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
SRO	7/20/23	1032	GLS	7/20/23	1730	MC	/	/

ROI 8.5°0

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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: RO1 / 8.5°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?	(Yes)	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	(Yes)	No	
5.	VOAs checked for Headspace?	Yes	No	(N/A)
6.	Were sample custody seals intact?	Yes	No	(N/A)
7.	If required, was sample split for pH analysis?	Yes	No	(N/A)
8.	Were all analyses within holding times at time of receipt?	(Yes)	No	
9.	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): SRO

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 1C / ____ / ____ / ____ / ____
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: 549803345 3297 3542 3359

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

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? [Exception: Oil & Grease, VOA and CrVI verified in lab]	(Yes)	No	N/A	FGL
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): MDC

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: _____
Initiated By: _____
Problem:
Resolution:

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

(4018505)
Livingston Dairy Consulting, Inc.
VI 2344716
iv 07/20/2023 14:27:00
VI 2344716

FTL Barcellos

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

August 18, 2023

Lab No. : VI 2344786
Customer No. : 4018505

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

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
1-101	07/25/2023	07/25/2023	VI 2344786-001	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: 2023-08-18

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August 18, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Lab No. : VI 2344786-001
Customer No. : 4018505

Sampled On : July 25, 2023 at 07:10
Sampled By : Marlene/Noreen
Received On : July 25, 2023 at 08:30
Matrix : Ag Water

Description : 1-101
Project : W-6 F & L Barcellos

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	0.6	0.5	mg/L		1	l	08/12/2023	12:25	sta	EPA 351.2	08/16/2023	21:26	lcr
Nitrate Nitrogen	0.4	0.4	mg/L		1	h	07/26/2023	13:30	lfs	SM 4500-NO3 F	07/26/2023	14:54	lfs
Nitrogen, Total as Nitrogen	1	0.5	mg/L		1	lh	08/12/2023	12:25	sta	Calc.	08/16/2023	21:26	lcr
Nitrate + Nitrite as N	0.4	0.4	mg/L		1	h	07/26/2023	13:30	lfs	SM 4500-NO3 F	07/26/2023	14:54	lfs
Kjeldahl Nitrogen	0.6	0.5	mg/L		1	l	08/12/2023	12:25	sta	EPA 351.2	08/16/2023	21:26	lcr
Conductivity	213	1	umhos/cm		1		07/31/2023	14:51	amm	SM 4500-H+B	07/31/2023	16:06	amm
Solids, Total Dissolved (TDS)	160	20	mg/L		1		07/27/2023	12:15	ctl	SM 2540 C	07/28/2023	11:20	ctl

DQF Flags Definition:
l **The MS/MSD did not meet QC criteria.**
h **The MS/MSD did not meet QC criteria.**

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

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August 18, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2344786
Customer No. : 4018505

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2344941-001)	Dup	umhos/cm		0%	5	
Solids, Total Dissolved	2540CE	07/27/2023:208315CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	98.1%	90-110	
		(SP 2312760-002)	Dup	mg/L		1.71%	5	
		(SP 2312760-002)	Dup	mg/L		0.07%	5	
Nitrogen, Total Kjeldahl	351.2	08/12/2023:208945STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	90.7%	73-124	
			MS	mg/L	12.00	87.7%	54-136	
		(STK2339763-002)	MSD	mg/L	12.00	88.5%	54-136	
			MSRPD	mg/L		0.8%	≤27	
			MS	mg/L	12.00	64.2%	54-136	
		(VI 2344850-001)	MSD	mg/L	12.00	22.3%	54-136	435
			MSRPD	mg/L		96.1%	≤27	435
Nitrate + Nitrite as N	4500NO3F	07/26/2023:208263LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	104%	80-120	
			MS	mg/L	5.609	140%	66-125	435
		(CC 2382433-001)	MSD	mg/L	5.609	163%	66-125	435
			MSRPD	mg/L		6.5%	≤30.4	
Nitrate Nitrogen	4500NO3F	07/26/2023:208263LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	104%	80-120	
			MS	mg/L	5.609	140%	66-125	435
		(CC 2382433-001)	MSD	mg/L	5.609	163%	66-125	435
			MSRPD	mg/L		6.5%	≤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 analyted. 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

435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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42086:03/01/2022

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Address: Livingston Dairy Consulting, Inc
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Phone: (559)687-1440 Fax:

Contact Person: Noreen Livingston

Project Name: **W-6** F&L Barcellos

Purchase Order Number:

Quote Number: **VI 20210208-01**

Sampler(s) Marlene & Noreen

Sampling Fee: _____ Pickup Fee: _____

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **VI** 2344786 **4-18505**

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Dairy Analysis-W-6-Conductivity,NO3-N,Total N,TDS 16oz(P)	Sampling-W-6 - Total N - Split Bottle ***VI Lab to Split for Total N*** 8oz(P)-H2SO4
1	1-101	7/25	7:10AM	G	AgW	NP			1	1
2				G					1	1
3				G					1	1
4				G					1	1
5				G					1	1
6				G					1	1
7				G					1	1
8				G					1	1
9				G					1	1
10				G					1	1

TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Marlene Fair	7/25/23	8:30AM	ADH	7/25/23	1700	GS	7/26/23	1140
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
ADH	7/25/23	830	GD	7/25/23	1700	[illegible]	7/26/23	1140

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Fax: (805) 783-2912

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
Phone: (559) 734-9473
Fax: (559) 734-8435

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: 10.1 / 7.9 ic / ____ / ____ / ____
   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?	(Yes)	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	(Yes)	No	
5.	VOAs checked for Headspace?	Yes	No	(N/A)
6.	Were sample custody seals intact?	Yes	No	(N/A)
7.	If required, was sample split for pH analysis?	Yes	No	(N/A)
8.	Were all analyses within holding times at time of receipt?	(Yes)	No	
9.	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): AOH

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 5 / 5 / ____ / ____ / ____
   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: 559833260 + 559838252

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

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? [Exception: Oil & Grease, VOA and CrVI verified in lab]	(Yes)	No	N/A	FGL
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): ll

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: _____
   Initiated By: _____
   Problem:
   Resolution:

(Please use the back of this sheet for additiona
contacts)

(4018505)
Livingston Dairy Consulting, Inc.
VI 2344786
cda 07/25/2023 09:31:45
VI 2344786
2344786

e

F+L Barrello

FGL
ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

August 30, 2023

Lab No. : **VI 2344175**
Customer No. : **4018505**

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Laboratory Report

Introduction: This report package contains a total of 4 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	(2 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
6-101 N	07/07/2023	07/07/2023	VI 2344175-001	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 except those as listed in the table below. 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.

Samples Over Hold Time

Lab No	Analyte Method	Maximum Hold Time	Actual Hold Time
VI 2344175-001	Nitrate Nitrogen	48 hours	176.5 hours

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 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)

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: 2023-08-30

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F+L Barcellos

FGL
ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

August 30, 2023

Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Lab No. : VI 2344175-001
Customer No. : 4018505

Sampled On : July 7, 2023 at 07:38
Sampled By : Noreen & Marlene
Received On : July 7, 2023 at 11:39
Matrix : Ag Water

Description : 6-101 N
Project : W-4 F&L Barcellos #1

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
							Date	Time	Who	Method	Date	Time	Who
Dairy Analysis													
Alkalinity (as CaCO3)	350	10	mg/L		1		07/16/2023	18:48	amm	SM 4500-H+B	07/17/2023	01:24	amm
Bicarbonate	430	10	mg/L		1		07/16/2023	18:48	amm	SM 4500-H+B	07/17/2023	01:24	amm
Carbonate	ND	10	mg/L		1	U	07/16/2023	18:48	amm	SM 4500-H+B	07/17/2023	01:24	amm
Hydroxide	ND	10	mg/L		1	U	07/16/2023	18:48	amm	SM 4500-H+B	07/17/2023	01:24	amm
Chloride	75	1	mg/L		1		07/14/2023	16:07	ldm	EPA 300.0	07/15/2023	01:05	ldm
Nitrate Nitrogen	ND	0.1	mg/L		1	T	07/14/2023	16:07	ldm	EPA 300.0	07/15/2023	01:05	ldm
Conductivity	850	1	umhos/cm		1		07/16/2023	18:48	amm	SM 4500-H+B	07/17/2023	01:24	amm
Sulfate	0.9	0.5	mg/L		1		07/14/2023	16:07	ldm	EPA 300.0	07/15/2023	01:05	ldm
Solids, Total Dissolved (TDS)	450	20	mg/L		1		07/12/2023	11:45	ctl	SM 2540 C	07/13/2023	11:15	ctl
Calcium	30	1	mg/L		1		08/08/2023	05:55	ejc	EPA 200.7	08/08/2023	21:30	ac
Magnesium	13	1	mg/L		1		08/08/2023	05:55	ejc	EPA 200.7	08/08/2023	21:30	ac
Sodium	105	1	mg/L		1		08/08/2023	05:55	ejc	EPA 200.7	08/08/2023	21:30	ac

DQF Flags Definition:
U Constituent results were non-detect.
T Exceeded method/regulatory-specific holding time.

