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APR 22 2016

NATURAL RESOURCES

Oregon Department of Agriculture
MODIFICATION OF ANIMAL NUMBERS
For Confined Animal Feeding Operations
(NPDES & WPCF PERMITS)

Statutory Authority
Oregon Revised Statutes (ORS) 468B.050 When permit required
ORS 468B.210 Maximum numbers of animals based on ability to contain, treat, hold and dispose of wastes as necessary to comply with all conditions of the permit.

A. General Information **Master Address #** 1000112

Meyers Farm
Peter Meyers
17769 Mt. Angel / Scotts Mills Road

B. Livestock Type: Circle the item that best represents your operation.

1. Beef Feedlot (Fattening) 2. Beef Cattle (Cow/calf) 3. Hogs 4. Sheep and Goats
5. Dairy Farm, Heifer Replacement Farm 6. Poultry/Broiler 7. Poultry/Eggs
7. Mink/Rabbits 8. Horses and Other Equine 9. Other_____

C. Current Permitted Animal Numbers: In the space below please describe your number of animals by herd composition or class.

475 / 475 - Medium Confined

D. Current Permitted CAFO Designation: Circle one. See reverse side for table.

Large Concentrated Medium Concentrated Medium Confined Small Confined Small Concentrated

E. Proposed change in permitted animal numbers: In the space below please describe your proposed animal numbers by herd composition or class.

180 mature / 180 young stock

F. New CAFO Designation based on increase / decrease in animal numbers. Circle one. See reverse side for table.

Large Concentrated Medium Concentrated Medium Confined Small Confined Small Concentrated

G. Certification:
I understand that an approved animal waste management plan is required prior to permit increase. I agree to prepare and implement an animal waste management plan in accordance with the requirements and timelines specified in the permit.

Signature (operator or owner)	Date	Print Name
	4/19/16	PETER MEYERS
Signature (operator or owner	Date	Print Name

Revised Feb. 2016

Scanned & Saved to Server

Animal Waste Management Plan

Farm Name: MEYERS FARM

Type of Operation: DAIRY

Operated by: PETER MEYERS

Facility Address: 17769 Mt. Angel-Scotts Mills Road
Silverton, OR 97381

Mailing Address: 6872 SW Canyon Drive
Portland, OR 97225

As owner and operator of meyers Farm, I intend to manage in accordance with the practices and operation and maintenance described in this animal waste management plan.

Signature _____ Date 6/11/14

See AWMP #05237
In Separate File

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JUN 11 2014
NATURAL RESOURCES
DIVISION

U.S. Department of Agriculture
Natural Resources Conservation Service

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 1.8

2/9/2005
STATE: OREGON

CLIENT: Neff Dairy Inc.
ASSISTED BY: Bruce Wilson
CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

ANIMAL INVENTORY

Milk Production in Pounds/Cow/Day= 72

Type of Animal	Number of Animals	Average Weight (lbs.)	Animal Units (1,000 lb.)	Nutrient Production (lbs./day/1000 lb. Animal Unit) N	P	K	Nutrient Production (lbs./day) N	P	K	Manure CF/D/AU	Annual Days Confined	Annual Days Grazed
MILKER	405	1,200	486.0	0.58	0.09	0.32	283.74	45.86	155.81	1.59	365	0
MILKER (DRY)	70	1,300	91.0	0.36	0.05	0.23	32.76	4.55	20.93	1.10	183	183
HEIFERS (12-24 Months)	238	750	178.1	0.31	0.04	0.24	55.22	7.13	42.75	1.30	185	180
CALVES (1-12 Months)	237	300	71.1	0.31	0.04	0.24	22.04	2.84	17.06	1.30	191	174
Totals/Averages-	950	888	826.2	0.48	0.07	0.29	393.8	60.4	236.6	1.5		

GRAZING PERIOD

Type of Animal	Percent of Month and Number of Animals Grazing OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AU-YR.
MILKER	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	405	405	405	405	405	405	405	405	405	405	405	405	0
MILKER (DRY)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
	70	70	70	70	70	70	70	70	70	70	70	70	546
HEIFERS (12-24 Months)	50%	50%	0%	0%	0%	50%	70%	70%	90%	90%	60%	60%	
	238	238	238	238	238	238	238	238	238	238	238	238	1,051
CALVES (1-12 Months)	50%	50%	0%	0%	0%	50%	70%	70%	70%	70%	70%	70%	
	237	237	237	237	237	237	237	237	237	237	237	237	405
													0
													0
													0
													0
													0
													0
Total AUM's Available>	99						102	102	102	101	101	101	708
Total AUM's Needed>>>	170	170	46	46	46	170	220	220	256	256	202	202	2,002
Total AUM's>>>>>>>>>>	-71	-170	-46	-46	-46	-170	-118	-118	-154	-155	-101	-101	-1,294

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 1.8

CLIENT: Neff Dairy Inc.

ASSISTED BY: Bruce Wilson CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

WEATHER STATION N WILLAMETTE EXP STA

Month	25Yr-24Hr	4.00	Lot Runoff Factors as a Percent of Monthly Precipitation	
	Monthly Average in Inches			
	Precipitation	Evaporation	Paved	Unpaved
October	3.13	1.71	100%	15%
November	6.08	0.76	100%	20%
December	7.13	0.43	100%	15%
January	6.23	0.48	100%	20%
February	4.38	0.81	100%	15%
March	3.91	1.57	100%	10%
April	2.71	2.39	100%	10%
May	2.18	3.74	100%	10%
June	1.73	4.33	100%	10%
July	0.67	5.40	100%	0%
August	0.96	4.93	100%	10%
September	1.81	3.36	100%	15%
Annual	40.92	29.91		

AREAS CONTRIBUTING RUNOFF TO LIQUID STORAGE FACILITY

Description of Runoff Area	Area in SF
Paved Lot Area >> Is paved lot scraped daily? (Y/N) YES	10,800
Unpaved Lot Area >>	0
Roof Area >>	
Surface Area of Silage Storage Facility>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> Does Silage Seepage Drain to Storage Facility? (Y/N) YES	12,800
Total Runoff Area Contributing to Liquid Storage Facility>>>>>>>>>>>>>>>>	23,600

WATER USE THAT ENTERS LIQUID STORAGE FACILITY

Type of Water Use	Number of Animals	Number of Washes per Day	Gallons of Water Used per Wash-Day	Total Water Use per Day, Gallons	Total Water Use per Day, Cubic Feet
Animal Washwater	405.0	3	0.00	0	0.0
Equipment Wash		3	75.00	225	30.1
Flushwater		0		0	0.0
Miscellaneous		3	750.00	2250	300.8
Total>>>				2475	330.9

CROP DATA

Field Number	Acres	Crop	Condition	Yield Units	Target Yield	Nutrients Removed in Pounds per Acre		
						Nitrogen N	Phosphorous P2O5	Potassium K2O
	100.0	Corn, Silage(AH)	As Harvested	Ton	30.00	231	120	276
	100.0	Ryegrass Haylage	As Harvested	Ton	6.00	150	55	154
	59.0	Ryegrass Haylage	As Harvested	Ton	15.00	375	137	385
	20.0	Hay/Pasture Mix 14% Protein	50% DM	Ton	6.00	269	74	205
Off-Farm								

ANIMAL WASTE MANAGEMENT WORKSHEET

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ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

BEDDING VOLUME

Type of Animal	Type of Bedding Facility	Bedding Material	Unit Weight Lbs/CF	Amount Needed Lbs/Day/AU	Volume CF/Day/AU	Total Volume CF/Day	Total Weight Lbs/Day
MILKER	Free Stall	Paper Pulp	4.00	3.00	0.75	365	1,458
MILKER (DRY)	Free Stall	Paper Pulp	4.00	3.00	0.75	68	273
HEIFERS (12-24 Months)	Free Stall	Paper Pulp	4.00	3.00	0.75	134	534
CALVES (1-12 Months)	Loose Housing	Loose Straw	2.50	9.30	0.25	18	661

SOLIDS SEPARATION FACTOR

Type of Animal	Type of Separator	Separation Factor %	Volume of Solids Separated CF/Day	Volume of Solids in Liquids CF/Day	Volume of Manure in Liquids CF/Day	Volume of Manure in Solids CF/Day	Accumulated Sludge in Storage CF/Day	Density of Separated Solids Lbs/CF	Weight of Separated Solids Lbs/Day
MILKER	Static Inclined Screen with Drag Chain	25%	115	346	751	24	385	36	4,152
MILKER (DRY)	Static Inclined Screen with Drag Chain	25%	20	60	97	3	31	36	719
HEIFERS (12-24 Months)	Static Inclined Screen with Drag Chain	25%	40	119	225	6	56	36	1,425
CALVES (1-12 Months)	Dry Scrape System	100%	110	0	0	92	0	36	3,967
Total Solids>>			285	525	1,073	126	472		10,264

ANIMAL WASTE MANAGEMENT WORKSHEET
Version 1.8

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Bruce Wilson**
CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

MONTHLY VOLUMES

Month	Runoff in Cubic Feet: Roof Area Square Feet 0	Paved Slab Area Square Feet 10,800	Unpaved Lot Area Square Feet 0	Silage Pit Surface Area, SF 12,800	Facility Water Use Cubic Feet	Manure Solids Cubic Feet	Manure Liquids Cubic Feet	Bedding Cubic Feet	Bedding Pounds	Solids Separated Cubic Feet	Solids Separated Pounds	Solids in Liquids Cubic Feet	Solids in Liquids Pounds	Total Solids Cubic Feet	Total Liquids Cubic Feet
October	0	2,817	0	1,737	10,257	6,996	30,175	14,704	67,961	6,207	223,450	13,496	485,868	6,207	56,581
November	0	5,472	0	2,473	9,926	6,771	29,201	14,229	65,769	6,007	216,242	13,061	470,195	6,007	59,206
December	0	6,417	0	2,377	10,257	6,996	30,175	17,050	86,493	8,529	307,038	15,337	552,146	8,529	66,155
January	0	5,607	0	2,566	10,257	6,996	30,175	17,050	86,493	8,529	307,038	15,337	552,146	8,529	65,534
February	0	3,942	0	1,817	9,265	6,319	27,254	15,400	78,123	7,703	277,324	13,853	498,713	7,703	60,643
March	0	3,519	0	1,654	10,257	6,996	30,175	14,704	67,961	6,207	223,450	13,496	485,868	6,207	57,199
April	0	2,439	0	1,465	9,926	6,771	29,201	13,321	58,595	5,108	183,886	12,348	444,539	5,108	53,055
May	0	1,962	0	233	10,257	6,996	30,175	13,765	13,765	5,278	190,016	12,760	459,357	5,278	52,088
June	0	1,557	0	185	9,926	6,771	29,201	12,520	55,389	4,870	175,334	11,636	418,883	4,870	48,782
July	0	603	0	0	10,257	6,996	30,175	12,937	57,236	5,033	181,178	12,023	432,846	5,033	48,362
August	0	864	0	102	10,257	6,996	30,175	14,179	62,205	5,401	194,434	13,128	472,613	5,401	51,926
September	0	1,629	0	1,466	9,926	6,771	29,201	13,722	60,199	5,227	188,162	12,705	457,367	5,227	53,300
Annual	0	36,828	0	16,074	120,772	82,377	355,281	173,579	760,190	74,099	2,667,553	159,182	5,730,541	74,099	672,831

DAILY NUTRIENT PRODUCTION

Type of Animal	Pounds/Day of Nutrients from LIQUIDS: N	P_2O_5	K_2O	Pounds/Day of Nutrients from SOLIDS: N	P_2O_5	K_2O	Pounds/Day of Nutrients from GRAZING: N	P_2O_5	K_2O
MILKER	212.80	78.81	140.81	70.93	26.27	46.94	283.74	105.08	187.75
MILKER (DRY)	24.57	7.82	18.92	8.19	2.61	6.31	32.76	10.42	25.22
HEIFERS (12-24 Months)	41.41	12.24	38.64	13.80	4.08	12.88	55.22	16.32	51.51
CALVES (1-12 Months)	0.00	0.00	0.00	22.04	6.52	20.56	22.04	6.52	20.56
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Bruce Wilson**

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

MONTHLY NUTRIENT PRODUCTION

Month	Pounds of Nutrients from LIQUIDS			Pounds of Nutrients from SOLIDS			Pounds of Nutrients from GRAZING			Pounds of Nutrients going OFF-FARM			Total Pounds of Nutrients from ALL SOURCES		
	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
October	7,620	2,754	5,257	2,882	1,019	2,071	1,705	516	1,508	0	0	0	12,206	4,288	8,837
November	7,374	2,665	5,088	2,789	986	2,004	1,650	499	1,459	0	0	0	11,813	4,150	8,551
December	8,262	2,944	5,856	3,437	1,183	2,589	508	162	391	0	0	0	12,206	4,288	8,837
January	8,262	2,944	5,856	3,437	1,183	2,589	508	162	391	0	0	0	12,206	4,288	8,837
February	7,462	2,659	5,289	3,104	1,069	2,339	459	146	353	0	0	0	11,025	3,873	7,981
March	7,620	2,754	5,257	2,882	1,019	2,071	1,705	516	1,508	0	0	0	12,206	4,288	8,837
April	7,125	2,592	4,856	2,573	923	1,804	2,114	636	1,892	0	0	0	11,813	4,150	8,551
May	7,363	2,678	5,018	2,659	953	1,864	2,184	657	1,955	0	0	0	12,206	4,288	8,837
June	6,877	2,518	4,624	2,491	898	1,726	2,445	734	2,201	0	0	0	11,813	4,150	8,551
July	7,106	2,602	4,778	2,574	928	1,784	2,527	758	2,274	0	0	0	12,206	4,288	8,837
August	7,491	2,716	5,138	2,702	966	1,904	2,013	607	1,795	0	0	0	12,206	4,288	8,837
September	7,250	2,628	4,972	2,615	935	1,842	1,948	587	1,737	0	0	0	11,813	4,150	8,551
Annual	**89,810**	**32,454**	**61,989**	**34,144**	**12,062**	**24,588**	**19,766**	**5,978**	**17,465**	**0**	**0**	**0**	**143,721**	**50,494**	**104,043**

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 1.8

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Bruce Wilson**
CHECKED BY:

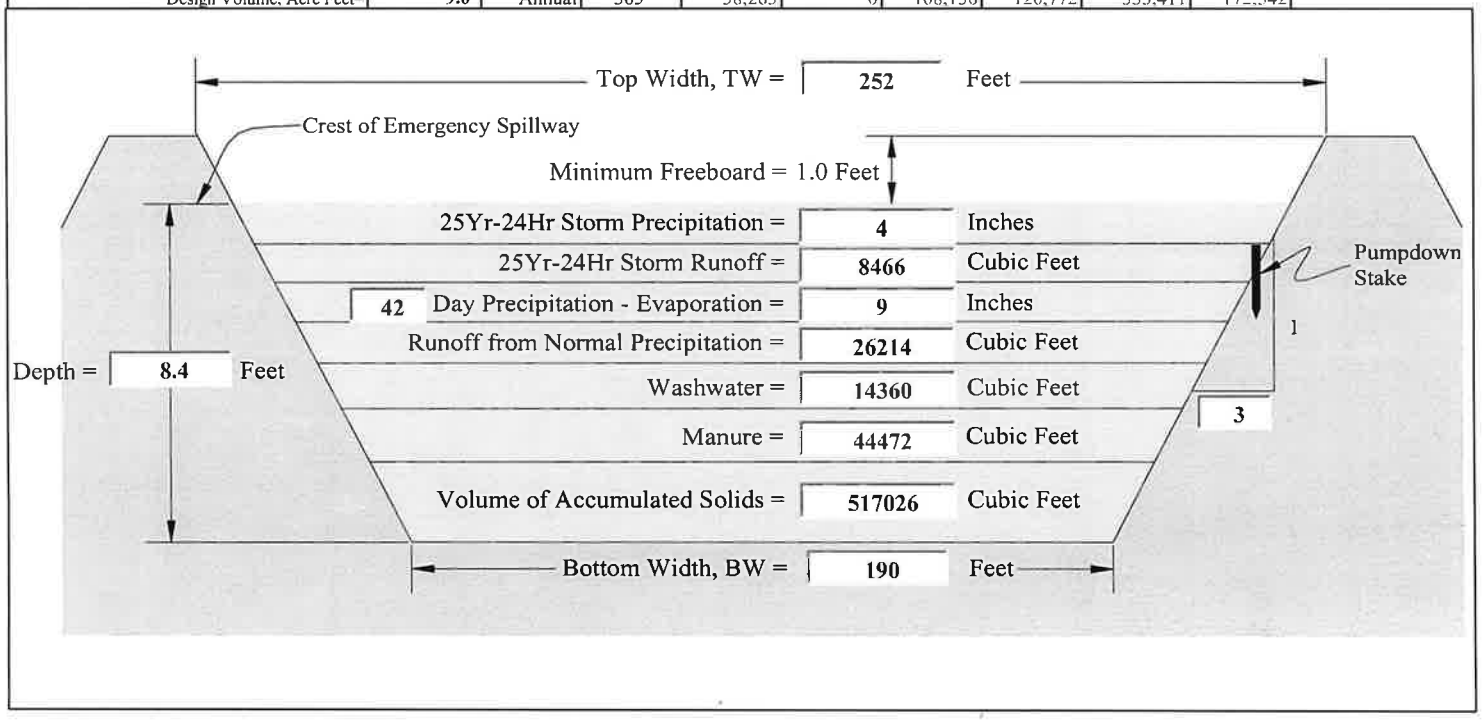
ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

WASTE STORAGE POND

Pond Parameters	Value
Storage Period, Days=	42
Side Slope (X:1)=	3.00
Bottom Width, BW, Feet=	190
Bottom Length, BL, Feet=	190
Accumulated Solids Duration, Years=	3
Existing Storage, Acre Feet=	7.00
Surface Area of Existing Storage, SF=	0
Minimum Soil Liner Depth, Feet=	1.00
25 Year-24 Hour Storm Runoff, CF=	8,466
Top Width, TW, Feet=	252
Top Length, TL, Feet=	252
Volume Needed, Acre Feet=	15.0
Design Volume, Acre Feet=	9.0

MONTHLY INFLOWS INTO WASTE STORAGE POND

Month	Number of Days	Rain-Evap on Pond CF	Rain-Evap on Existing Storage, CF	Normal Runoff CF	Washwater CF	Manure CF	Accum Solids CF
October	31	7,515	0	8,339	10,257	28,273	14,637
November	30	28,153	0	17,429	9,926	27,361	14,165
December	31	35,456	0	18,996	10,257	31,766	14,637
January	31	30,429	0	18,046	10,257	31,766	14,637
February	28	18,892	0	11,373	9,265	28,692	13,221
March	31	12,383	0	9,508	10,257	28,273	14,637
April	30	1,693	0	6,549	9,926	26,009	14,165
May	31	-8,256	0	5,301	10,257	26,876	14,637
June	30	-13,759	0	4,181	9,926	24,657	14,165
July	31	-25,031	0	1,318	10,257	25,479	14,637
August	31	-21,009	0	2,334	10,257	27,574	14,637
September	30	-8,203	0	4,781	9,926	26,685	14,165
Annual	365	58,265	0	108,156	120,772	333,411	172,342



CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Bruce Wilson**

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

MANAGEMENT CRITERIA FOR TRACTOR SPREADER APPLICATION OF SOLIDS

To apply **74,099** cubic feet of solids generated from the operation it will take approximately **1,489** trips annually. Based on applying NITROGEN, N
at agronomic rate use the application depths, travel lengths, and loads per acre listed below for each crop.

Field Number	Acres	Crop	Tractor Spreader Capacity		Spread Width	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Solids to Apply	Travel Length per Load Needed in Feet	Loads per Acre
			Bushels	CF	Feet	PPM	Lbs/100CF					
	100	Corn, Silage(AH)	0	0	15	4,800	29.95	231	1.00	0.3	0	#DIV/0!
	100	Ryegrass Haylage	0	0	15	4,800	29.95	150	1.00	0.2	0	#DIV/0!
0	59	Ryegrass Haylage	0	0	15	4,800	29.95	375	1.00	0.6	0	#DIV/0!
0	20	Hay/Pasture Mix 14% Protein	160	199	15	4,800	29.95	269	1.00	0.4	392	7
0												
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MANAGEMENT CRITERIA FOR BIG GUN SPRINKLER APPLICATION OF LIQUIDS

To apply **5,032,779** gallons of liquids generated from the operation it will take approximately **373** hours of pumping annually. Based on applying NITROGEN, N
at agronomic rate use the application depths, set times, and travel rates listed below for each crop.

Field Number	Acres	Crop	Sprinkler Flowrate GPM	Wetted Diameter Feet	Portion of Wetted Diameter Receiving Liquids	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Application Rate in Inches/Hour	Set Time Needed in Hours	Travel Rate Needed in Feet/Minute
						PPM	Lbs/1000Gal						
	100	Corn, Silage(AH)	300	250	1/2 Circle	971	8.10	231	1.00	1.61	1.45	2.73	1.20
	100	Ryegrass Haylage	300	250	1/2 Circle	971	8.10	150	1.00	1.05	1.45	1.77	1.84
0	59	Ryegrass Haylage	300	250	1/2 Circle	971	8.10	375	1.00	2.61	1.45	4.43	0.74
0	20	Hay/Pasture Mix 14% Protein	0	0	3/4 Circle	971	8.10	269	1.00	1.87			
0													
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MANAGEMENT CRITERIA FOR TANK WAGON APPLICATION OF LIQUIDS

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 1.8

CLIENT: **Neff Dairy Inc.**
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CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

To apply **5,032,779** gallons of liquids generated from the operation it will take approximately **0** trips annually. Based on applying NITROGEN, N
at agronomic rates use the application depths, travel lengths, and loads per acre listed below for each crop.

Field Number	Acres	Crop	Tank Wagon Capacity Gallons	Spread Width Feet	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Travel Length per Load Needed in Feet	Loads per Acre
					PPM	Lbs/1000Gal					
	100	Corn, Silage(AH)	0	15	971	8.10	231	1.00	0.69	0	#DIV/0!
	100	Ryegrass Haylage	0	15	971	8.10	150	1.00	0.45	0	#DIV/0!
0	59	Ryegrass Haylage	0	15	971	8.10	375	1.00	1.11	0	#DIV/0!
0	20	Hay/Pasture Mix 14% Protein	0	15	971	8.10	269	1.00	0.80	0	#DIV/0!
0											
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ANIMAL WASTE MANAGEMENT WORKSHEET

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ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

NUTRIENTS AVAILABLE AFTER STORAGE

Nutrient Source	Type of Operation / Type of Storage Facility	Pounds of Nutrients Available			Percent Nutrients Retained After Storage			Pounds of Nutrients Retained After Storage		
	Dairy	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
Liquids	Storage Pond (>50%) Dilution	89,810	32,454	61,989	45%	65%	80%	40,765	21,095	49,591
Solids	Solids Storage Facility (Unroofed)	34,144	12,062	24,588	65%	80%	80%	22,194	9,649	19,671
Grazing	NONE	19,766	5,978	17,465	100%	100%	100%	19,766	5,978	17,465

NUTRIENTS AVAILABLE AFTER APPLICATION

Nutrient Source	Type of Application System	Pounds of Nutrients Available			Percent Nutrients Retained After Application			Pounds of Nutrients Retained After Application		
		N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
Liquids	Sprinkling	40,765	21,095	49,591	75%	100%	100%	30,574	21,095	49,591
Solids	Broadcast (Incorporated 7 or more days after application)	22,194	9,649	19,671	70%	100%	100%	15,536	9,649	19,671
Grazing	Grazing	19,766	5,978	17,465	90%	100%	100%	17,790	5,978	17,465

NUTRIENTS AVAILABLE AFTER DENITRIFICATION

Nutrient Source	Location / Soil Drainage Class	Pounds of Nutrients Available			Percent Nutrients Retained After Denitrification			Pounds of Nutrients Retained After Denitrification		
	Between Coastal and Cascade Mountains	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
Liquids	Moderately Well Drained	30,574	21,095	49,591	87%	100%	100%	26,599	21,095	49,591
Solids	Moderately Well Drained	15,536	9,649	19,671	87%	100%	100%	13,516	9,649	19,671
Grazing	Moderately Well Drained	17,790	5,978	17,465	87%	100%	100%	15,477	5,978	17,465

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Bruce Wilson**

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

PERCENT OF MANURE TO BE APPLIED TO FIELD AND UTILIZATION ACRES NEEDED BASED ON NITROGEN, N

Field Number	Acres	Crop	LIQUIDS			SOLIDS			GRAZING		
			Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients
	100.0	Corn, Silage(AH)	38%	10,108	44	0%	0	0	0%	0	0
	100.0	Ryegrass Haylage	38%	10,108	67	0%	0	0	33%	5,107	34
0	59.0	Ryegrass Haylage	24%	6,384	17	0%	0	0	33%	5,107	14
0	20.0	Hay/Pasture Mix 14% Protein	0%	0	0	10%	1,352	5	34%	5,262	20
0											
0											
0											
0											
0											
Off-Farm			0%	0		90%	12,164		0%	0	
		TOTALS-	100%	26,599	128	100%	13,516	5	100%	15,477	67

NUTRIENT BALANCE BASED ON AVAILABLE ACRES

Field Number	Acres	Crop	NUTRIENTS APPLIED			- NUTRIENTS REMOVED			= NUTRIENT BALANCE		
			Nitrogen, N Lbs/Acre	Phosphorous, P_2O_5 Lbs/Acre	Potassium, K_2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P_2O_5 Lbs/Acre	Potassium, K_2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P_2O_5 Lbs/Acre	Potassium, K_2O Lbs/Acre
	100.0	Corn, Silage(AH)	101	80	188	231	120	276	-130	-40	-87
	100.0	Ryegrass Haylage	152	100	246	150	55	154	2	45	92
0	59.0	Ryegrass Haylage	195	119	299	375	137	385	-180	-18	-86
0	20.0	Hay/Pasture Mix 14% Protein	331	150	395	269	74	205	62	76	190
0											
0											
0											
0											
0											
Off-Farm											

October 2001

PHOSPHORUS INDEX WORKSHEET – **WESTERN** OREGON

Producer: Ernie Nuff County: Marion Tract No. T2138 Field No(s). 1 Date: 11/3/04

Soil Map Unit(s): 51B Soil Test P: 98 ppm Lab. Method: _____ Sample Depth: _____

Crop Rotation: _____ Nutrient Application Method(s) _____

Planner: _____ Notes: _____

		PHOSPHORUS LOSS RATING					Weighted Rating Value	
TRANSPORT FACTORS	Factor Weight	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Current	Planned
Soil Erosion – tons/ac/yr (RUSLE)	1.50	< 1 (0)	1 – 3 (1.5)	4 – 6 (3.0)	7 – 15 (6.0)	> 15 (12.0)	1.5	
Soil Erosion from Sprinkler Irrigation	0.75	No sprinkler irrigation (0)	Application rate < infiltration rate OR No visible runoff at field borders (0.75)	Application rate = infiltration rate OR Little to no visible runoff at field borders (1.5)	Application rate > infiltration rate OR Visible runoff at field borders (3.0)	Application rate > infiltration rate OR Excessive runoff visible at field borders. Rills and gullies present. (6.0)	0.75	
Runoff Class	1.00	Negligible (0)	Very low or low (1.0)	Medium (2.0)	High (4.0)	Very High (8.0)	1.0	
Flooding Frequency Class	0.75	None or very rare (0)	Rare (0.75)	Occasional (1.5)	Frequent (3.0)	Very Frequent (6.0)	0	
Distance to Perennial Surface Waters / Buffer Widths	0.75	> 500 feet OR buffer > 30 ft. wide (or meets NRCS standards) next to surface waters (0)	300 – 500 feet OR buffer 20 - 30 ft. wide next to surface waters (0.75)	200 – 299 feet OR buffer 10 -19 ft. wide next to surface waters (1.5)	100 – 199 feet AND buffer < 10 ft. wide next to surface waters (3.0)	< 100 feet AND No buffer next to surface waters (6.0)	0	
Subsurface Drainage	0.50	No Tile Drains (0)	Tile drains present Soil Test P (Bray P1) < 60 ppm (0.5)	Tile drains present Soil Test P (Bray P1) 61 - 140 ppm (1.0)	Tile drains present Soil Test P (Bray P1) 141- 190 ppm (2.0)	Tile drains present Soil Test P (Bray P1) > 190 ppm (4.0)	0	
						Transport Factors Subtotal (TFS)	3.81	

PHOSPHORUS INDEX WORKSHEET – **WESTERN** OREGON

Tract _____ Fields _____

SOURCE FACTORS	Factor Weight	PHOSPHORUS LOSS RATING None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Weighted Rating Value Current	Planned
Soil Test P – ppm (Bray P1)	1.00	(Soil Test P – 40) x 0.10	(98 (Soil Test P) - 40) x 0.10 = 5.8			Assign 0 points if Soil Test P < 40 ppm	5.8	
Commercial P Fertilizer Application Rate	1.00	lbs/ac P_2O_5 x 0.02	_____ (lbs/ac P_2O_5) x 0.02 = _____				0	
Commercial P Fertilizer Application Method	1.00	None Applied (0)	Injected / banded deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)	0	
Organic P Source Application Rate	1.00	lbs/ac P_2O_5 x 0.02	180 (lbs/ac P_2O_5) x 0.02 = 3.6				3.6	
Organic P Source Application Method	1.00	None Applied (0)	Injected deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)	8.0	

Total Rating Value TFS + SFS	Site Vulnerability Class
< 13.0	**Low**
13.0 – 25.0	**Medium**
25.1 – 50.0	**High**
> 50.0	**Very High**

	Current	Planned
Transport Factors Subtotal (TFS)	3.81	
Source Factors Subtotal (SFS)	17.4	
Total Rating Value (TFS + SFS)	21.21	
Site Vulnerability Class	MEDIUM	

PHOSPHORUS INDEX WORKSHEET – **WESTERN** OREGON

Producer: Ernie Nuff County: Marion Tract No. T2138 Field No(s). 2 Date: 11/3/04

Soil Map Unit(s): H0 Soil Test P: ~~88~~ 126 ppm Lab. Method: Bray Sample Depth: _____

Crop Rotation: Grass ⇄ Corn Nutrient Application Method(s) Sprinkle (Liquid)/Broadcast

Planner: _____ Notes: _____

		PHOSPHORUS LOSS RATING					Weighted Rating Value	
TRANSPORT FACTORS	Factor Weight	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Current	Planned
Soil Erosion – tons/ac/yr (RUSLE)	1.50	< 1 (0)	1 – 3 (1.5)	4 – 6 (3.0)	7 – 15 (6.0)	> 15 (12.0)	1.5	
Soil Erosion from Sprinkler Irrigation	0.75	No sprinkler irrigation (0)	Application rate < infiltration rate OR No visible runoff at field borders (0.75)	Application rate = infiltration rate OR Little to no visible runoff at field borders (1.5)	Application rate > infiltration rate OR Visible runoff at field borders (3.0)	Application rate > infiltration rate OR Excessive runoff visible at field borders. Rills and gullies present. (6.0)	0.75	
Runoff Class	1.00	Negligible (0)	Very low or low (1.0)	Medium (2.0)	High (4.0)	Very High (8.0)	2.0	
Flooding Frequency Class	0.75	None or very rare (0)	Rare (0.75)	Occasional (1.5)	Frequent (3.0)	Very Frequent (6.0)	0	
Distance to Perennial Surface Waters / Buffer Widths	0.75	> 500 feet OR buffer > 30 ft. wide (or meets NRCS standards) next to surface waters (0)	300 – 500 feet OR buffer 20 - 30 ft. wide next to surface waters (0.75)	200 – 299 feet OR buffer 10 -19 ft. wide next to surface waters (1.5)	100 – 199 feet AND buffer < 10 ft. wide next to surface waters (3.0)	< 100 feet AND No buffer next to surface waters (6.0)	0.75	
Subsurface Drainage	0.50	No Tile Drains (0)	Tile drains present Soil Test P (Bray P1) < 60 ppm (0.5)	Tile drains present Soil Test P (Bray P1) 61 - 140 ppm (1.0)	Tile drains present Soil Test P (Bray P1) 141- 190 ppm (2.0)	Tile drains present Soil Test P (Bray P1) > 190 ppm (4.0)	0	
						Transport Factors Subtotal (TFS)	5.375	

PHOSPHORUS INDEX WORKSHEET – **WESTERN** OREGON

Tract _____ Fields _____

SOURCE FACTORS	Factor Weight	PHOSPHORUS LOSS RATING None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Weighted Rating Value Current	Planned
Soil Test P – ppm (Bray P1)	1.00	(Soil Test P – 40) x 0.10	(126 (Soil Test P) - 40) x 0.10 = 8.6			Assign 0 points if Soil Test P < 40 ppm	8.6	
Commercial P Fertilizer Application Rate	1.00	lbs/ac P_2O_5 x 0.02	0 (lbs/ac P_2O_5) x 0.02 = 0				0	
Commercial P Fertilizer Application Method	1.00	None Applied (0)	Injected / banded deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)	0	
Organic P Source Application Rate	1.00	lbs/ac P_2O_5 x 0.02	180 (lbs/ac P_2O_5) x 0.02 = 3.6				3.6	
Organic P Source Application Method	1.00	None Applied (0)	Injected deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)	8.0	

Total Rating Value TFS + SFS	Site Vulnerability Class
< 13.0	**Low**
13.0 – 25.0	**Medium**
25.1 – 50.0	**High**
> 50.0	**Very High**

	Current	Planned
Transport Factors Subtotal (TFS)	202	
Source Factors Subtotal (SFS)	5.375	
Total Rating Value (TFS + SFS)	25.575	
Site Vulnerability Class	HIGH.	

ANIMAL WASTE MANAGEMENT PLAN
MINIMUM REQUIRED ELEMENT

RECORD KEEPING AND REPORTING TO OREGON DEPARMENT OF AGRICULTURE

RECORD KEEPING:

a) Applications of manure, litter and process waste will be kept, including the date and the amount of N and P applied during each application.
b) Records of exporting manure, litter and process waste will also be kept.

REPORTING TO OREGON DEPARTMENT OF AGRICULTURE (ODA):

a) Any discharge will be reported orally to ODA within 24 hours. Within 5 days, a written statement describing this discharge will also be submitted to ODA.
b) The amount of manure, litter and process waste applied will be reported annually.
c) The amount of manure, litter and process waste exported will be reported annually.

Signature of Legally Authorized Representative: Ernest Neff

Print Name: Ernest Neff Date: 2/9/05

ANIMAL WASTE MANAGEMENT PLAN
MINIMUM REQUIRED ELEMENT

ANIMAL MORTALITY

Management of Animal Mortalities for: Neff Dairy Inc.
NAME OF OPERATION

Animal mortalities will be disposed of in a manner that will comply with local, state and federal regulations. Please mark and describe the method(s) of animal mortality management used on this operation:

☐ REMOVAL SERVICE: _____

☒ COMPOSTED: compost in manure solids for 3 week turn pile and let set for 1 week then spred on posture

☐ INCINERATED: _____

☒ BURIED: bury in 6 foot deep hole dug by loader or Backhoe.

☐ OTHER: _____

Signature of Legally Authorized Representative: Ernest Neff

Print Name: Ernest Neff Date: 2/9/05

ANIMAL WASTE MANAGEMENT PLAN
MINIMUM REQUIRED ELEMENT

OPERATION AND MAINTANENCE

Neff Dairy Inc.
Name of Operation

Mark all that apply to your operation.

☐ Above and/or Below Ground Liquid Tank

The tank serves as a collection point for effluent to drain to or be scraped from the animal feeding areas. If the tank will provide storage capacity to the waste management system it shall be completely emptied at the beginning of the storage period and the contents applied to cropland as weather and crop conditions permit. A 1-foot free board will be maintained to prevent spillage. Continually maintain all pumps, agitators, piping valves and all other electrical and mechanical equipment in good operating condition by following manufacturer's recommendations. Float valves will be maintained in good working order. Perform daily inspections of waterlines including drinking water or cooling water lines. Repair leaking lines immediately to prevent excess water from entering the waste storage system. Depth markers are installed to assure maximum volume will be maintained and checked weekly. At least once every 5 years, the tank shall be emptied and inspected for structural damage and leakage. Any damage found shall be corrected before putting the tank back in service. Remove all foreign debris within the structure that may cause damage to pumps and agitator. If below ground, the tank lid will not be subjected to more than two, 8,000 pound wheel loads. Before entering a tank, for any reason whatever, proper ventilation shall be provided, and self-contained breathing apparatus shall be used, if required, when entering a covered tank. No one shall enter the tank unless safety ropes are used and someone else capable of providing assistance is outside of the tank. Warning: Entering Unventilated Tanks Is Extremely Dangerous.

☐ Animal Access Lanes or Walkways

Damaged components will be repaired or replaced as needed. Debris and excess manure will be removed from roadway surfaces, road ditch and drainage areas. Maintain drainage area capacities. Maintain good vegetative cover on all slopes and watercourses.

☒ Agitator

Preventative maintenance will be in accordance with the manufacturer's recommendations. Periodically examine the agitator for proper operation. Clean debris from the propeller and promptly replace any defective or damaged parts. Remove the agitator from the manure tank or pond and periodically clean and oil as needed to increase the life expectancy of the agitator. Immediately repair any vandalism or livestock damage. Do not allow livestock near the equipment during operation.

☐ Concrete Gutters

Floor gutters and grates will be inspected periodically. All foreign material restricting flow will be removed. Damage will be repaired as needed.

☒ Curbs

Curbs, gutters and slabs that are used to convey effluent will be inspected periodically. Broken sections will be repaired or replaced. Manure or other solids will be prevented from building up next to curbs or flowing over them. If over flow is a consistent problem the curb height should be increased.

☑ Culverts

Inspect annually or after large rainfall event. All foreign objects restricting water flow will be removed. Damaged sections will be repaired or replaced. Erosion around inlet or outlet will be corrected.

☒ Dry Stack Storage Facility

Solid manure storage facility will be inspected annually. Broken slabs and curbs will be repaired. Repair or replace rusted or damaged areas on roof structure. Broken gutters and/or downspouts will be repaired or replaced. Check for adequacy and function of drain away from downspouts. Check side and back walls for soundness. Manure solids and leachate will not escape through cracks in the facility.

☒ Fencing

Fences will be inspected periodically. Broken or decayed posts will be replaced. Sagging wire will be tightened. Broken wire will be spliced or replaced. Broken or missing insulators for electric fencing will be replaced. Vegetation will be controlled under the fences. Electric fencing will be sufficiently charged to detour animals.

☐ Filter Strips

Maintain vigorous growth of vegetative covering. This includes reseeding, fertilization and application of herbicides when necessary. Periodic mowing, harvesting or grazing may also be needed to control height. Remove all foreign debris that hinders system operation. Limit the traffic from filter strip area. Limit livestock usage to vegetative growth periods when the animals will not damage vegetative root system or compact the soil. Eradicate or otherwise remove all rodents or burrowing animals. Immediately repair any damage.

☑ Gutters and Downspouts

Gutters will be inspected annually to ensure all gutters are free of foreign materials. Broken gutters or downspouts will be replaced or repaired. Gutters will be connected to downspouts. Leaky gutters and downspouts will be repaired. Weeds and sediment will be removed from downspout outlets. All downspouts will be connected to outlets, which are kept free flowing. Outlets will be inspected for rodent guards and repaired or replaced as needed.