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

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August 30, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2344175
Customer No. : 4018505

Quality Control - Metals

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Calcium	200.7	08/08/2023:208706EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	95.2%	85-115	
		(STK2339960-002)	MS	mg/L	12.00	103%	75-125	
			MSD	mg/L	12.00	108%	75-125	
			MSRPD	mg/L		1.6%	≤20.0	
		(SP 2313113-001)	MS	mg/L	12.00	129%	<¼	406
			MSD	mg/L	12.00	217%	<1/4	
			MSRPD	mg/L		5.0%	≤20.0	
Magnesium	200.7	08/08/2023:208706EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	98.0%	85-115	
		(STK2339960-002)	MS	mg/L	12.00	103%	75-125	
			MSD	mg/L	12.00	103%	75-125	
			MSRPD	mg/L		0.2%	≤20	
		(SP 2313113-001)	MS	mg/L	12.00	132%	<¼	406
			MSD	mg/L	12.00	160%	<1/4	
			MSRPD	mg/L		2.8%	≤20	
Sodium	200.7	08/08/2023:208706EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	99.6%	85-115	
		(STK2339960-002)	MS	mg/L	12.00	101%	75-125	
			MSD	mg/L	12.00	105%	75-125	
			MSRPD	mg/L		0.5%	≤20.0	
		(SP 2313113-001)	MS	mg/L	12.00	2170%	<¼	406
			MSD	mg/L	12.00	3170%	<1/4	
			MSRPD	mg/L		19.8%	≤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 analyted. 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.

Page 3 of 4

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August 30, 2023

Livingston Dairy Consulting, Inc.

Lab No. : VI 2344175
Customer No. : 4018505

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Alkalinity (as CaCO3)	2320B	07/16/2023:207757AMM	ND	mg/L		0.2%	10	406
Bicarbonate	2320B	(CC 2382247-001)	Dup	mg/L		0.2%	10	
E. C.	2320B	(CC 2382247-001)	Dup	umhos/cm		0.2%	5	
Solids, Total Dissolved	2540CE	07/12/2023:207626CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	993.7	98.9%	90-110	
		(SP 2311707-003)	Dup	mg/L		3.37%	5	
		(SP 2311707-003)	Dup	mg/L		0.2%	5	
Chloride	300.0	07/14/2023:207799LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	104 %	90-110	
			MS	mg/L	50.00	93.4 %	85-121	
		(CC 2382247-001)	MSD	mg/L	50.00	90.1 %	85-121	
			MSRPD	mg/L	10.00	2.1%	≤19	
			MS	mg/L	50.00	99.2 %	85-121	
		(SP 2311727-003)	MSD	mg/L	50.00	96.3 %	85-121	
			MSRPD	mg/L	10.00	2.0%	≤19	
Nitrate Nitrogen	300.0	07/14/2023:207799LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	103 %	90-110	
			MS	mg/L	40.00	97.7 %	85-119	
		(CC 2382247-001)	MSD	mg/L	40.00	93.6 %	85-119	
			MSRPD	mg/L	10.00	2.9%	≤19	
			MS	mg/L	40.00	101 %	85-119	
		(SP 2311727-003)	MSD	mg/L	40.00	97.8 %	85-119	
			MSRPD	mg/L	10.00	2.4%	≤19	
Sulfate	300.0	07/14/2023:207799LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	106 %	90-110	
			MS	mg/L	100.0	99.9 %	82-124	
		(CC 2382247-001)	MSD	mg/L	100.0	96.2 %	82-124	
			MSRPD	mg/L	10.00	2.7%	≤23	
			MS	mg/L	100.0	101 %	82-124	
		(SP 2311727-003)	MSD	mg/L	100.0	97.7 %	82-124	
			MSRPD	mg/L	10.00	2.0%	≤23	

Definition

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 analyted. 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.

Page 4 of 4

FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

Special

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Laboratory Copy (1 of 3)

42085:03/01/2022

Client: **Livingston Dairy Consulting, Inc.**

Address: Livingston Dairy Consulting, Inc
1635 E. Prosperity Suite B
Tulare, CA 93274

Phone: (559)687-1440 Fax:

Contact Person: Noreen Livingston

Project Name: W-4 F&L Barcellos #1

Purchase Order Number:

Quote Number: **VI 20210208-01**

Sampler(s) Noreen & Marlene

Sampling Fee: _____ Pickup Fee: _____

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number: **VI 2344175** **4-18505**

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Dairy Analysis-W-4-Alk. (CaCO3),Cl,Conductivity,NO3-N,TDS,SO4,Ca,Na,Mg 16oz(P)	TEST DESCRIPTION - See Reverse side for Container, Preservative and Sampling information
1	6-101 N	7/7	7:38	G	AgW	NP			1	
2				G					1	
3				G					1	
4				G					1	
5				G					1	
6				G					1	
7				G					1	
8				G					1	
9				G					1	
10				G					1	

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Marlene	7/7/23	1139	SRO	7/7/23	1730	GLS	7/8/23	1330
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
SRO	7/7/23	1139	GLS	7/7/23	1730		↓	↓

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ROI 5-9

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Phone: (559) 734-9473
Fax: (559) 734-8435

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: R01 / 5.9 / ____ / ____ / ____
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?	(Yes)	No	N/A
4.	Were samples received intact? (i.e. no broken bottles, leaks etc.)	(Yes)	No	
5.	VOAs checked for Headspace?	Yes	No	(N/A)
6.	Were sample custody seals intact?	Yes	No	(N/A)
7.	If required, was sample split for pH analysis?	Yes	No	(N/A)
8.	Were all analyses within holding times at time of receipt?	(Yes)	No	
9.	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): SRO

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 1 / ____ / ____ / ____ / ____
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:
- 559726594 / 85

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

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? [Exception: Oil & Grease, VOA and CrVI verified in lab]	Yes	No	(N/A)	FGL
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): CDA

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: _____
Initiated By: _____
Problem:
Resolution:

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

(4018505)
Livingston Dairy Consulting, Inc.
VI 2344175
iv 07/10/2023 08:20:15
VI 2344175

Livingston Dairy Consulting, Inc.

FIELD ACTIVITY REPORT

Facility Nam F & L Barcellos Dairy #1
14581 Rd. 80, Tipton
Tulare County

2023

Sample Collection Equipment:
Bottle Container

Sample Container: (Circle one)
Bottle Container: 8 fl oz 16 fl oz 32 fl oz

Sample Collection Location: (Circle one)
Discharge Pipe Spigot/Faucet

Sample Collection Method: (Circle one) *All Samples are labeled with the facility name, date, contents, location and description ** Please see the Sample and Anylsis Plan for more detailed descriptions.

Well: Sample taken at the Discharge Pipe, Spigot or Faucet using a sample container provided by laboratory

Sample Type:

Date	Well Name	Time	PH	Temp	Ammonium
1-31	Domestic	9:32	6.5	63	Ø
1-31	Barn (Dbm)	9:42	6.5	64	Ø
1-31	Backup (Dbm)	9:53	6.7	65	Ø
7/7	6-101 N	7:38	7	67	Ø
7/20	2-101 N	6:51	7	65	Ø
	4-101	7:37	6.5	64	Ø
7/25	1-101	7:10	6	67	Ø
9/15	2-101 N	7:17	7	66	Ø
9/14	2-101 N - Ba	7:39			

Sample Preservation Method: (Circle one) **Ice Chest Refrigerator Ice Pack**

Livingston Dairy Consulting, Inc.

1635 E. Prosperity Ave. Ste. B
Tulare, CA 93274
559-687-1440

Sunday, April 21, 2024

Re: 2023 NMP
F&L Barcellos Dairy WDID 5C54NC00229
14581 Road 80 Tipton, CA 93272

Enclosed is the 2023/2024 Nutrient Budget for your facility to comply with the California Regional Water Quality Control Board General Oder No. R5-2007-0035.

*2023 Whole Farm Nitrogen Balance

The whole farm nitrogen balance for the crop year 2022 was **0.51**
Nitrogen Summary will show the balances for each field and for the whole farm.

*Ranges for the Whole Farm Nitrogen Balance

Factor	Status	Evaluation
> 1.65	Excessive	Too much nitrogen applied
1.4 - 1.65	Slightly High	Nitrogen is satisfactory to slightly high
0.9 - 1.4	Normal	Normal to slightly low
< 0.9	Low	Low nitrogen status, additional nitrogen needed

*Nutrient Management Plan/ Nutrient Budget Certification

This Nutrient Budget was prepared by a Certified Crop Advisor as required by the California Regional Water Quality Control Board.

Butch Brazil
Certified Crop Advisor #35629

This Nutrient Management Plan / Nutrient Budget is based on samples collected and analyzed by a third party laboratory. This Certified Crop Advisor was not involved in oversight of outside laboratory sample collection, transportation, or analyses. Interpretation of the data is based on submitted information. Where data was incomplete, book values and / or historical data was used. The third party laboratory or Certified Crop Advisor was not involved with the agronomic growth of the crops and the Nutrient Budget is based on information provided by the owner.