☒ Irrigation Water Management

Irrigation water application will be at rates that minimize transport of sediment, nutrients, and chemicals to surface water and ground water. Equipment modifications and/or soil amendments such as polyacrylamides and mulches should be considered to reduce erosion if needed.

☒ Manure Application Equipment

All manure application equipment (including but not limited to sprinklers, big gun irrigators, spreaders and/or tank wagons) will be operated and maintained according to the manufacturer's manual. Equipment found to be broken or worn will be replaced. Equipment will be calibrated to ensure recommended rates are applied. Liquids will be drained from sprinklers or big guns prior to freezing weather. When system is flushed, rinse water is used following waste, and liquid and sediment is applied agronomically. Nozzles will be checked periodically and if worn, nozzles will be replaced. Minimize exposure to animal and organic waters and manure gasses. Wear protective clothing when appropriate. When cleaning equipment after nutrient application, remove and save wastes in an appropriate manner. Avoid applying manure near surface water by establishing buffer strips and set backs, and use extreme care to avoid contaminating ground water.

☒ Manure Effluent and Irrigation Transfer Lines.

Manure, effluent and irrigation lines shall be flushed with clean water periodically to prevent particle buildup and plugging. Manure flushed from the lines will be applied agronomically so that surface and groundwater will be protected. Manure, effluent and irrigation lines shall be inspected periodically for leaks or worn out nozzles, and repairs or replacements made as needed. Special inspection shall be done to pressure relief valves, risers and control valves. Shut off valves will be inspected annually. Avoid unnecessary travel over pipelines that will damage their integrity. Equipment found to be broken or worn will be replaced. Water will be drained during cold weather to prevent frozen or broken lines. These lines can explode if not properly maintained and may cause human injury.

☒ Pumps

Pumps will be maintained in accordance with manufacturer's operation and maintenance manual. Effluent will be drained from pumps prior to freezing weather. Pumps will be inspected periodically to identify and remove debris wrapped around impeller or worn parts. Appropriate action will be taken to repair any worn parts. Liquids will be drained from pump prior to freezing weather to prevent breakage. It is recommended to have a spare pump or back up system in case a pump must be removed for an extended time for repair.

☒ Roofs

Roofs will be inspected annually. Rusted sections will be replaced or repaired if needed. Loose sections will be secured. All broken trusses, beams, poles, gutters and downspouts will be repaired or replaced.

☒ Solid Manure Separator

The separator should be inspected regularly for deterioration of protective coatings and repaired as necessary. All plumbing will be inspected annually and broken lines will be replaced or repaired. Loose connections will be tightened. If applicable, electric motors, pumps and gears should be routinely maintained. Separator will be operated and maintained according to manufacturer's manual.

☒ Subsurface Drainage System

Subsurface drainage will be inspected annually. Fields will be checked for breaks or suck holes. Outlets will be kept free of vegetation and sediment. Erosion at outlets will be corrected with riprap or other means. Damage or broken lines will be repaired. Outlets from fields on which animal waste is being applied will be monitored daily. Animal waste applications will cease if the tile outflow contains any indication of animal waste.

☒ Trough or Tank

Watering facility will be inspected periodically. Damaged tank/trough will be repaired or replaced. Float valves will be maintained in good working order. Area immediately surrounding the trough/tank will be maintained in a stable condition. Watering facility will be inspected periodically. Damaged tank/trough will be repaired or replaced. Float valves will be maintained in good working order. Area immediately surrounding the trough/tank will be maintained in a stable condition. Watering facilities will not be allowed to overflow if additional liquid will affect waste storage capacities.

☒ Waste Storage Pond

Prior to the storage season, empty the pond to provide storage capacity for the accumulation of wastewater and precipitation during the winter storage period. Sludge and accumulated solids will be removed from the pond periodically when buildup limits storage capacity in the pond. Depth markers are installed to assure maximum volume will be maintained and checked weekly. A 2-foot free board will be maintained to prevent spillage.

Maintain all pumps, agitators, pipeline, valves, and electrical and mechanical equipment in good operating condition following the manufacturer's recommendations. Immediately repair any vandalism, vehicular, or livestock damage to any earth fill. Immediately remove any obstructions or blockage of spillways, trash racks or pipe inlets. Settlement or cracks in earthen sections should be investigated to determine cause and immediately repaired. Maintain vigorous growth of vegetative coverings on the dikes to eliminate soil erosion. Eradicate or otherwise remove all rodents or burrowing animals and repair any damage caused by their activity. Fences and/or warning signs should be maintained as necessary to unauthorized human or livestock entry. Operate systems in a manner that minimizes odor and drift.

☐ _____

_____

_____

_____

_____

Signature of Legally Authorized Representative: Ernest Neff

Print Name: Ernest NeCf Date: 2/9/05

Neff Dairy 2005
Animal Waste Management Plan

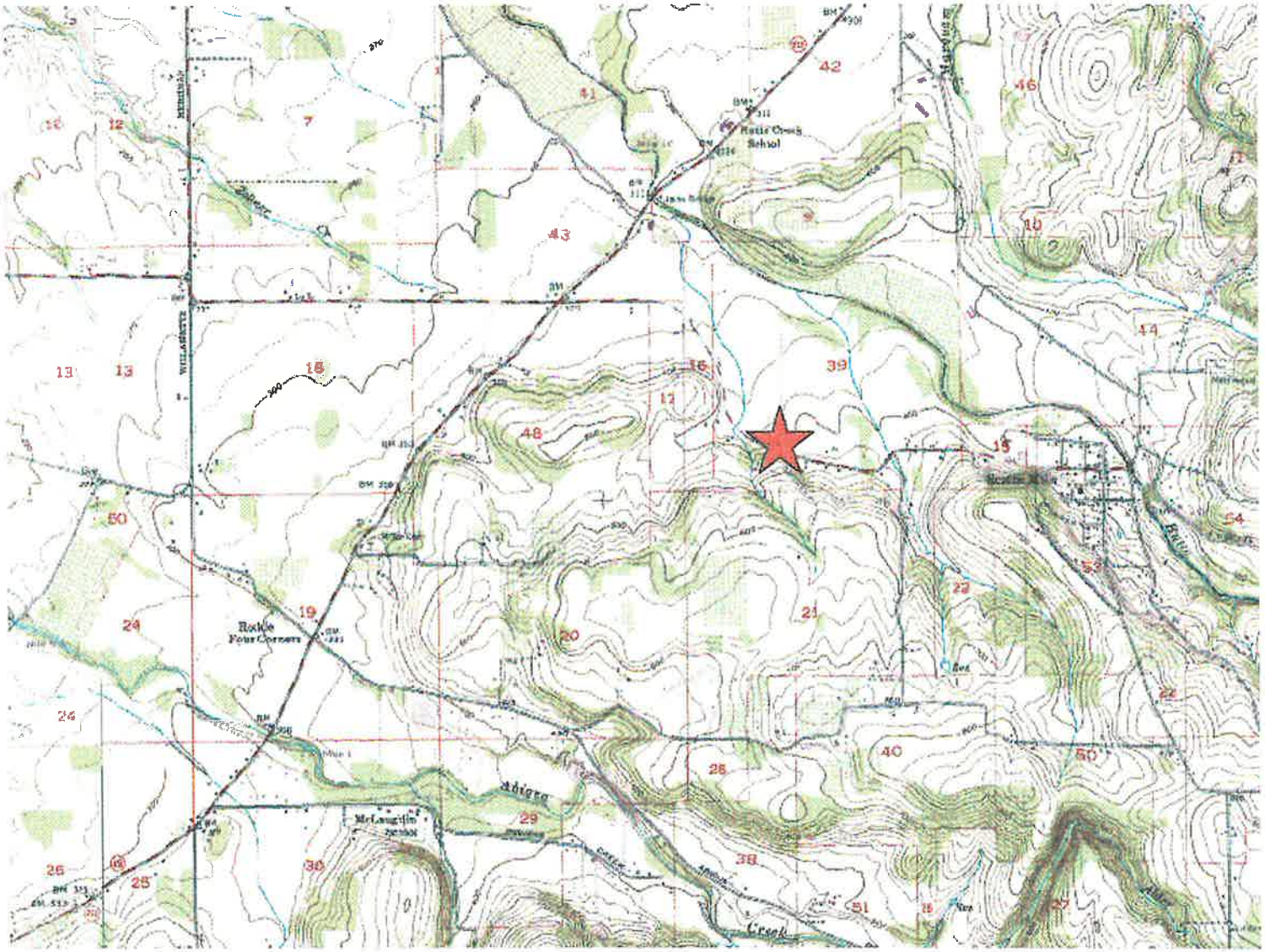
Owners
Ernie & Kelly Ann Neff
17769 Mt. Angel - Scotts Mills Rd.
Silverton, OR 97381
503-873-8860

Planner
Jim Hendrickson
Date: December 7, 2005

Legal Description
Dairy Facility Location
T 6S, R 1E, Sec 6
Farm Fields are located at Tract # 2138
Total cropland and pasture: 108.7 acres.
Elevation: 400' above sea level.

Objectives
The purpose of this plan is to 1) new manure management practices and 2) to apply manure to the land base in a way that benefits the landowner and the land, 4) save time, meet ODA regulations, keep water clean.

NEFF DAIRY 2005
LOCATION MAP



Neff Dairy 2005 Property Map

Neff Property

Aerial Photograph Provided by Marion County Farm Service Agency.

T2138

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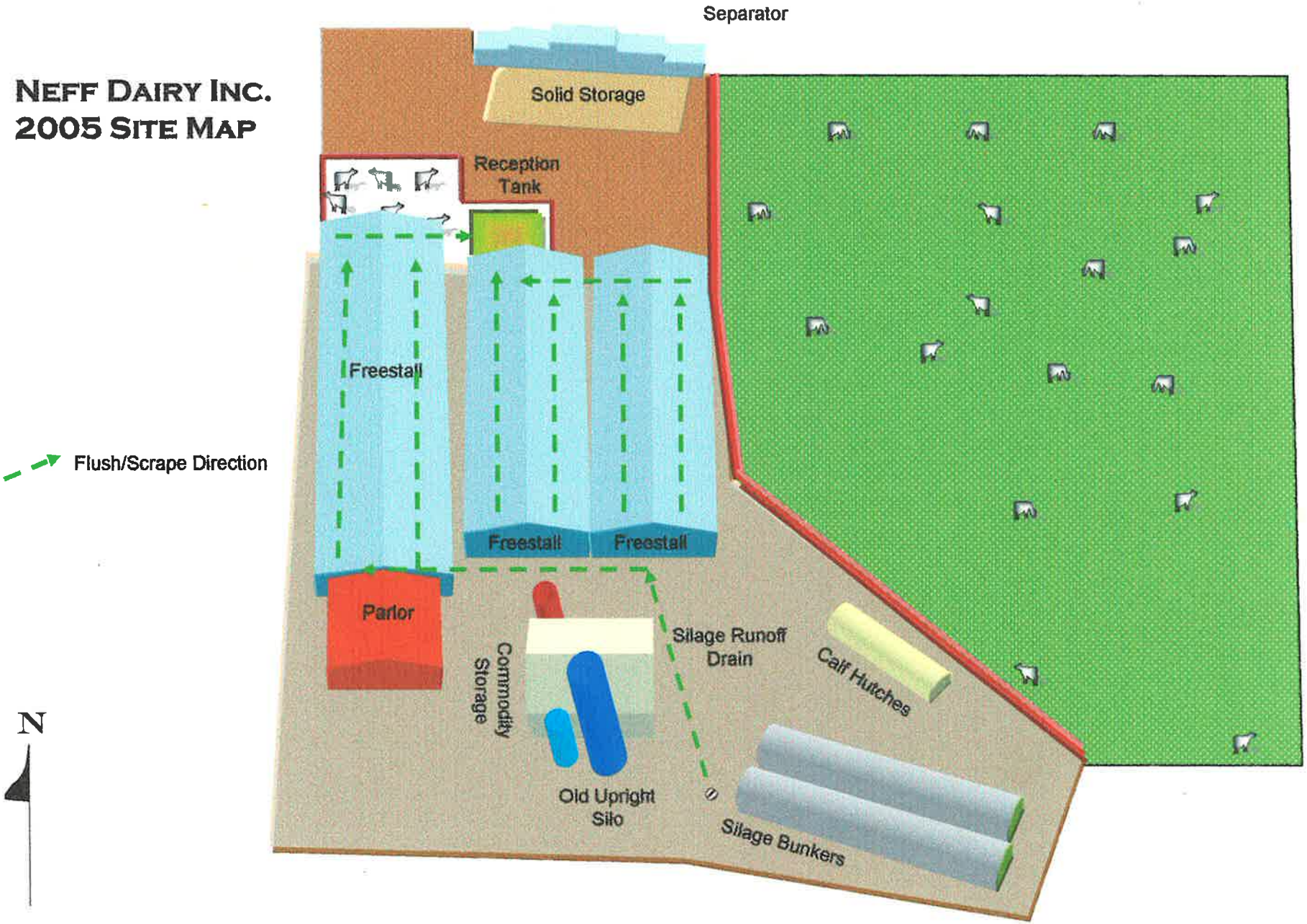
This acreage is for FSA program purposes only. No warranty is made for any other use.

NEFF DAIRY INC.
2005 SITE MAP



Neff Dairy 2005 Nutrient Awareness Map

Butte Creek

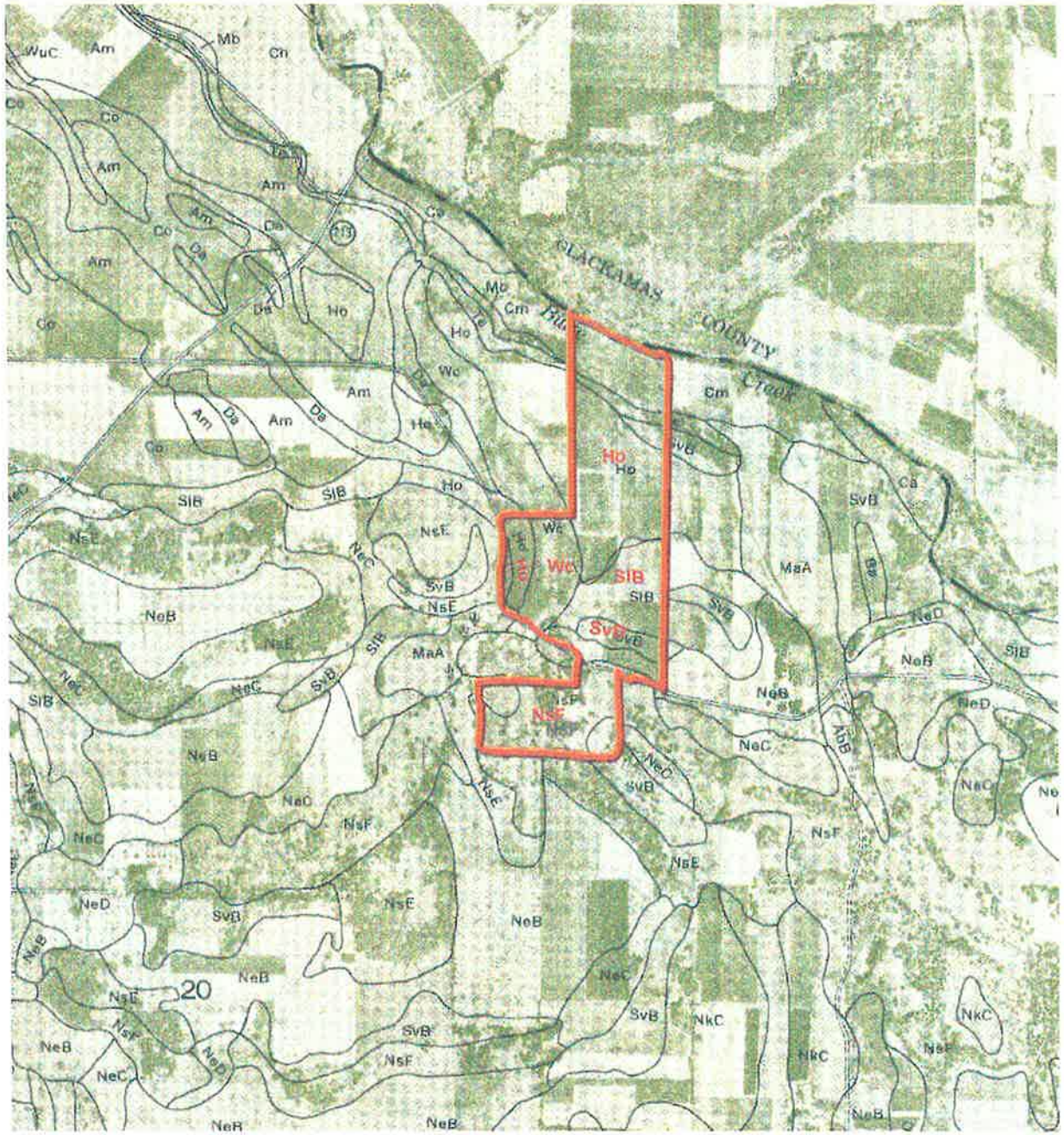
Seasonal Creek

Neff Property

Aerial Photograph Provided by Marion County Farm Service Agency.

This acreage is for FSA program purposes only. No warranty is made for any other use.

Neff Dairy 2005
Soil Map
Marion Soil Book Sheet #21



Ho – Holcomb Silt Loam
Wc – Wapato Silty Clay Loam
SvB – Stayton Silt Loam
NsF – Nekia Very Stony Silty Clay Loam
SlB – Salkum Silty Clay Loam

Soil Descriptions

The ***Cloquato*** series consists of very deep, ***well-drained*** soils formed in mixed alluvium. Cloquato soils are on flood plains at elevations of 30 to 800 feet. Slopes are 0 to 5 percent. The mean annual temperature is about 52 degrees F., and the average annual precipitation is about 50 inches. The mean annual soil temperature ranges from 47 to 54 F. These soils are usually moist but are dry in all parts between depths of 4 and 12 inches for 45 to 60 consecutive days. The mollic epipedon ranges from 20 to more than 40 inches thick. The particle-size control section is dominantly silt loam and contains 5 to 18 percent clay with less than 15 percent fine sand or coarser. These soils are on flood plains at elevations of 30 to 800 feet. Slopes are 0 to 5 percent. These soils formed in mixed alluvium. Cloquato soils occur in a climate characterized by relatively cool dry summers and cool wet winters. Average annual precipitation is 38 to 70 inches. Average January temperature is 30 to 40 degrees F., average July temperature is 65 to 67 degrees F., and mean annual temperature is 50 to 54 degrees F. Used for cropland, pasture and woodland hay, winter wheat, oats, corn for silage, potatoes, strawberries and raspberries are common crops. Native vegetation is Douglas-fir, red alder, western red cedar, and big-leaf maple with an under story of western sword fern, vine maple, western bracken fern, salal, Oregon grape, trailing blackberry, salmonberry and red huckleberry.

The ***Wapato*** series consists of very deep, ***poorly drained*** soils that formed in mixed alluvium. Wapato soils are on flood plains. Slopes are 0 to 3 percent. The mean annual precipitation is about 45 inches and the mean annual temperature is about
52 degrees F. Elevation is 100-300 feet. Available water holding capacity is about 10-12 inches. Effective rooting depth is about 60 inches. Runoff is slow to ponded, and the hazard of water erosion is slight except during frequent periods of flooding from December to April. The soils are saturated with water during the winter season unless artificially drained. The mean annual soil temperature ranges from 52 to 56 degrees F. Depth to bedrock is greater than 60 inches. This soil is on bottomlands along small streams and in low-lying areas adjacent to larger streams. It has smooth topography and is subject to short periods of overflow and ponding. Poorly drained; moderately slow permeability. Wapato

soils are subject to frequent flooding for brief periods from December to April and are also subject to ponding for brief periods at times between November and May. Most of these soils are cultivated. Hay and pasture are major crops. When drained, beans and small grains are also raised. Native vegetation is red alder, Oregon ash, black cottonwood, willow, wild rose and sedges. The hazard of erosion is slight.

The ***Holcomb*** series consists of very deep, ***somewhat poorly drained*** soils that formed in stratified silty and clayey mixed alluvium. Holcomb soils are on broad valley terraces and have slopes of 0 to 3 percent. The mean annual precipitation is about 45 inches and the mean annual temperature is about 52 degrees F.
The soils are usually moist and are saturated with water during the winter and early spring. The mean annual soil temperature ranges from 52 to 55 degrees F. Depth to bedrock is 6 feet or more. Redoximorphic features commonly are lacking in the Ap horizon, none to distinct in the A horizons, and distinct or prominent in the E, B and C horizons. Black and reddish brown concretions commonly are in all horizons.
The Holcomb soils are in nearly level to slightly convex areas on broad valley terraces. Elevations are 125 to 650 feet. The soils formed in stratified silty and clayey alluvium. Slope is 0 to 3 percent. Summers are warm and dry and winters are cool and moist. The mean annual precipitation is 40 to 50 inches. The mean January temperature is 39 to 40 degrees F. and the mean July temperature is 65 to 67 degrees F. The frost-free period is 165 to 210 days.
Somewhat poorly drained; slow runoff; very slow permeability. A perched water table is at its uppermost limit from November to April. This soil also has an apparent water table.
Soils are under cultivation with small grains, hay, pasture, and grass seed as the principal crops. The vegetation is largely annual and perennial grasses, wild blackberry, wild rose, and oak.

The ***Salkum*** series consists of very deep, ***well drained*** soils formed in very strongly weathered

ancient glacial drift. Salkum soils are on hills, terraces, and terrace escarpments and have slopes of 0 to 65 percent.
Salkum soils are usually moist but are dry in all parts between depths of 4 and 12 inches for 45 to 60 consecutive days within the 3 months following the summer solstice. The mean annual soil temperature at depths of 20 inches ranges from 47 to 52 degrees F. Solum thickness ranges from 48 to 70 inches. The particle-size control section averages 40 to 55 percent clay by weight, 0 to 10 percent hard, pebble-size rock fragments by volume.
The Salkum soils formed in very strongly weathered ancient glacial drift on glacial hills, terraces, and terrace escarpments at elevations of 200 to 1,000 feet. Slopes are 0 to 65 percent. Salkum soils are in a marine climate with 40 to 70 inches average annual precipitation occurring mostly as rain during the winter. Mean January temperature is 37 degrees F, mean July temperature is 65 degrees F, and average annual temperature is 50 degrees F. Frost-free season (32 degrees F) is 150 to 200 days. Growing season (28 degrees F) is 175 to 240 days.
Where Salkum soils have been cleared of forest vegetation, they are used for seeded grass pasture, small grains, and strawberries. Native vegetation is Douglas-fir, western hemlock, grand fir, western red cedar, big leaf maple, and red alder with an under story of salal, Oregon grape, western sword fern, western bracken fern, vine maple, red huckleberry, Pacific trillium, violet, bedstraw, inside out flower, and tree seedlings.

The ***Stayton*** series consists of shallow, ***well drained soils*** that formed in colluviums mixed with ash over basalt bedrock.. They are on foot slopes and in drainage ways of uplands.
The soils are usually moist and have a xeric moisture regime. Depth to bedrock ranges from 12 to 20 inches. The particle-size control section is estimated to have phosphate retention of 90 to 100 percent, acid oxalate extractable aluminum plus one-half iron of 2.0 to 4.0 percent, and 15-bar moisture of 15 ot 20 percent based on an air-dried sample. The moist bulk density is 0.70 to 0.85 grams per cubic centimeter. Rock fragments are usually absent but some pedons have up to 10 percent gravel. The soils are moderately or strongly acid.
The Stayton soils are on gently sloping foot slopes and in drainage ways at elevations of 250 to 1,200 feet. Slopes are 0 to 7 percent. The soils formed in colluviums mixed with ash or pyroclastic materials over basalt bedrock.. The climate is characterized by warm wet winters and hot dry summers. The mean annual precipitation is 40 to 60 inches. The mean annual temperature is 50 to 54 degrees F, the mean January temperature is 39 degrees F, and the mean July temperature is 67 degrees F. The frost-free period is 165 to 210 days. These soils are used for pasture, grass seed, recreation, and wildlife habitat. Vegetation is mixed stand of Oregon white oak, vine maple, grasses, and shrubs.
These soils are used for pasture, grass seed, recreation, and wildlife habitat. Vegetation is mixed stand of Oregon white oak, vine maple, grasses, and shrubs.

U.S. Department of Agriculture
Natural Resources Conservation Service

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 2.2

12/7/2005
STATE: OREGON

CLIENT: Neff Dairy Inc.
ASSISTED BY: Jim Hendrickson CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

ANIMAL INVENTORY

Type of Animal	Number of Animals	Average Weight (lbs.)	Animal Units (1,000 lb.)	Milk Production in Pounds/Cow/Day= 72						Manure CF/D/AU	Annual	
				Nutrient Production								
				(lbs./day/1000 lb. Animal Unit)			(lbs./day)					
				N	P	K	N	P	K		Days Confined	Days Grazed
MILKER	405	1,200	486.0	0.58	0.09	0.32	283.74	45.86	155.81	1.59	365	0
MILKER (DRY)	70	900	63.0	0.36	0.05	0.23	22.68	3.15	14.49	1.10	183	183
HEIFERS (12-24 Months)	238	600	142.8	0.31	0.04	0.24	44.27	5.71	34.27	1.30	185	180
CALVES (1-12 Months)	237	100	23.7	0.31	0.04	0.24	7.35	0.95	5.69	1.30	191	174
Totals/Averages-	950	700	715.5	0.50	0.08	0.29	358.0	55.7	210.3	1.5		

GRAZING PERIOD

Type of Animal	Percent of Month and Number of Animals Grazing												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AU-YR.
MILKER	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	405	405	405	405	405	405	405	405	405	405	405	405	0
MILKER (DRY)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
	70	70	70	70	70	70	70	70	70	70	70	70	378
HEIFERS (12-24 Months)	50%	50%	0%	0%	0%	50%	70%	70%	90%	90%	60%	60%	
	238	238	238	238	238	238	238	238	238	238	238	238	843
CALVES (1-12 Months)	50%	50%	0%	0%	0%	50%	70%	70%	70%	70%	70%	70%	
	237	237	237	237	237	237	237	237	237	237	237	237	135
													0
													0
													0
													0
													0
													0
Total AUM's Available>	99						102	102	102	101	101	101	708
Total AUM's Needed>>>	115	115	32	32	32	115	148	148	177	177	134	134	1,356
Total AUM's>>>>>>>>>>	-16	-115	-32	-32	-32	-115	-46	-46	-75	-76	-33	-33	-648

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 2.2

CLIENT: Neff Dairy Inc.

ASSISTED BY: Jim Hendrickson CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

WEATHER STATION SILVERTON 4 SE

Month	25Yr-24Hr	4.00	Lot Runoff Factors as a Percent of Monthly Precipitation	
	Monthly Average in Inches			
	Precipitation	Evaporation	Paved	Unpaved
October	3.33	1.80	100%	15%
November	6.94	0.80	100%	20%
December	7.38	0.45	100%	15%
January	6.27	0.51	100%	20%
February	5.03	0.85	100%	15%
March	5.16	1.65	100%	10%
April	3.47	2.52	100%	10%
May	2.80	3.94	100%	10%
June	1.81	4.56	100%	10%
July	0.80	5.69	100%	0%
August	1.10	5.19	100%	10%
September	2.12	3.54	100%	15%
Annual	46.21	31.5		

AREAS CONTRIBUTING RUNOFF TO LIQUID STORAGE FACILITY

Description of Runoff Area	Area in SF
Paved Lot Area >> Is paved lot scraped daily? (Y/N) YES	10,800
Unpaved Lot Area >>	0
Roof Area >>	
Surface Area of Silage Storage Facility>>>>>>>>>>>>>>>>>>>>>>>>>>> Does Silage Seepage Drain to Storage Facility? (Y/N) YES	12,000
Total Runoff Area Contributing to Liquid Storage Facility>>>>>>>>>>>>>>>	22,800

WATER USE THAT ENTERS LIQUID STORAGE FACILITY

Type of Water Use	Number of Animals	Number of Washes per Day	Gallons of Water Used per Wash-Day	Total Water Use per Day, Gallons	Total Water Use per Day, Cubic Feet
Animal Washwater	405.0	3	0.00	0	0.0
Equipment Wash		3	180.00	540	72.2
Flushwater		3	0.00	0	0.0
Miscellaneous		3	320.00	960	128.3
Total>>>				1500	200.5

CROP DATA

Field Number	Acres	Crop	Condition	Yield Units	Target Yield	Nutrients Removed in Pounds per Acre		
						Nitrogen N	Phosphorous P_2O_5	Potassium K_2O
1	14.6	Corn, Silage(AH)	As Harvested	Ton	34.00	262	136	313
2	18.4	Hay/Pasture Mix 16 % Protein	50% DM	Ton	6.00	307	85	235
3	53.7	Corn, Silage(AH)	As Harvested	Ton	34.00	262	136	313
4	22.0	Hay/Pasture Mix 16 % Protein	50% DM	Ton	5.00	256	71	196
Off-Farm								

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 2.2

CLIENT: Neff Dairy Inc.

ASSISTED BY: Jim Hendrickson CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

BEDDING VOLUME

Type of Animal	Type of Bedding Facility	Bedding Material	Unit Weight Lbs/CF	Amount Needed Lbs/Day/AU	Volume CF/Day/AU	Total Volume CF/Day	Total Weight Lbs/Day
MILKER	Free Stall	Paper Pulp	4.00	3.00	0.75	273	1,094
MILKER (DRY)	Free Stall	Paper Pulp	4.00	3.00	0.75	47	189
HEIFERS (12-24 Months)	Free Stall	Paper Pulp	4.00	3.00	0.75	107	428
CALVES (1-12 Months)	Confined	Loose Straw	2.50	9.30	0.25	6	220

SOLIDS SEPARATION FACTOR

Type of Animal	Type of Separator	Separation Factor %	Volume of Solids Separated CF/Day	Volume of Solids in Liquids CF/Day	Volume of Manure in Liquids CF/Day	Volume of Manure in Solids CF/Day	Accumulated Sludge in Storage CF/Day	Density of Separated Solids Lbs/CF	Weight of Separated Solids Lbs/Day
MILKER	Static Inclined Screen with Drag Chain	25%	87	260	563	18	289	36	3,114
MILKER (DRY)	Static Inclined Screen with Drag Chain	25%	14	41	67	2	22	36	498
HEIFERS (12-24 Months)	Static Inclined Screen with Drag Chain	25%	32	95	181	5	45	36	1,143
CALVES (1-12 Months)	Dry Scrape System	100%	37	0	0	31	0	36	1,322
Total Solids>>>			169	396	811	56	355		6,077

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 2.2

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: Jim Hendrickson

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

MONTHLY VOLUMES

Month	Runoff in Cubic Feet: Roof Area Square Feet 0	Runoff in Cubic Feet: Paved Slab Area Square Feet 10,800	Runoff in Cubic Feet: Unpaved Lot Area Square Feet 0	Runoff in Cubic Feet: Silage Pit Surface Area, SF 12,000	Facility Water Use Cubic Feet	Manure Solids Cubic Feet	Manure Liquids Cubic Feet	Bedding Cubic Feet	Bedding Pounds	Solids Separated Cubic Feet	Solids Separated Pounds	Solids in Liquids Cubic Feet	Solids in Liquids Pounds	Total Solids Cubic Feet	Total Liquids Cubic Feet
October	0	2,997	0	1,388	6,217	3,162	19,285	10,959	46,885	3,957	142,464	10,164	365,898	3,957	42,064
November	0	6,246	0	2,234	6,016	3,060	18,663	10,605	45,372	3,830	137,869	9,836	354,095	3,830	45,630
December	0	6,642	0	1,996	6,217	3,948	21,854	12,711	56,941	5,019	180,674	11,640	419,033	5,019	50,593
January	0	5,643	0	2,143	6,217	3,948	21,854	12,711	56,941	5,019	180,674	11,640	419,033	5,019	49,741
February	0	4,527	0	1,557	5,615	3,566	19,739	11,481	51,431	4,533	163,189	10,513	378,481	4,533	46,311
March	0	4,644	0	1,405	6,217	3,162	19,285	10,959	46,885	3,957	142,464	10,164	365,898	3,957	43,728
April	0	3,123	0	1,193	6,016	2,756	17,668	9,927	41,479	3,419	123,078	9,265	333,527	3,419	39,775
May	0	2,520	0	280	6,217	2,848	18,257	10,258	42,862	3,533	127,180	9,573	344,645	3,533	38,768
June	0	1,629	0	181	6,016	2,637	16,673	9,285	38,909	3,228	116,222	8,693	312,959	3,228	35,577
July	0	720	0	0	6,217	2,725	17,229	9,594	40,206	3,336	120,096	8,983	323,391	3,336	34,978
August	0	990	0	110	6,217	2,910	18,771	10,590	44,190	3,631	130,723	9,869	355,272	3,631	37,924
September	0	1,908	0	1,164	6,016	2,816	18,165	10,249	42,764	3,514	126,506	9,550	343,811	3,514	39,376
Annual	0	41,589	0	13,650	73,195	37,538	227,445	129,328	554,865	46,976	1,691,139	119,890	4,316,044	46,976	504,465

DAILY NUTRIENT PRODUCTION

Type of Animal	Pounds/Day of Nutrients from LIQUIDS: N	LIQUIDS: P_2O_5	LIQUIDS: K_2O	Pounds/Day of Nutrients from SOLIDS: N	SOLIDS: P_2O_5	SOLIDS: K_2O	Pounds/Day of Nutrients from GRAZING: N	GRAZING: P_2O_5	GRAZING: K_2O
MILKER	159.60	59.10	105.61	53.20	19.70	35.20	212.80	78.81	140.81
MILKER (DRY)	17.01	5.41	13.10	5.67	1.80	4.37	22.68	7.22	17.46
HEIFERS (12-24 Months)	33.20	9.81	30.97	11.07	3.27	10.32	44.27	13.09	41.30
CALVES (1-12 Months)	0.00	0.00	0.00	7.35	2.17	6.85	7.35	2.17	6.85
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Jim Hendrickson**

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

MONTHLY NUTRIENT PRODUCTION

Month	Pounds of Nutrients from LIQUIDS			Pounds of Nutrients from SOLIDS			Pounds of Nutrients from GRAZING			Pounds of Nutrients going OFF-FARM			Total Pounds of Nutrients from ALL SOURCES		
	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
October	5,726	2,068	3,957	2,023	723	1,425	1,152	348	1,017	0	0	0	8,900	3,140	6,399
November	5,541	2,002	3,829	1,957	700	1,379	1,114	337	984	0	0	0	8,613	3,038	6,193
December	6,241	2,220	4,437	2,308	807	1,692	352	112	271	0	0	0	8,900	3,140	6,399
January	6,241	2,220	4,437	2,308	807	1,692	352	112	271	0	0	0	8,900	3,140	6,399
February	5,637	2,006	4,008	2,085	729	1,528	318	101	244	0	0	0	8,039	2,836	5,780
March	5,726	2,068	3,957	2,023	723	1,425	1,152	348	1,017	0	0	0	8,900	3,140	6,399
April	5,342	1,943	3,644	1,847	667	1,276	1,424	429	1,273	0	0	0	8,613	3,038	6,193
May	5,520	2,007	3,765	1,908	689	1,319	1,472	443	1,316	0	0	0	8,900	3,140	6,399
June	5,143	1,884	3,458	1,780	647	1,214	1,690	507	1,521	0	0	0	8,613	3,038	6,193
July	5,314	1,947	3,573	1,840	669	1,255	1,746	524	1,572	0	0	0	8,900	3,140	6,399
August	5,623	2,038	3,861	1,943	699	1,351	1,334	402	1,188	0	0	0	8,900	3,140	6,399
September	5,442	1,972	3,736	1,880	677	1,307	1,291	389	1,149	0	0	0	8,613	3,038	6,193
Annual	**67,494**	**24,375**	**46,662**	**23,901**	**8,540**	**16,862**	**13,395**	**4,053**	**11,822**	**0**	**0**	**0**	**104,790**	**36,968**	**75,346**

ANIMAL WASTE MANAGEMENT WORKSHEET

Version 2.2

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Jim Hendrickson** CHECKED BY:

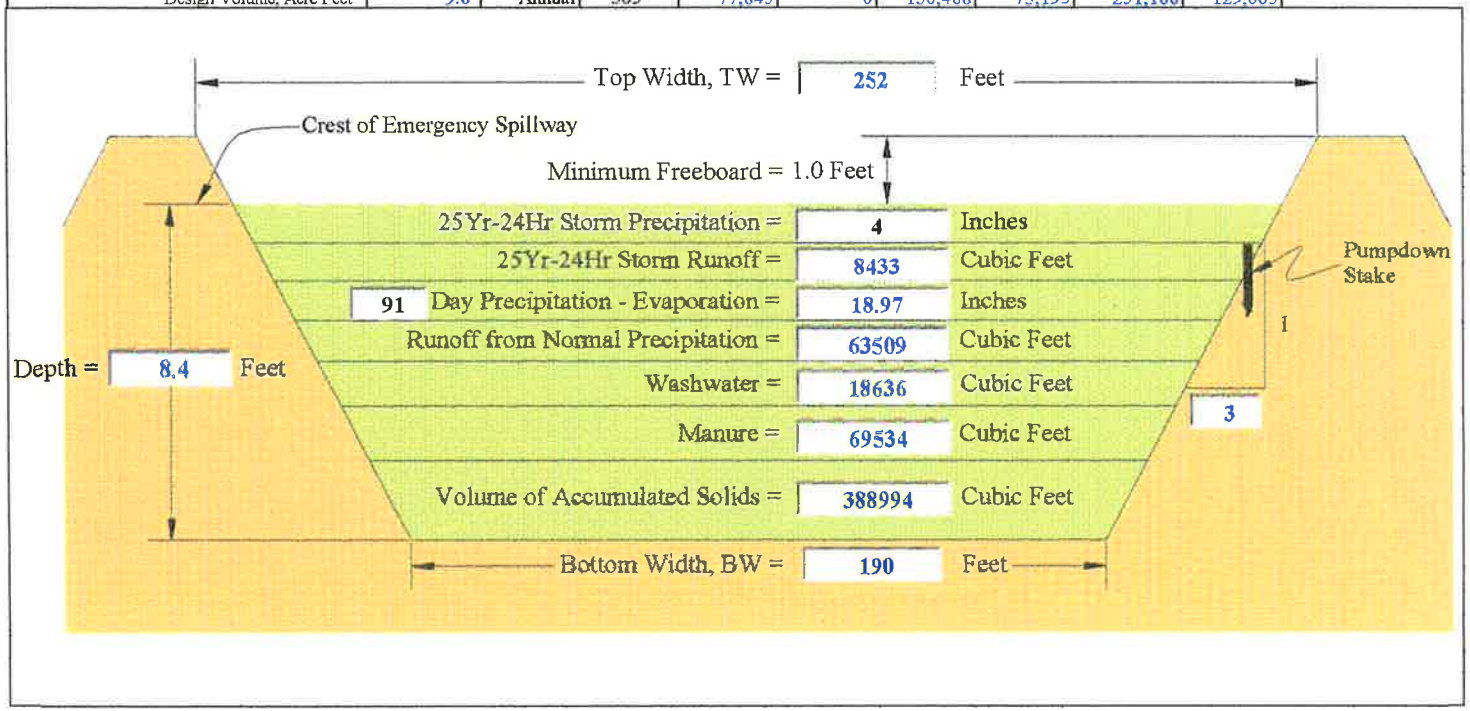
ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

WASTE STORAGE POND

Pond Parameters	Value
Storage Period, Days=	91
Side Slope (X:1)=	3.00
Bottom Width, BW, Feet=	190
Bottom Length, BL, Feet=	190
Accumulated Solids Duration, Years=	3
Existing Storage, Acre Feet=	7.00
Surface Area of Existing Storage, SF=	0
Minimum Soil Liner Depth, Feet=	1.00
25 Year-24 Hour Storm Runoff, CF=	8,433
Top Width, TW, Feet=	252
Top Length, TL, Feet=	252
Volume Needed, Acre Feet=	15.0
Design Volume, Acre Feet=	9.0

MONTHLY INFLOWS INTO WASTE STORAGE POND

Month	Number of Days	Rain-Evap on Pond CF	Rain-Evap on Existing Storage, CF	Normal Runoff CF	Washwater CF	Manure CF	Accum Solids CF
October	31	8,097	0	9,553	6,217	21,298	11,013
November	30	32,493	0	21,861	6,016	20,611	10,657
December	31	36,674	0	21,171	6,217	24,099	11,013
January	31	30,482	0	20,012	6,217	24,099	11,013
February	28	22,121	0	13,958	5,615	21,767	9,947
March	31	18,575	0	13,137	6,217	21,298	11,013
April	30	5,027	0	8,762	6,016	19,527	10,657
May	31	-6,033	0	7,128	6,217	20,178	11,013
June	30	-14,553	0	4,570	6,016	18,443	10,657
July	31	-25,878	0	1,520	6,217	19,058	11,013
August	31	-21,644	0	2,800	6,217	20,738	11,013
September	30	-7,515	0	6,016	6,016	20,069	10,657
Annual	365	77,845	0	130,488	73,195	251,188	129,665



ANIMAL WASTE MANAGEMENT WORKSHEET

Version 2.2

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Jim Hendrickson** CHECKED BY:

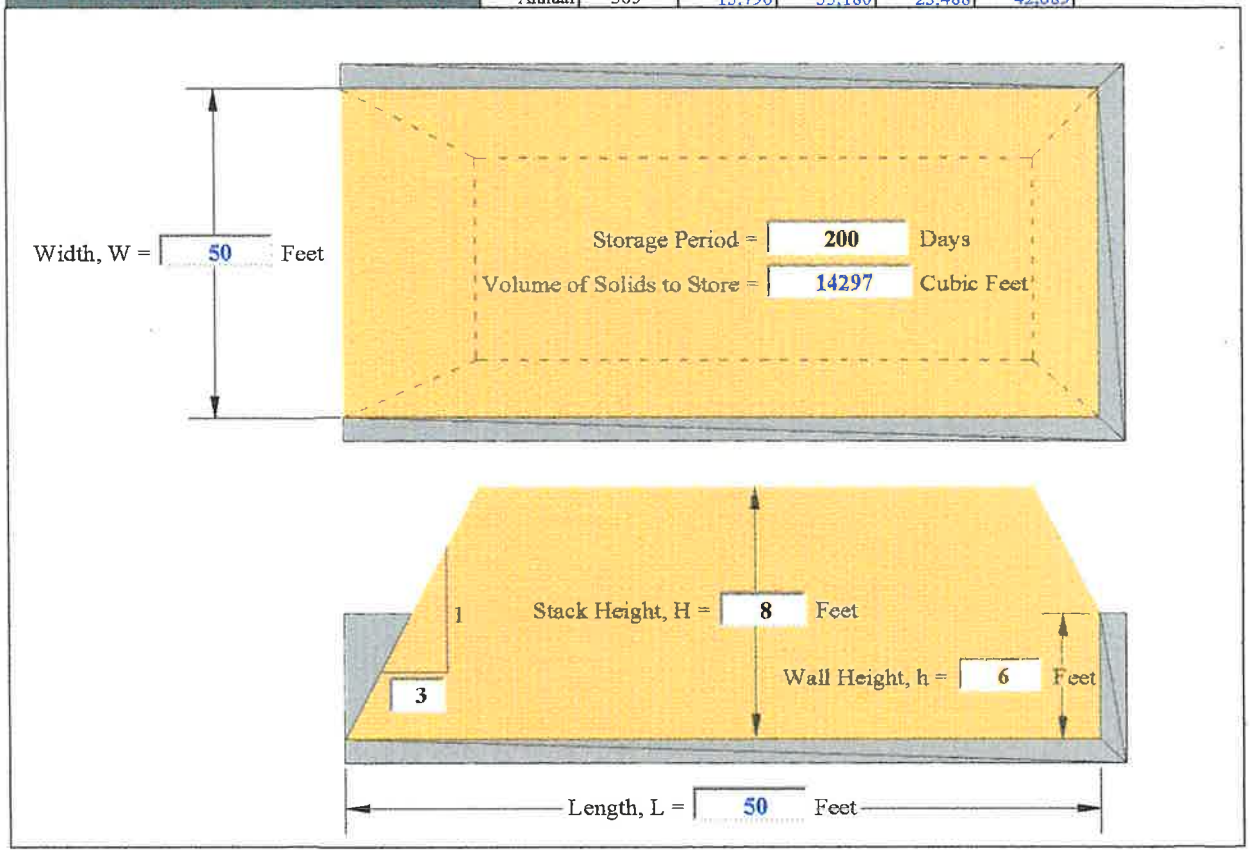
ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

SOLIDS STACKING FACILITY

Solids Storage Facility Parameters	Value
Storage Period, Days=	200
Stacking Width, W in Feet=	50
Stacking Height, H in Feet=	8.00
Wall Height, h in Feet=	6.00
Stack Side Slope (X:1)=	3.00
Existing Storage, Cubic Feet=	0
Surface Area of Existing Storage, SF=	0
25 Year-24 Hour Storm Runoff, CF=	833
Volume Needed, Cubic Feet=	14,297
Design Volume, Cubic Feet=	14,612
Is Facility Covered?	NO

MONTHLY SOLIDS VOLUME STACKED IN FACILITY

Month	Number of Days	Manure CF	Bedding CF	Solids to Store CF	Normal Runoff CF
October	31	1149	2,809	1,979	3,226
November	30	1112	2,718	1,915	8,675
December	31	1703	3,315	2,509	7,149
January	31	1703	3,315	2,509	8,099
February	28	1538	2,995	2,267	4,401
March	31	1149	2,809	1,979	3,333
April	30	897	2,522	1,709	2,169
May	31	927	2,606	1,766	1,808
June	30	867	2,361	1,614	1,131
July	31	896	2,440	1,668	0
August	31	942	2,689	1,816	710
September	30	912	2,602	1,757	1,988
Annual	365	13,796	33,180	23,488	42,689



ANIMAL WASTE MANAGEMENT WORKSHEET

Version 2.2

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Jim Hendrickson**

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

MANAGEMENT CRITERIA FOR TRACTOR SPREADER APPLICATION OF SOLIDS

To apply **46,976** cubic feet of solids generated from the operation it will take approximately **0** trips annually. Based on applying NITROGEN, N
at agronomic rate use the application depths, travel lengths, and loads per acre listed below for each crop.

Field Number	Acres	Crop	Tractor Spreader Capacity		Spread Width	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Solids to Apply	Travel Length per Load Needed in Feet	Loads per Acre
			Bushels	CF	Feet	PPM	Lbs/100CF					
1	14.6	Corn, Silage(AH)	0	0	15	5,300	33.07	262	1.00	0.3	0	#DIV/0!
2	18.4	Hay/Pasture Mix 16 % Protein	0	0	15	5,300	33.07	307	1.00	0.4	0	#DIV/0!
3	53.7	Corn, Silage(AH)	0	0	15	5,300	33.07	262	1.00	0.3	0	#DIV/0!
4	22	Hay/Pasture Mix 16 % Protein	0	0	15	5,300	33.07	256	1.00	0.3	0	#DIV/0!
0												
0												
0												
0												
0												

MANAGEMENT CRITERIA FOR BIG GUN SPRINKLER APPLICATION OF LIQUIDS

To apply **3,773,402** gallons of liquids generated from the operation it will take approximately **210** hours of pumping annually. Based on applying NITROGEN, N
at agronomic rate use the application depths, set times, and travel rates listed below for each crop.

Field Number	Acres	Crop	Sprinkler Flowrate GPM	Wetted Diameter Feet	Portion of Wetted Diameter Receiving Liquids	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Application Rate in Inches/Hour	Set Time Needed in Hours	Travel Rate Needed in Feet/Minute
						PPM	Lbs/1000Gal						
1	14.6	Corn, Silage(AH)	300	250	1/2 Circle	1,907	8.40	262	1.00	1.70	1.45	2.89	1.13
2	18.4	Hay/Pasture Mix 16 % Protein	300	250	1/2 Circle	1,907	8.40	307	1.00	2.00	1.45	3.39	0.97
3	53.7	Corn, Silage(AH)	300	250	1/2 Circle	1,907	8.40	262	1.00	1.70	1.45	2.89	1.13
4	22	Hay/Pasture Mix 16 % Protein	300	250	1/2 Circle	1,907	8.40	256	1.00	1.66	1.45	2.82	1.16
0													
0													
0													
0													
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U.S. Department of Agriculture
Natural Resources Conservation Service

ANIMAL WASTE MANAGEMENT WORKSHEET
Version 2.2

12/7/2005
STATE: OREGON

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Jim Hendrickson**

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

NUTRIENTS AVAILABLE AFTER STORAGE

Nutrient Source	Type of Operation / Type of Storage Facility	Pounds of Nutrients Available N	Pounds of Nutrients Available P_2O_5	Pounds of Nutrients Available K_2O	Percent Nutrients Retained After Storage N	Percent Nutrients Retained After Storage P_2O_5	Percent Nutrients Retained After Storage K_2O	Pounds of Nutrients Retained After Storage N	Pounds of Nutrients Retained After Storage P_2O_5	Pounds of Nutrients Retained After Storage K_2O
	Dairy									
Liquids	Storage Pond (>50%) Dilution	67,494	24,375	46,662	47%	65%	80%	31,702	15,844	37,329
Solids	Solids Storage Facility (Unroofed)	23,901	8,540	16,862	65%	80%	80%	15,535	6,832	13,490
Grazing	NONE	13,395	4,053	11,822	100%	100%	100%	13,395	4,053	11,822

NUTRIENTS AVAILABLE AFTER APPLICATION

Nutrient Source	Type of Application System	Pounds of Nutrients Available N	Pounds of Nutrients Available P_2O_5	Pounds of Nutrients Available K_2O	Percent Nutrients Retained After Application N	Percent Nutrients Retained After Application P_2O_5	Percent Nutrients Retained After Application K_2O	Pounds of Nutrients Retained After Application N	Pounds of Nutrients Retained After Application P_2O_5	Pounds of Nutrients Retained After Application K_2O
Liquids	Sprinkling	31,702	15,844	37,329	75%	100%	100%	23,777	15,844	37,329
Solids	Broadcast (Incorporated 7 or more days after application)	15,535	6,832	13,490	70%	100%	100%	10,875	6,832	13,490
Grazing	Grazing	13,395	4,053	11,822	90%	100%	100%	12,056	4,053	11,822

NUTRIENTS AVAILABLE AFTER DENITRIFICATION

Nutrient Source	Location / Soil Drainage Class	Pounds of Nutrients Available N	Pounds of Nutrients Available P_2O_5	Pounds of Nutrients Available K_2O	Percent Nutrients Retained After Denitrification N	Percent Nutrients Retained After Denitrification P_2O_5	Percent Nutrients Retained After Denitrification K_2O	Pounds of Nutrients Retained After Denitrification N	Pounds of Nutrients Retained After Denitrification P_2O_5	Pounds of Nutrients Retained After Denitrification K_2O
	Between Coastal and Cascade Mountains									
Liquids	Well Drained	23,777	15,844	37,329	90%	100%	100%	21,399	15,844	37,329
Solids	Well Drained	10,875	6,832	13,490	90%	100%	100%	9,787	6,832	13,490
Grazing	Well Drained	12,056	4,053	11,822	90%	100%	100%	10,850	4,053	11,822

CLIENT: **Neff Dairy Inc.**
ASSISTED BY: **Jim Hendrickson**

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

PERCENT OF MANURE TO BE APPLIED TO FIELD AND UTILIZATION ACRES NEEDED BASED ON NITROGEN, N

Field Number	Acres	Crop	LIQUIDS			SOLIDS			GRAZING		
			Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients
1	14.6	Corn, Silage(AH)	12%	2,568	10	0%	0	0	0%	0	0
2	18.4	Hay/Pasture Mix 16 % Protein	10%	2,140	7	0%	0	0	21%	2,279	7
3	53.7	Corn, Silage(AH)	42%	8,988	34	0%	0	0	52%	5,642	22
4	22.0	Hay/Pasture Mix 16 % Protein	6%	1,284	5	0%	0	0	27%	2,930	11
0											
0											
0											
0											
0											
Off-Farm			30%	6,420		100%	9,787		0%	0	
		TOTALS-	100%	21,399	56	100%	9,787	0	100%	10,850	40

NUTRIENT BALANCE BASED ON AVAILABLE ACRES

Field Number	Acres	Crop	NUTRIENTS APPLIED			- NUTRIENTS REMOVED			= NUTRIENT BALANCE		
			Nitrogen, N Lbs/Acre	Phosphorous, P_2O_5 Lbs/Acre	Potassium, K_2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P_2O_5 Lbs/Acre	Potassium, K_2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P_2O_5 Lbs/Acre	Potassium, K_2O Lbs/Acre
1	14.6	Corn, Silage(AH)	176	130	307	262	136	313	-86	-6	-6
2	18.4	Hay/Pasture Mix 16 % Protein	240	132	338	307	85	235	-67	47	103
3	53.7	Corn, Silage(AH)	272	163	406	262	136	313	11	27	94
4	22.0	Hay/Pasture Mix 16 % Protein	192	93	247	256	71	196	-64	22	51
0											
0											
0											
0											
0											
Off-Farm											

NUTRIENT MANAGEMENT DESIGN AND SPECIFICATIONS

Producer:	Neff Dairy Inc.	Tract(s): 9942	Field(s): 1
Assisted by:	Jim Hendrickson		Date: December 7, 2005

PURPOSE (Check all that apply)			
Budget and supply for plant production	x	Utilize manure/organic materials as a nutrient source	x
Minimize agricultural non-point source pollution (water quality)	x	Maintain or improve soil condition	x

Table 1. Field Conditions and Recommendations

CROP SEQUENCE/ROTATION (circle current crop)	EXPECTED YIELD
Corn, Silage(All)	34

CURRENT SOIL TEST LEVELS (ppm or lb/ac)					
N	P	K	pH	S.O.M.%	EC
2	45	109	5.6		

RECOMMENDED NUTRIENTS/AMENDMENTS TO MEET EXPECTED YIELD								
N (lbs/ac)		P_2O_5 (lbs/ac)		K_2O (lbs/ac)		LIME	Other	Other
Trial A	Trial B	Trial A	Trial B	Trial A	Trial B			
150		60		0		2		

Table 2. Nutrient Sources

Credits		N	P_2O_5		K_2O	
		pounds per acre				
1. Nitrogen credits from previous legume crop						
2. Residual from long-term manure application						
3. Irrigation water						
4. Other (e.g., atmospheric deposition)						
5. Total Credits-		0	0		0	
Plant-Available Nutrients Applied to Field		N	P_2O_5		K_2O	
(Circle column that is landuser's decision)		Trial A	Trial B	Trial A	Trial B	Trial A	Trial B
6. Credits (from row 5, above)		0	0	0	0	0	0
7. Fertilizer	Starter						
	Other						
8. Manure / Organic Materials (Source-) Dairy		176	0	130	0	307	0
9. Subtotal (sum of lines 6, 7 and 8)		176	0	130	0	307	0
10. Nutrients Recommended (from Table 1)		150	0	60	0	0	0
11. Nutrient Status (subtract line 10 from line 9)		26	0	70	0	307	0

If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendation.
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.

PLANNED NUTRIENT APPLICATIONS						
Amount to be Applied (lb/ac)	N	182	P_2O_5	97	K_2O	191

Method, Form, and Timing of Application

Soil test indicate low levels on Nitrogen and Potassium and medium range levels of Phosphorus. Soil phosphorus levels should be monitored on a yearly basis to ensure management strategies are not leading to phosphorus accumulation in the soil. Manure application should be applied in split applications between late February to late September. Apply 60lbs of Nitrogen/Acre per application. Manure should be applied to the acreage evenly during the application season. A soil test is recommended in late October every year to evaluate the liq solid application rate matches the nitrogen requirements of the soil.

Manure should be reduced or not applied if soil tests show Phosphorous and Potassium concentrations continue to increase over time and approach very high levels as determined by OSU Extension EC 1478, "Soil test interpretation guide"

NUTRIENT MANAGEMENT DESIGN AND SPECIFICATIONS

Producer:	Neff Dairy Inc.	Tract(s): 9042	Field(s): 2
Assisted by:	Jim Hendrickson		Date: December 7, 2005

PURPOSE (Check all that apply)			
Budget and supply for plant production	x	Utilize manure/organic materials as a nutrient source	x
Minimize agricultural non-point source pollution (water quality)	x	Maintain or improve soil condition	x

Table 1. Field Conditions and Recommendations

CROP SEQUENCE/ROTATION (circle current crop)	EXPECTED YIELD
Hay/Pasture Mix 16 % Protein	6

CURRENT SOIL TEST LEVELS (ppm or lb/ac)					
N	P	K	pH	S.O.M.%	EC

RECOMMENDED NUTRIENTS/AMENDMENTS TO MEET EXPECTED YIELD								
N (lbs/ac)		P_2O_5 (lbs/ac)		K_2O (lbs/ac)		LIME	Other	Other
Trial A	Trial B	Trial A	Trial B	Trial A	Trial B			

Table 2. Nutrient Sources

Credits		N		P_2O_5		K_2O	
		pounds per acre					
1. Nitrogen credits from previous legume crop							
2. Residual from long-term manure application							
3. Irrigation water							
4. Other (e.g., atmospheric deposition)							
5. Total Credits-		0		0		0	
Plant-Available Nutrients Applied to Field		N		P_2O_5		K_2O	
(Circle column that is landuser's decision)		Trial A	Trial B	Trial A	Trial B	Trial A	Trial B
6. Credits (from row 5, above)		0	0	0	0	0	0
7. Fertilizer	Starter						
	Other						
8. Manure / Organic Materials (Source-)		240	240	132	132	338	338
9.	Subtotal (sum of lines 6, 7 and 8)	240	240	132	132	338	338
10.	Nutrients Recommended (from Table 1)	0	0	0	0	0	0
11.	Nutrient Status (subtract line 10 from line 9)	240	240	132	132	338	338

If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendation.
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.

PLANNED NUTRIENT APPLICATIONS						
Amount to be Applied (lb/ac)	N		P_2O_5		K_2O	
Method, Form, and Timing of Application						

NUTRIENT MANAGEMENT DESIGN AND SPECIFICATIONS

Producer:	Neff Dairy Inc.	Tract(s):	9942	Field(s):	3
Assisted by:	Jim Hendrickson			Date:	December 7, 2005

PURPOSE (Check all that apply)			
Budget and supply for plant production	x	Utilize manure/organic materials as a nutrient source	x
Minimize agricultural non-point source pollution (water quality)	x	Maintain or improve soil condition	x

Table 1. Field Conditions and Recommendations

CROP SEQUENCE/ROTATION (circle current crop)	EXPECTED YIELD
Corn, Silage(AH)	34

CURRENT SOIL TEST LEVELS (ppm or lb/ac)					
N	P	K	pH	S.O.M.%	EC

RECOMMENDED NUTRIENTS/AMENDMENTS TO MEET EXPECTED YIELD								
N (lbs/ac)		P_2O_5 (lbs/ac)		K_2O (lbs/ac)		LIME	Other	Other
Trial A	Trial B	Trial A	Trial B	Trial A	Trial B			

Table 2. Nutrient Sources

Credits		N		P_2O_5		K_2O	
		pounds per acre					
1. Nitrogen credits from previous legume crop							
2. Residual from long-term manure application							
3. Irrigation water							
4. Other (e.g., atmospheric deposition)							
5. Total Credits-		0		0		0	
Plant-Available Nutrients Applied to Field		N		P_2O_5		K_2O	
(Circle column that is landuser's decision)		Trial A	Trial B	Trial A	Trial B	Trial A	Trial B
6. Credits (from row 5, above)		0	0	0	0	0	0
7. Fertilizer	Starter						
	Other						
8. Manure / Organic Materials (Source-)		272	272	163	163	406	406
9.	Subtotal (sum of lines 6, 7 and 8)	272	272	163	163	406	406
10.	Nutrients Recommended (from Table 1)	0	0	0	0	0	0
11.	Nutrient Status (subtract line 10 from line 9)	272	272	163	163	406	406

If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendation.
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.

PLANNED NUTRIENT APPLICATIONS						
Amount to be Applied (lb/ac)	N		P_2O_5		K_2O	
Method, Form, and Timing of Application						

NUTRIENT MANAGEMENT DESIGN AND SPECIFICATIONS

Producer:	Neff Dairy Inc.	Tract(s): 9942	Field(s): 4
Assisted by:	Jim Hendrickson		Date: December 7, 2005

PURPOSE (Check all that apply)			
Budget and supply for plant production	x	Utilize manure/organic materials as a nutrient source	x
Minimize agricultural non-point source pollution (water quality)	x	Maintain or improve soil condition	x

Table 1. Field Conditions and Recommendations

CROP SEQUENCE/ROTATION (circle current crop)	EXPECTED YIELD
Hay/Pasture Mix 16 % Protein	5

CURRENT SOIL TEST LEVELS (ppm or lb/ac)					
N	P	K	pH	S.O.M.%	EC

RECOMMENDED NUTRIENTS/AMENDMENTS TO MEET EXPECTED YIELD								
N (lbs/ac)		P_2O_5 (lbs/ac)		K_2O (lbs/ac)		LIME	Other	Other
Trial A	Trial B	Trial A	Trial B	Trial A	Trial B			

Table 2. Nutrient Sources

Credits		N		P_2O_5		K_2O	
		pounds per acre					
1. Nitrogen credits from previous legume crop							
2. Residual from long-term manure application							
3. Irrigation water							
4. Other (e.g., atmospheric deposition)							
5. Total Credits-		0		0		0	
Plant-Available Nutrients Applied to Field		N		P_2O_5		K_2O	
(Circle column that is landuser's decision)		Trial A	Trial B	Trial A	Trial B	Trial A	Trial B
6. Credits (from row 5, above)		0	0	0	0	0	0
7. Fertilizer	Starter						
	Other						
8. Manure / Organic Materials (Source-)		192	192	93	93	247	247
9.	Subtotal (sum of lines 6, 7 and 8)	192	192	93	93	247	247
10.	Nutrients Recommended (from Table 1)	0	0	0	0	0	0
11.	Nutrient Status (subtract line 10 from line 9)	192	192	93	93	247	247

If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendation.
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.

PLANNED NUTRIENT APPLICATIONS						
Amount to be Applied (lb/ac)	N		P_2O_5		K_2O	
Method, Form, and Timing of Application						

NUTRIENT MANAGEMENT DESIGN AND SPECIFICATIONS

Producer:	Neff Dairy Inc.	Tract(s): 1000	Field(s): 0
Assisted by:	Jim Hendrickson	Date:	December 7, 2005

PURPOSE (Check all that apply)			
Budget and supply for plant production	x	Utilize manure/organic materials as a nutrient source	x
Minimize agricultural non-point source pollution (water quality)	x	Maintain or improve soil condition	x

Table 1. Field Conditions and Recommendations

CROP SEQUENCE/ROTATION (circle current crop)	EXPECTED YIELD
Hay/Pasture Mix 14% Protein	0

CURRENT SOIL TEST LEVELS (ppm or lb/ac)					
N	P	K	pH	S.O.M.%	EC
4	75	150	5.5		

RECOMMENDED NUTRIENTS/AMENDMENTS TO MEET EXPECTED YIELD								
N (lbs/ac)		P_2O_5 (lbs/ac)		K_2O (lbs/ac)		LIME	Other	Other
Trial A	Trial B	Trial A	Trial B	Trial A	Trial B			
40		35		0		2.4		

Table 2. Nutrient Sources

Credits		N	P_2O_5		K_2O	
		pounds per acre				
1. Nitrogen credits from previous legume crop						
2. Residual from long-term manure application						
3. Irrigation water						
4. Other (e.g., atmospheric deposition)						
5. Total Credits-		0	0		0	
Plant-Available Nutrients Applied to Field		N	P_2O_5		K_2O	
(Circle column that is landuser's decision)		Trial A	Trial B	Trial A	Trial B	Trial A	Trial B
6. Credits (from row 5, above)		0	0	0	0	0	0
7. Fertilizer	Starter						
	Other						
8. Manure / Organic Materials (Source-)							
9. Subtotal (sum of lines 6, 7 and 8)		0	0	0	0	0	0
10. Nutrients Recommended (from Table 1)		40	0	35	0	0	0
11. Nutrient Status (subtract line 10 from line 9)		-40	0	-35	0	0	0

If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendation.
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.

PLANNED NUTRIENT APPLICATIONS						
Amount to be Applied (lb/ac)	N	73	P_2O_5	62	K_2O	123

Method, Form, and Timing of Application

Soil test indicate low levels on Nitrogen, (4 ppm) but elevated levels of Phosphorus, (75 ppm). Recommended yearly soil sampling to monitor Phosphorus levels. Potasium soil test levels are fine (150 ppm) medium levels of potassium are 150-250 ppm so no commercial fertilizer is recommended. Increased levels of potassium could lead to herd health problems. Soil phosphorus levels should be monitored on a yearly basis to ensure management strategies are not leading to phosphorus accumulation in the soil. Manure application should be applied in split applications between late February to late September. Apply 60lbs of Nitrogen/Acre per application. Manure should be applied to the acreage evenly during the application season. A soil test is recommended in late October every year to evaluate the bio solid application rate matches the nitrogen requirements of the soil.

Manure should be reduced or not applied if soil tests show Phosphorus and Potassium concentrations continue to increase over time and approach very high levels as determined by OSU Extension EC 1478, "Soil test interpretation guide"

PHOSPHORUS INDEX WORKSHEET – **WESTERN** OREGON

Producer: Neff Dairy County: Marion Tract No. 2138 Field No(s). 1 Date: 12/5/05

Soil Map Unit(s): Holcomb Soil Test P: 59 ppm Lab. Method: Weak Bray Sample Depth: 1'

Crop Rotation: Corn Silage Nutrient Application Method(s) Liquid

Planner: Jim Hendrickson Notes: Sample #1

		PHOSPHORUS LOSS RATING					Weighted Rating Value	
TRANSPORT FACTORS	Factor Weight	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	**Current**	**Planned**
Soil Erosion – tons/ac/yr (RUSLE)	1.50	< 1 (0)	1 – 3 (1.5)	4 – 6 (3.0)	7 – 15 (6.0)	> 15 (12.0)	1.5	1.5
Soil Erosion from Sprinkler Irrigation	0.75	No sprinkler irrigation (0)	Application rate < infiltration rate OR No visible runoff at field borders (0.75)	Application rate = infiltration rate OR Little to no visible runoff at field borders (1.5)	Application rate > infiltration rate OR Visible runoff at field borders (3.0)	Application rate > infiltration rate OR Excessive runoff visible at field borders. Rills and gullies present. (6.0)	.75	.75
Runoff Class	1.00	Negligible (0)	Very low or low (1.0)	Medium (2.0)	High (4.0)	Very High (8.0)	2	2
Flooding Frequency Class	0.75	None or very rare (0)	Rare (0.75)	Occasional (1.5)	Frequent (3.0)	Very Frequent (6.0)	0	0
Distance to Perennial Surface Waters / Buffer Widths	0.75	> 500 feet OR buffer > 30 ft. wide (or meets NRCS standards) next to surface waters (0)	300 – 500 feet OR buffer 20 - 30 ft. wide next to surface waters (0.75)	200 – 299 feet OR buffer 10 -19 ft. wide next to surface waters (1.5)	100 – 199 feet AND buffer < 10 ft. wide next to surface waters (3.0)	< 100 feet AND No buffer next to surface waters (6.0)	6	6
Subsurface Drainage	0.50	No Tile Drains (0)	Tile drains present Soil Test P (Bray P1) < 60 ppm (0.5)	Tile drains present Soil Test P (Bray P1) 61 - 140 ppm (1.0)	Tile drains present Soil Test P (Bray P1) 141- 190 ppm (2.0)	Tile drains present Soil Test P (Bray P1) > 190 ppm (4.0)	.5	.5
						Transport Factors Subtotal (TFS)	10.75	10.75

Tract **2138** Fields 1

SOURCE FACTORS	Factor Weight	PHOSPHORUS LOSS RATING None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Weighted Rating Value Current	Planned
Soil Test P – ppm (Bray P1)	1.00	(Soil Test P – 40) / 10 Soil Test P		(59 - 40) x .10 = 1.9	Assign 0 points if Soil Test P < 40 ppm		1.9	1.9
Commercial P Fertilizer Application Rate	1.00	lbs/ac P_2O_5 x 0.02		_____ lbs/ac P_2O_5 x 0.02 = _____				
Commercial P Fertilizer Application Method	1.00	None Applied (0)	Injected / banded deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)		
Organic P Source Application Rate	1.00	lbs/ac P_2O_5 x 0.02		130 lbs/ac P_2O_5 x 0.02 = 2.6			2.6	2.6
Organic P Source Application Method	1.00	None Applied (0)	Injected deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)	8	8

Total Rating Value TFS + SFS	Site Vulnerability Class
< 13.0	**Low**
13.0 – 25.0	**Medium**
25.1 – 50.0	**High**
> 50.0	**Very High**

	Current	Planned
Transport Factors Subtotal (TFS)	10.75	10.75
Source Factors Subtotal (SFS)	12.5	12.5
Total Rating Value (TFS + SFS)	**23.25**	**23.25**
Site Vulnerability Class	**Med**	**Med**

PHOSPHORUS INDEX WORKSHEET – **WESTERN** OREGON

Producer: Neff Dairy County: Marion Tract No. 2138 Field No(s). 2 Date: 12/5/05

Soil Map Unit(s): Salkum Soil Test P: 91 ppm Lab. Method: Weak Bray Sample Depth: 1'

Crop Rotation: Pasture/Grass Silage Nutrient Application Method(s) Liquid + Graze

Planner: Jim Hendrickson Notes: Sample #2

		PHOSPHORUS LOSS RATING					Weighted Rating Value	
TRANSPORT FACTORS	Factor Weight	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	**Current**	**Planned**
Soil Erosion – tons/ac/yr (RUSLE)	1.50	< 1 (0)	1 – 3 (1.5)	4 – 6 (3.0)	7 – 15 (6.0)	> 15 (12.0)	1.5	1.5
Soil Erosion from Sprinkler Irrigation	0.75	No sprinkler irrigation (0)	Application rate < infiltration rate OR No visible runoff at field borders (0.75)	Application rate = infiltration rate OR Little to no visible runoff at field borders (1.5)	Application rate > infiltration rate OR Visible runoff at field borders (3.0)	Application rate > infiltration rate OR Excessive runoff visible at field borders. Rills and gullies present. (6.0)	.75	.75
Runoff Class	1.00	Negligible (0)	Very low or low (1.0)	Medium (2.0)	High (4.0)	Very High (8.0)	1	1
Flooding Frequency Class	0.75	None or very rare (0)	Rare (0.75)	Occasional (1.5)	Frequent (3.0)	Very Frequent (6.0)	0	0
Distance to Perennial Surface Waters / Buffer Widths	0.75	> 500 feet OR buffer > 30 ft. wide (or meets NRCS standards) next to surface waters (0)	300 – 500 feet OR buffer 20 - 30 ft. wide next to surface waters (0.75)	200 – 299 feet OR buffer 10 -19 ft. wide next to surface waters (1.5)	100 – 199 feet AND buffer < 10 ft. wide next to surface waters (3.0)	< 100 feet AND No buffer next to surface waters (6.0)	3	3
Subsurface Drainage	0.50	No Tile Drains (0)	Tile drains present Soil Test P (Bray P1) < 60 ppm (0.5)	Tile drains present Soil Test P (Bray P1) 61 - 140 ppm (1.0)	Tile drains present Soil Test P (Bray P1) 141- 190 ppm (2.0)	Tile drains present Soil Test P (Bray P1) > 190 ppm (4.0)	1	1
						Transport Factors Subtotal (TFS)	7.25	7.25

Tract **2138** Fields 2

SOURCE FACTORS	Factor Weight	PHOSPHORUS LOSS RATING None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Weighted Rating Value Current	Planned
Soil Test P – ppm (Bray P1)	1.00	(Soil Test P – 40) / 10 (91 - 40) x .10 = 5.1 Soil Test P; Assign 0 points if Soil Test P < 40 ppm					5.1	5.1
Commercial P Fertilizer Application Rate	1.00	lbs/ac P_2O_5 x 0.02 _____ x 0.02 = _____ lbs/ac P_2O_5						
Commercial P Fertilizer Application Method	1.00	None Applied (0)	Injected / banded deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)		
Organic P Source Application Rate	1.00	lbs/ac P_2O_5 x 0.02 132 x 0.02 = 2.64 lbs/ac P_2O_5					2.64	2.64
Organic P Source Application Method	1.00	None Applied (0)	Injected deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)	8	8

Total Rating Value TFS + SFS	Site Vulnerability Class
< 13.0	**Low**
13.0 – 25.0	**Medium**
25.1 – 50.0	**High**
> 50.0	**Very High**

	Current	Planned
Transport Factors Subtotal (TFS)	7.25	7.25
Source Factors Subtotal (SFS)	15.74	15.74
Total Rating Value (TFS + SFS)	**22.94**	**22.94**
Site Vulnerability Class	**Med**	**Med**

PHOSPHORUS INDEX WORKSHEET – **WESTERN** OREGON

Producer: Neff Dairy County: Marion Tract No. 2138 Field No(s). 3 Date: 12/5/05

Soil Map Unit(s): Holcomb Soil Test P: 80 ppm Lab. Method: Weak Bray Sample Depth: 1'

Crop Rotation: Grass Silage Nutrient Application Method(s) Liquid + Graze

Planner: Jim Hendrickson Notes: Sample #3

		PHOSPHORUS LOSS RATING					Weighted Rating Value	
TRANSPORT FACTORS	Factor Weight	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	**Current**	**Planned**
Soil Erosion – tons/ac/yr (RUSLE)	1.50	< 1 (0)	1 – 3 (1.5)	4 – 6 (3.0)	7 – 15 (6.0)	> 15 (12.0)	1.5	1.5
Soil Erosion from Sprinkler Irrigation	0.75	No sprinkler irrigation (0)	Application rate < infiltration rate OR No visible runoff at field borders (0.75)	Application rate = infiltration rate OR Little to no visible runoff at field borders (1.5)	Application rate > infiltration rate OR Visible runoff at field borders (3.0)	Application rate > infiltration rate OR Excessive runoff visible at field borders. Rills and gullies present. (6.0)	.75	.75
Runoff Class	1.00	Negligible (0)	Very low or low (1.0)	Medium (2.0)	High (4.0)	Very High (8.0)	2	2
Flooding Frequency Class	0.75	None or very rare (0)	Rare (0.75)	Occasional (1.5)	Frequent (3.0)	Very Frequent (6.0)	0	0
Distance to Perennial Surface Waters / Buffer Widths	0.75	> 500 feet OR buffer > 30 ft. wide (or meets NRCS standards) next to surface waters (0)	300 – 500 feet OR buffer 20 - 30 ft. wide next to surface waters (0.75)	200 – 299 feet OR buffer 10 -19 ft. wide next to surface waters (1.5)	100 – 199 feet AND buffer < 10 ft. wide next to surface waters (3.0)	< 100 feet AND No buffer next to surface waters (6.0)	3	3
Subsurface Drainage	0.50	No Tile Drains (0)	Tile drains present Soil Test P (Bray P1) < 60 ppm (0.5)	Tile drains present Soil Test P (Bray P1) 61 - 140 ppm (1.0)	Tile drains present Soil Test P (Bray P1) 141- 190 ppm (2.0)	Tile drains present Soil Test P (Bray P1) > 190 ppm (4.0)	1	1
						Transport Factors Subtotal (TFS)	8.25	8.25

Tract **2138** Fields 3

SOURCE FACTORS	Factor Weight	PHOSPHORUS LOSS RATING None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Weighted Rating Value Current	Planned
Soil Test P – ppm (Bray P1)	1.00	(Soil Test P – 40) / 10 (Soil Test P)		(80 - 40) x .10 = 4 Assign 0 points if Soil Test P < 40 ppm			4	4
Commercial P Fertilizer Application Rate	1.00	lbs/ac P_2O_5 x 0.02		_____ (lbs/ac P_2O_5) x 0.02 = _____				
Commercial P Fertilizer Application Method	1.00	None Applied (0)	Injected / banded deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)		
Organic P Source Application Rate	1.00	lbs/ac P_2O_5 x 0.02		163 (lbs/ac P_2O_5) x 0.02 = 3.26			3.26	3.26
Organic P Source Application Method	1.00	None Applied (0)	Injected deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)	8	8

Total Rating Value TFS + SFS	Site Vulnerability Class
< 13.0	**Low**
13.0 – 25.0	**Medium**
25.1 – 50.0	**High**
> 50.0	**Very High**

	Current	Planned
Transport Factors Subtotal (TFS)	8.25	8.25
Source Factors Subtotal (SFS)	15.26	15.26
Total Rating Value (TFS + SFS)	**23.51**	**23.51**
Site Vulnerability Class	**Med**	**Med**

PHOSPHORUS INDEX WORKSHEET – **WESTERN** OREGON

Producer: Neff Dairy County: Marion Tract No. 2138 Field No(s). 3 Date: 12/5/05

Soil Map Unit(s): Nekia Soil Test P: 30 ppm Lab. Method: Weak Bray Sample Depth: 1'

Crop Rotation: Pasture Nutrient Application Method(s) Liquid + Graze

Planner: Jim Hendrickson Notes: Sample #4

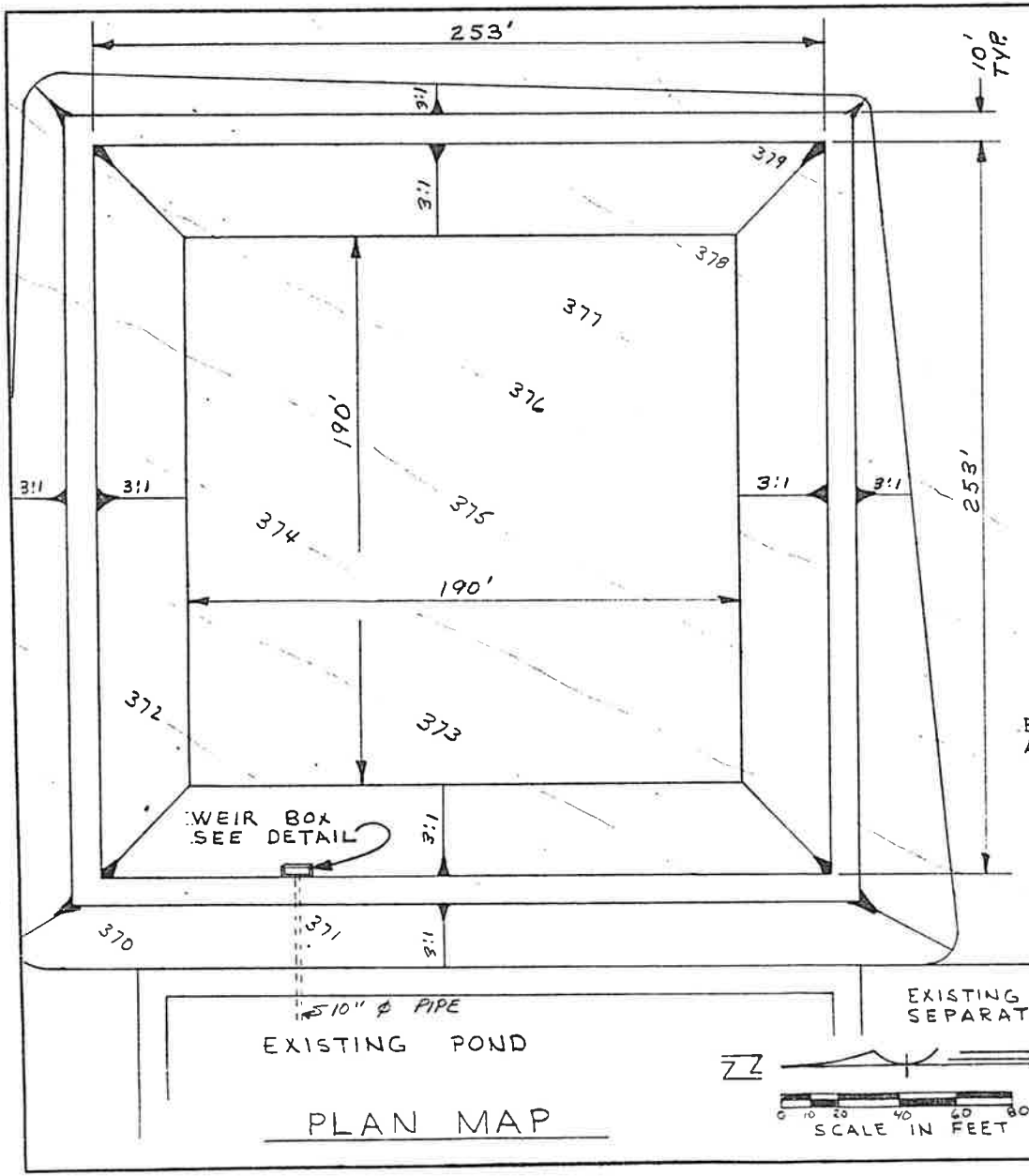
		PHOSPHORUS LOSS RATING					Weighted Rating Value	
TRANSPORT FACTORS	Factor Weight	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	**Current**	**Planned**
Soil Erosion – tons/ac/yr (RUSLE)	1.50	< 1 (0)	1 – 3 (1.5)	4 – 6 (3.0)	7 – 15 (6.0)	> 15 (12.0)	1.5	1.5
Soil Erosion from Sprinkler Irrigation	0.75	No sprinkler irrigation (0)	Application rate < infiltration rate OR No visible runoff at field borders (0.75)	Application rate = infiltration rate OR Little to no visible runoff at field borders (1.5)	Application rate > infiltration rate OR Visible runoff at field borders (3.0)	Application rate > infiltration rate OR Excessive runoff visible at field borders. Rills and gullies present. (6.0)	.75	.75
Runoff Class	1.00	Negligible (0)	Very low or low (1.0)	Medium (2.0)	High (4.0)	Very High (8.0)	4	4
Flooding Frequency Class	0.75	None or very rare (0)	Rare (0.75)	Occasional (1.5)	Frequent (3.0)	Very Frequent (6.0)	0	0
Distance to Perennial Surface Waters / Buffer Widths	0.75	> 500 feet OR buffer > 30 ft. wide (or meets NRCS standards) next to surface waters (0)	300 – 500 feet OR buffer 20 - 30 ft. wide next to surface waters (0.75)	200 – 299 feet OR buffer 10 -19 ft. wide next to surface waters (1.5)	100 – 199 feet AND buffer < 10 ft. wide next to surface waters (3.0)	< 100 feet AND No buffer next to surface waters (6.0)	0	0
Subsurface Drainage	0.50	No Tile Drains (0)	Tile drains present Soil Test P (Bray P1) < 60 ppm (0.5)	Tile drains present Soil Test P (Bray P1) 61 - 140 ppm (1.0)	Tile drains present Soil Test P (Bray P1) 141- 190 ppm (2.0)	Tile drains present Soil Test P (Bray P1) > 190 ppm (4.0)	0	0
						Transport Factors Subtotal (TFS)	6.25	6.25

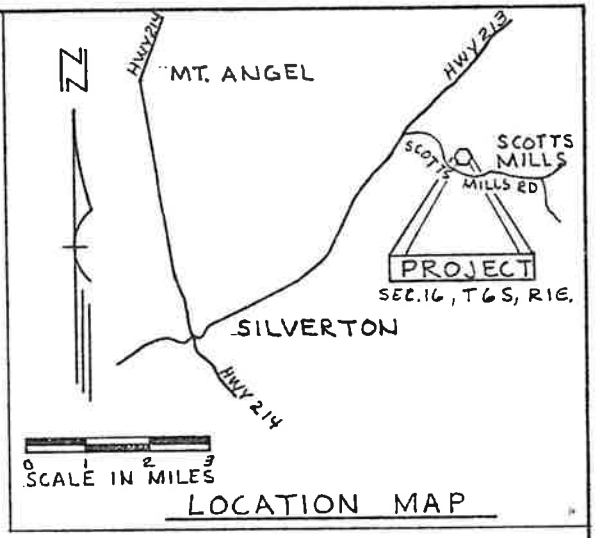
Tract **2138** Fields 4

SOURCE FACTORS	Factor Weight	PHOSPHORUS LOSS RATING None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Weighted Rating Value Current	Planned
Soil Test P – ppm (Bray P1)	1.00	(Soil Test P – 40) / 10 (Soil Test P)		(30 - 40) x .10 = 0 Assign 0 points if Soil Test P < 40 ppm			0	0
Commercial P Fertilizer Application Rate	1.00	lbs/ac P_2O_5 x 0.02		_____ (lbs/ac P_2O_5) x 0.02 = _____				
Commercial P Fertilizer Application Method	1.00	None Applied (0)	Injected / banded deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)		
Organic P Source Application Rate	1.00	lbs/ac P_2O_5 x 0.02		93 (lbs/ac P_2O_5) x 0.02 = 1.86			1.86	1.86
Organic P Source Application Method	1.00	None Applied (0)	Injected deeper than 2 inches OR Incorporated within 5 days of application from March through September (1.0)	Incorporated within 5 days of application from October through February OR Surface applied March through August (2.0)	Incorporated more than 5 days after application OR Surface applied September through October (4.0)	Surface applied November through February (8.0)	8	8

Total Rating Value TFS + SFS	Site Vulnerability Class
< 13.0	**Low**
13.0 – 25.0	**Medium**
25.1 – 50.0	**High**
> 50.0	**Very High**

	Current	Planned
Transport Factors Subtotal (TFS)	6.25	6.25
Source Factors Subtotal (SFS)	9.86	9.86
Total Rating Value (TFS + SFS)	**16.11**	**16.11**
Site Vulnerability Class	**Med**	**Med**





ELEVATIONS ASSUMED

LANDOWNER/OPERATOR ACKNOWLEDGMENT

I have reviewed the drawings and applicable specifications, and I understand the construction requirements. I understand that SCS makes no representation as to the existence or non-existence of utilities. I also understand that it is the responsibility of the excavator to comply with the provisions of ORS 757.541 to 757.571 and that I or my contractor will be responsible for any damage resulting from disruption of service caused by construction activities.

Landowner/Operator _____ Date _____

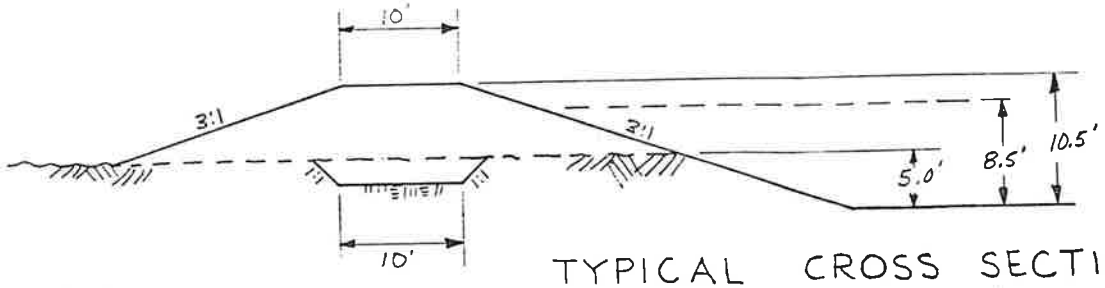
JOB CLASS II

FRANZ NEFF DAIRY ANIMAL WASTE POND

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed M. GRAHAM 7/80 Approved by _____
Drawn M. GRAHAM 7/80 Title _____
Traced _____ Title _____
Checked _____ Sheet No 1 of 2 Drawing No _____

SCS-ENG-313A REV 8-75



TYPICAL CROSS SECTION

NOTES

1.) STRIP ALL SOD FROM FILL AREA TO A DEPTH OF 6" AND SPREAD ON COMPLETED FILL

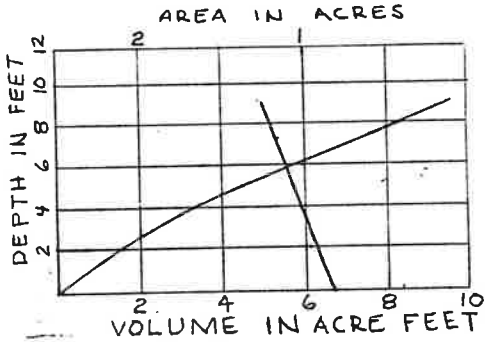
2.) EXCAVATE CORE TRENCH ON ℄ OF FILL 2' DEEP, 10' BOTTOM, AND 1:1 SIDE SLOPES.

3.) THE FILL MATERIAL SHALL BE FREE OF SOD AND ROOTS AND SHALL BE PLACED IN LAYERS NOT MORE THAN 6" THICK. COMPACTION SHALL BE OBTAINED BY OPERATING CONSTRUCTION EQUIPMENT OVER EACH LAYER OR BY USING SPECIAL EQUIPMENT SUCH AS A SHEEPSFOOT ROLLER.

4.) THE COMPLETED FILL SHALL BE SEEDED TO A SOD FORMING GRASS AND SHALL BE PROTECTED FROM LIVESTOCK TO PREVENT EROSION.

5.) POND LEVEL SHALL BE MAINTAINED 2' BELOW TOP OF DIKE BY TRANSFER PIPE.

STORAGE CAPACITY CURVE

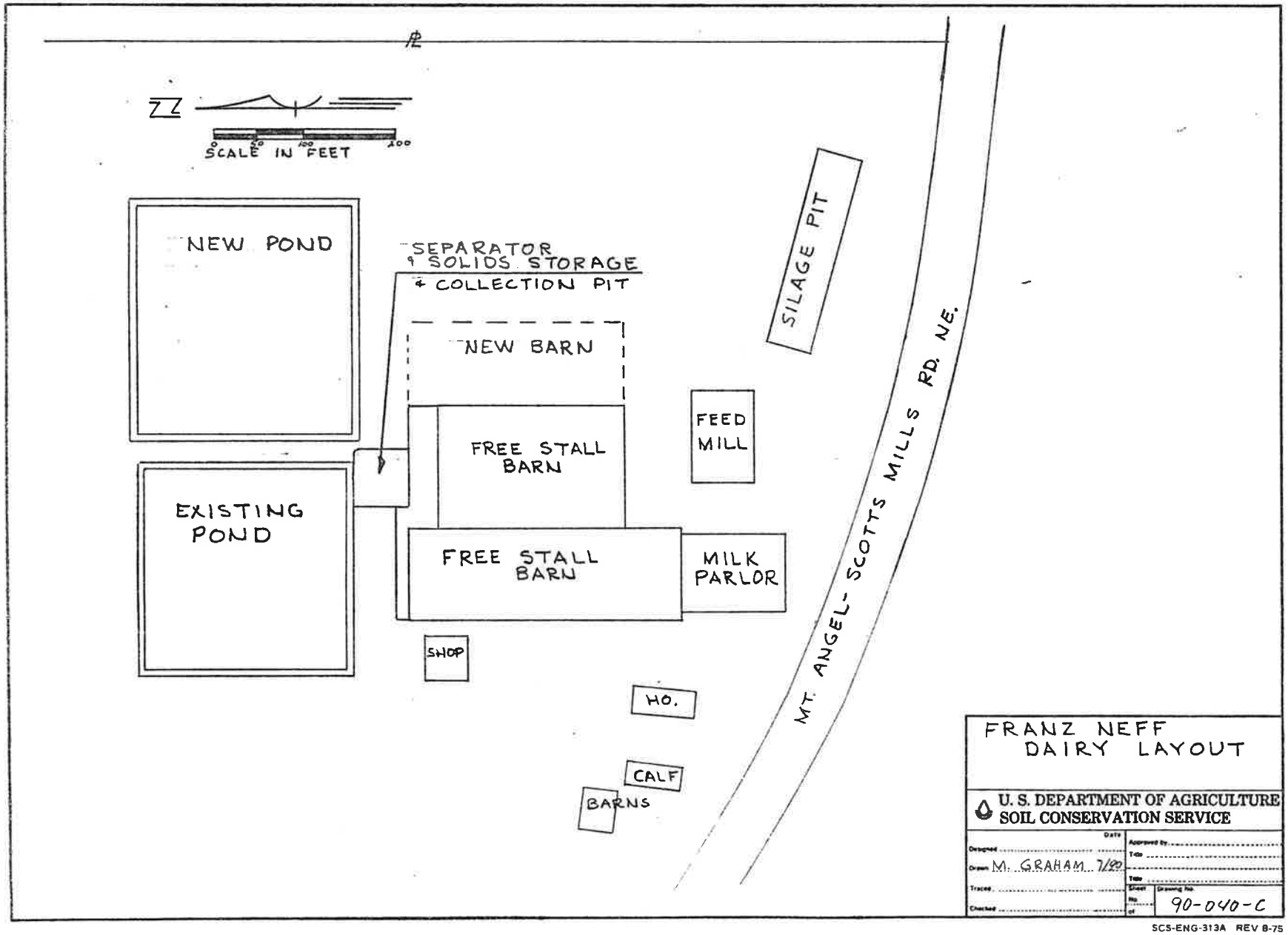


FRANZ NEFF DAIRY ANIMAL WASTE POND

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed M. Graham	Date 7-90	Approved by	
Drawn M. Graham	7-90	Title	
Traced		Title	
Checked		Sheet No. of	Drawing No.

SCS-ENG-313A REV 8-75



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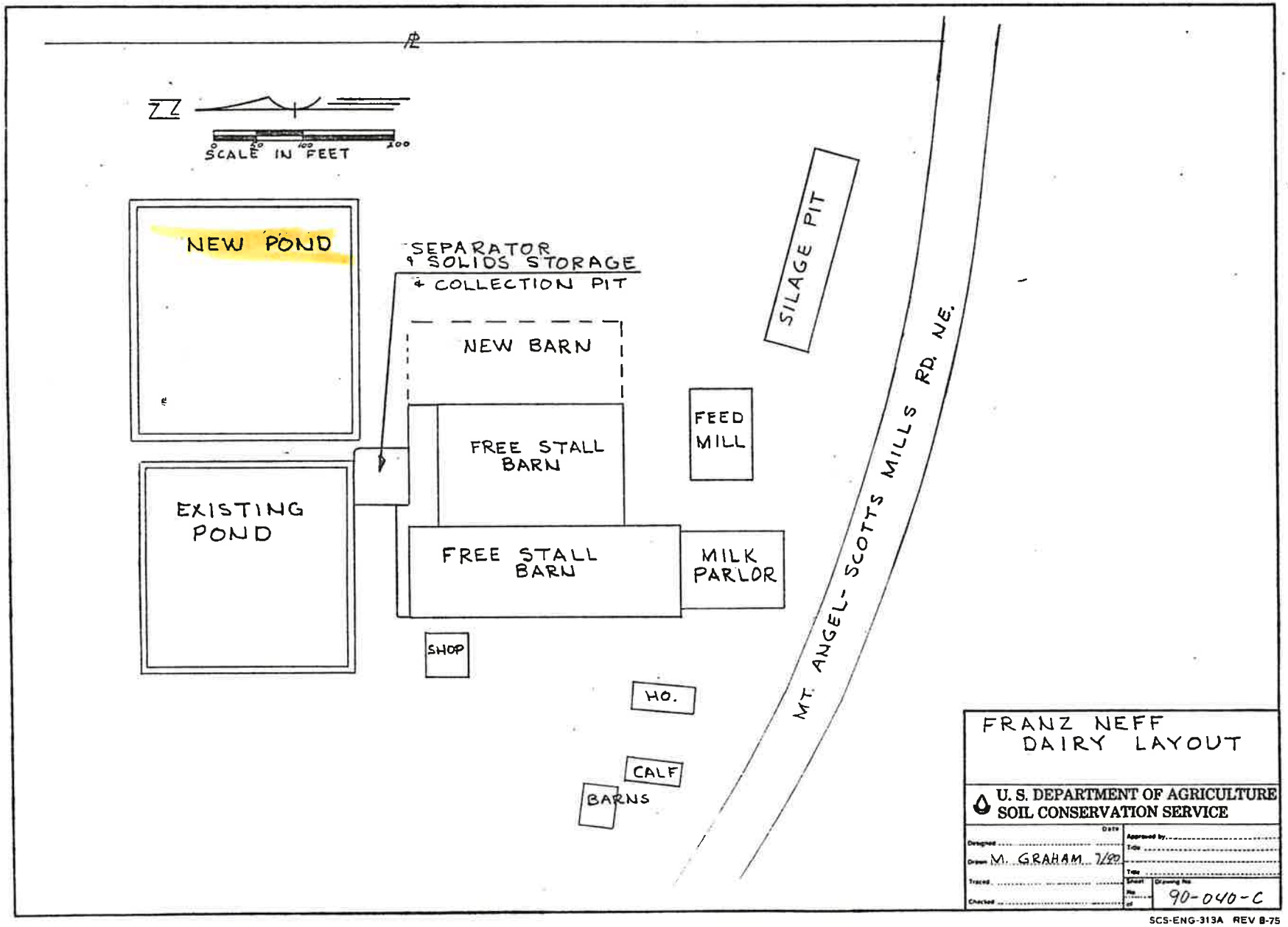

SCALE IN FEET
0
50
100
200
NEW POND
SEPARATOR & SOLIDS STORAGE & COLLECTION PIT
NEW BARN
FREE STALL BARN
FEED MILL
EXISTING POND
FREE STALL BARN
MILK PARLOR
SHOP
HO.
CALF BARNS
SILAGE PIT
MT. ANGEL-SCOTTS MILLS RD. N.E.
FRANZ NEFF
DAIRY LAYOUT
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Designed
Drawn M. GRAHAM 7/90
Traced
Checked
Approved by
Title
Sheet No. of
Drawing No. 90-040-C
SCS-ENG-313A REV 8-75

Oregon
Theodore R. Kulongoski, Governor

Department of Agriculture
635 Capitol Street NE
Salem, OR 97301-2532

August 18, 2008

Ernie Neff
Neff Dairy
17769 Mount Angel-Scotts Mills RD
Silverton, OR 97381

RE: Animal Waste Management Plan (AWMP) review; MA **#63173**

Dear Mr. Neff:

On December 29, 2005, the Oregon Department of Agriculture (department) received an AWMP for your CAFO dairy facility located at 17769 Mount Angel-Scotts Mills RD in Silverton, Oregon. We have completed our review of your AWMP, and our conclusion follows.

AWMP Status: Approved.
The AWMP you provided was logged into our files as **#05237**. The AWMP has been reviewed and is hereby approved. Please find enclosed the AWMP review memo.

Construction Status: None proposed at this time.
All construction of substantial manure system structures requires department approval prior to construction. Please apply to the department for construction approval if you plan to build manure storage facilities.

Permit Status: Active Medium Federal CAFO.
Your dairy facility is currently permitted for 950 dairy animals with a herd composition of 475 milking and dry cows and 475 heifers and calves.

The department appreciates the effort put forth to complete your AWMP. If you have any questions, please contact Tessa Koch, the area Livestock Water Quality Specialist, at (503) 510-8213.

Sincerely,

Ray Jaindl, Administrator
Natural Resources Division
PH: (503) 986-4700
FX: (503) 986-4730

Enclosures: AWMP Review Memo

cc: Tessa Koch, AREA III LWQS

RJ/tk/cd

COPY

MEMORANDUM

To: Ray Jaindl

From: Tessa Koch

Subject: AWMP pproval for Neff Dairy
MA #63173

Date: August 4, 2008

Neff Dairy is owned and operated by Mr. Ernie Neff. This dairy facility is located in Silverton, Oregon, and is currently permitted for 950 dairy animals consisting of 475 milking/dry cows and 475 heifers and calves. On December 29, 2005, Mr. Neff submitted an AWMP to the Department and was logged into our files as AWMP #05237. The dairy facility is a Medium Federal CAFO facility.

Mr. Neff's facility has covered dry storage area that holds 200 days of storage and his animal waste (3-cell) pond has over 3 months of liquid storage with the 950 animals.

The AWMP was reviewed according to OAR Chapter 340 Division 51 and department policy documents.

AWMP Minimum Required Elements	Notes
1. Summary of CAFO Operation	
a) Contact name, address, phone number	Complete
b) Facility address	Complete
c) Type of operation	
(i) Number and size of animals by species, expansion?	Complete
d) Manure, litter and process waste system – provide a general narrative description of each	
(i) Collection – How is manure, litter and process waste removed from housing, confinement lots? How is clean water diverted from storage?	Complete
(ii) Storage – Types and size of manure, litter and process waste storage tanks, ponds.	Complete
(iii) Transfer – How is manure, litter and process waste moved to storage, application areas?	Complete
(iv) Use – How is manure, litter and process waste treated (composted, separated, anaerobic digestion or storage, aeration)? How is manure, litter and process waste water used on crops? If export is utilized, describe that process.	Complete

AWMP Minimum Required Elements	Notes
2. Specific descriptions and calculations	
a) A description of production area and land application locations	
(i) Aerial photo or topographical map showing numbered field locations, production area facilities, clean water diversions, and surface water features.	Complete
(ii) Soil maps of all application fields, including those not owned, and map unit descriptions. Indicate areas with application limitations.	Complete
b) Manure, litter and process waste volumes	
(i) Manure (feces and urine), litter and process waste output that is collected and stored in this system.	Complete
(ii) Bedding added and collected.	Complete
(iii) Process and wash water collected, include footbath use when appropriate.	Complete
(iv) Silage and feed processing leachate.	Complete
c) Contaminated storm water	
(i) Direct rainfall into storage.	Complete
(ii) Slab or lot runoff collected.	Complete
(iii) Overflow from gutters or other diversions.	Complete
d) Nutrient content of manure, litter and process waste water	
(i) Content and volume of nutrients in manure, litter and process waste generated – can come from NRCS Animal Waste Field Handbook (chapter 4)), land grant university publications, or analyses of manure, litter and process waste. Actual test values are required of large CAFOs.	Complete
e) Farm nutrient balance	
(i) Show amount of nutrients (N, P, K) generated, lost in storage, lost during application, used by crops, and/or exported off the farm on an annual basis.	Complete
(ii) Nutrient application must balance to most limiting nutrient as determined by NRCS Agronomy Technical Note #26 and the NRCS Phosphorus Index.	Complete
(iii) Include all acres required to balance nutrients owned or leased by the operator.	Complete
f) Application schedule and limitations	
(i) Show scheduled applications of solids and liquids. Include date, amount and method of application to identified fields. Describe calibration of equipment used to apply manure, litter and process waste water.	Complete

AWMP Minimum Required Elements	Notes
(ii) Describe limitations to manure, litter and process waste applications. Indicate buffer areas and management to avoid saturated soils. Justify buffer width and management. If application to frozen soil is planned, include field descriptions, specific management/structural practices, monitoring and record keeping.	Complete
(iii) Using agronomic rates, application limitations, and scheduled applications, calculate the minimum storage required for liquids and solids.	Complete
(iv) How is irrigation water managed relative to manure, litter and process waste water application? Include general timing and application rates of irrigation water. Irrigation water management must not allow leaching of soluble nutrients or runoff.	Complete
g) Animal mortality management	
(i) Describe how the farm handles mortalities.	Complete
h) Operation and maintenance	
(i) Include operation and maintenance narrative for structural and mechanical components included in this plan.	Complete
3. Record keeping and reporting requirements	
a) Testing – Monitoring	
(i) Include the protocol for testing manure, litter and process waste.	Complete
(ii) Include the protocol for testing and measuring crop nutrient removals.	Complete
(iii) Include the protocol for soil testing to evaluate nutrient application and crop uptake.	Complete
b) Record keeping. Include the following:	
(i) Date and amount of manure, litter and process waste applied by field. Calculate N and P applied.	Complete
(ii) Manure, litter and process waste volume exported.	Complete
c) Reporting to Oregon Department of Agriculture	
(i) Any discharge within 24 hours.	Complete
(ii) Amount of manure, litter and process waste applied annually.	Complete
(iii) Amount of manure, litter and process waste exported annually.	Complete
4. Additional requirements for Large CAFOs	
a) Inspections	
(i) Check storm water diversions, runoff diversions, waste transport, storage structures, storage structure volume weekly.	Complete
(ii) Check water lines daily.	Complete

AWMP Minimum Required Elements	Notes
(iii) Check for application equipment leaks periodically.	Complete
b) Record keeping	
(i) Results of daily inspections.	Complete
(ii) Results of weekly inspections.	Complete
(iii) Results of periodic inspections.	Complete
(iv) Corrective actions taken, explain those not corrected.	Complete
(v) Expected crop yields if not in the plan.	Complete

Recommendations

The AWMP provided by Mr. Neff is considered complete. Based on my working knowledge of Neff Dairy and the information provided, I recommend an approval of this AWMP.

Attention Debbie Gorham,

October 13,2005

This is a note requesting you to please re-submit our last Dairy CAFO plan.

Any questions call, 503-873-8860

Kellyann Neff

Neff Dairy Inc. Kellyann Neff

MA #63173
Plan #05237

EMERGENCY RESPONSE PLAN

In Case of a Storage Facility Spill, Leak, or Failure

a. Stop all other activities to address the emergency.
b. Stop all flow into the storage facility.
c. If the storage facility is at maximum capacity or overtopping, draw the waste level in the facility down by making an application to the emergency application area shown on the plan map in accordance with the Waste Utilization specifications found in the Section 11 of this plan.
d. Assess the extent of the emergency and determine how much help is needed to correct the problem.
e. Call for help & excavator if needed.
f. If possible, use a skid loader or tractor with blade to contain or divert spill or leak away from environmentally sensitive areas.
g. If containment material is needed, excavate soil from appropriate areas away from the storage facility.
h. If possible, begin applying the stored waste to the utilization fields at the prescribed application rates described in Section 6 of this plan.
i. Complete the clean-up and repair the necessary components.

In Case of a Manure/Waste Discharge

a. Stop all other activities to deal with the emergency.
b. Call for help if needed.
c. Call sheriffs office if spilled on road for traffic control and clean the spill immediately from the road and roadside if needed.
d. Contain the spill or runoff from entering the stream or waterway using straw bales, saw dust, or soil material.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and determine how much help is needed.

Contacts to be made within 24 Hours of a Discharge

(SEE NEXT PAGE FOR REQUIREMENTS FOR FILING A WRITTEN REPORT)

Organization	Phone
Oregon Department of Agriculture	**1-503-986-4700**
Oregon Emergency Response System (ORES)	**1-800-452-0311**

Be prepared to provide the following information:

a. Your Name (See next page)
b. Farm Identification (See next page)
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Has manure reached surface waters or major field drains?
f. Is there any obvious damage: employee injury, fish kill, or property damage?
g. What is currently in progress to contain situation?

EMERGENCY RESPONSE PLAN

Emergency Contact Information

Farm Name	~~AJ Dairy LLC~~ Neff Dairy
Address	~~16155 Marquam Rd.~~ ~~Mt. Angel, OR 97362~~
Farm Phone	~~(503) 634-2632~~ 503-873-6079
ODA CAFO Permit #	~~32100~~ 63173
DIRECTIONS TO FARM	From Interstate 5 take exit 271 and travel east 1 mile to N Settlemeir-Boones Ferry Road. Turn right on N Settlemeir Road and travel 0.3 miles southeast to Garfield Street. Turn left on to Garfield Street and travel 1 mile southeast to State Highway 214. Keep straight on to State Highway 214 and travel 3.5 miles southeast to Woodburn-Monitor Road. Bear left on to Woodburn-Monitor Road and travel 1.75 miles southeast to Monitor. At Monitor turn right on to Meridian Road and travel 0.6 miles to Koster Road. Bear left on to Koster Road and travel 0.75 miles to Dominic Road. Turn left on to Dominic Road and travel 0.1 miles to Wagon Road. Keep straight on Wagon Road and travel 1 mile to E Marquam Road. Turn Right on to E Marquam Road and travel west 0.3 miles to AJ Dairy which will be on your left.

Emergency Phone Numbers:	
Farm Owner	~~(503) 634-2632~~ 503-873-6079
Farm Manager	~~(503) 634-2632~~ 503-873-8860
FIRE or AMBULANCE	**911**

If a Discharge Occurs a Written Report is to be made by the Owner or Operator to Oregon Department of Agriculture within 5 Days that contains the following information:

a. A description and cause of the discharge.
b. The period of discharge including exact dates, times and duration of discharge.
c. An estimate of discharge volume.
d. Name or location of receiving water.
e. Corrective steps taken, if appropriate, to reduce, eliminate or prevent reoccurrence of the discharge.

Neff Dairy
Manure Management Plan

Current Manure Management
Note: See facility map and ORAWM for additional information. This waste management plan is estimated on a nitrogen basis.

Emergency Action Plan
In an event that there is a purge or leak in the liquid manure storage facility or in the transfer piping system the first order of business is to quickly identify location of leakage. Secondly if the leak is at a controllable volume then absorbent material should be poured on top of spillway, ex. (straw or paper pulp).
If repairable by simple means repair damage to the holding structure.
If water level in lagoon is about to crest and emergency application is needed the owner states that field #4 in Tract 2138 is available.
This also includes any incidents dealing with solid manure which may accidentally enter non targeted application areas.
After situation is under control or when time allows, contact the Oregon Department of Agriculture CAFO inspector within 24 hours and inform of situation. Your inspector can be contacted at 503-986-4700.

Cow numbers. . The predominately Holstein herd with is comprised of 405 milk cows, 70 dry, 238 heifers, and 237 calves. The milking cows are confined year round. The dry cows and heifers are in a confinement and pasture system which is determined on climatic conditions throughout the year. They are grazed ~183 days in the spring and summer months, The dairy cows and heifers are housed in freestalls with composted manure mixed light with paper pulp bedding material on concrete floors. The calves are housed in an adjacent structure next to the silage pits with chopped straw bedding on dirt floors. All adult animals are fed a total mixed ration that includes alfalfa hay, oat hay, grain, corn silage, and grass silage.

Buildings
All buildings are cleaned using a recycled flush and dry scrape method. Once daily the alley ways are flushed and manures are directed at the north end of the barns into a below ground reception tank.

Solids from the hospital and calf pens are put into the solid storage facility and composted as well. Less than 1 percent of this material is applied to the acreage in a solid spreader wagon. This would be any excess solid manure from the before mentioned areas that were not added to the solid storage pad. These solids are applied in a random fashion in all fields but there is not enough volume that makes a significant change in manure application management decisions. This is done in the winter time seldom, but field location of application is again chosen from manure application records and historical characteristics of the ground that is known by owner.

Milk House Waste/Manure Transfer
Please view "Neff Dairy 2005 Site Map" to view how milk parlor wash water enters the outside manure tank and storage pond. Liquid manures consist of parlor wash down. This also includes cleaning out the holding pen as well as the walkway adjacent to the holding pen. If you follow the map from the red colored milking parlor you will see that wash/manure are gravity fed and recycled flushed into the reception tank at the north end of the alleyway. This tank measures 40'x 15'x 8'. When this tank becomes full with liquid, it is pumped into a 5" pipe that flows towards the liquid manure 9 acre foot waste storage pond. Liquid slurry is then pumped over a drag chain style separator. This facility also can utilize the original 7 acre foot storage pond as well, giving this facility 16 acre feet of liquid manure storage.

Waste Storage Facility - Pond
Manure application goals are to start manure application in the spring ~ February to the pastureland to get liquid level down in the lagoon. Break from manure application late March or early April until early fall ~late August or early

September. The goal then is to apply liquid manures on pasture ground and lands that will be planted with a winter crop ex. rye grass until the lagoon is low enough or empty by mid October to start storage time through the winter months. Liquid storage period begins mid October and goes to February. The liquid storage facility has ~90 days of storage. Also using Chapter 10 "Agricultural Waste Management System Component Design" it was determined as well that this facility had ~71 days of liquid storage.

Roof Runoff Structure
All buildings are guttered and down spouted to divert clean water away from the liquid storage facility.

Silage Leachate Collection/Manure Transfer
A silage liquor runoff collection system is located at a small sump pit in the bunkers. Then, the silage leachate is directed via underground pipe just near the milking parlor close to the holding pen. These fluids blend with the parlor wash down and other water usage as it drains down the alleyway and into the below ground reception tank.

The leachate will be collected from May, when the silage bunker is first filled, through the October corn silage period, and end in January.

Manure Application/Nutr. Mgmt/ Waste Util
Liquids are transferred from the lagoon using two 30 hp pumps into 4" mainline pipe. From the 4" pipe, the line is fed into different lines which have riser outlets which is then hooked up to the traveling manure gun. Traveling manure gun has a ~250 foot spread diameter.
Please view "Neff Dairy 2005 Buried Mainline Map" to view the extensive mainline on this facility. There is also permanent piping under Scotts Mills Hwy which end with a riser so that manure application can be done in field #4. From the riser, hand line can be added for sprinkler or big gun application. Manure application goals are to start liquid manure application in the spring ~ February to field's # 3,2,1 to get liquid levels down in the lagoon. Cease liquid manure application in late March or early April until early fall ~late August or early September. Then liquid manure application would continue until lagoon levels are sufficiently low enough at the owner's preference. Irrigation water is occasionally used to dilute the liquid in the summer and irrigate the corn silage fields.

The goal of the Neff Dairy is to apply liquid manures agronomically so that fields receive adequate crop uptake of nutrients to match yield demands and also guaranteed liquid storage during the winter months.

Fresh Water Irrigation
Fresh water irrigation must be monitored as well, although no record keeping is required. Operator will ensure that freshwater irrigation does not lead to full saturation of the soil, thus eliminating a possibility of impervious surface runoff into waters of the state. Please view "Neff Dairy 2005 Buried Mainline Map" to view fresh water irrigation mainline.

Waste Storage Facility/Manure Dry stack
The dry stack facility (50'x 50'x 6') is adjacent to the 9 acre foot lagoon on this dairy facility. It receives the solids from the drag chain style solid separator which is rated at about 25% solid separation under normal working conditions. The facility is uncovered and rain runoff waters are directed back into liquid storage so no impervious surface runoff is occurring. Also using Chapter 10 "Agricultural Waste Management System Component Design" it was determined as well that this facility had ~52 days of solid storage.

The Neff Dairy does realize that some of their soil P levels are elevated and some changes may need to be implemented to correct this in aiming that these levels be on a downward direction for accumulation. Some plans the Neff's are considering are:

- Double cropping in winter with a different variety to utilizes P more.
- Monitor application rates and location so that a double application in one field does not occur.
- Yearly soil sampling on fields with elevated P levels.

The Neff's agree that this is just a start in the plans that they choose to help lower P levels in the field and will monitor the reaction to these changes and implement further ones if P levels are not in decline. Furthermore, forage sampling could be done to get an idea of nitrogen and phosphorus levels pre feeding which could tell a great deal about the soil sample results.

Streamside Field Border
There is an environmental concern near the pasture north of the dairy facility which is Butte Creek. View "Neff Dairy 2005 Nutrient Awareness Map". Also there is another seasonal creek that runs from south to north adjacent to the dairy facility. Next section will address these issues further.

Manure Application Concerns
Fields #1 and #2 Tract #2138. This property is located in a lowland area and also is the throughway for the seasonal creek. Dairy operators have always held to the restriction of not applying manure in close proximity to the creek and have maintained a 30' buffer zone to ensure no surface runoff. Field #3 Tract #2138. Also a 30's setback is used and there is a lot of vegetative growth from the field border and actually where Butte Creek travels through. Fields are also fenced which will deny any access of dairy animals to Butte Creek. In general, the Neff Dairy will balance manure nitrogen and crop needs based on manure tests and soil tests. Manure application rates, date, and crop for each field will be recorded to aid in balancing manure nutrients.
The Neff's will avoid applying liquid or solid manure between the months of mid October to early February. If the Neff's do apply manure during this time period, then manure will be applied to emergency application areas that have been identified in field #4. In addition, Neff Dairy will avoid spreading manure on the following areas:

- Fields that are or will be flooded
- Fields with standing water
- Fields during heavy rainfall
- Fields with more than a 15% slope
- Fields in a manner that causes ponding
- Fields in a manner that causes tile outlets to discharge manure
- Fields without a growing crop, between October 1st to April 1st
- Areas less than 30 feet from lakes, steams, ditches, wells, and concentrated flow areas

Record Keeping
Manure application record keeping is required and will be done at this facility. This will include, date of application, field # or I.D., how many solid loads or how many hours for traveling manure guns. Soil samples can be viewed in this copy of the CNMP. Other copies of records such as crops and yields, fertilizer application, annual N, P2O5 and K2O balance, internal inspections of storage and waste transfer and spills will be kept in the dairy office compiled in the owner's copy of the waste management plan.

Operation and Maintenance

Pond/Waste Storage Facility
Maintain all piping, pump, valves, and other electrical and mechanical equipment in good operating condition following the manufacturer's recommendations. Immediately repair any vandalism, vehicular or livestock damage to any earth fill. Settlement or cracks in the earthen sections should be investigated to cause and immediately repaired. Eradicate or otherwise remove all rodents or burrowing animals and repair any damage caused by their activity. Prior to the storage season ~ October 15th, empty the pond to provide storage capacity for the accumulation of animal wastes and precipitation during the storage period. Maintain vigorous growth of vegetative coverings. Fences and or warning signs shall be maintained to provide warning and or prevent unauthorized human or livestock entry. Operate systems in a manner that minimizes odor and air drift.

Waste Storage Facility
The manure solids dry stack will be emptied or reduced by mid October of every year, to provide the full storage amount for the rainy season. Any equipment damage to the structure will be repaired immediately. Concrete will be check for accelerated weathering, spalling, or cracks and immediately repaired.
Roof will be inspected annually. All rusted sections will be repaired and or replaced. Loose sections will be secured. All broken trusses, rafters, beams, poles, gutters and downspouts will be repaired and or replaced.

Pipeline
Pipeline route and water line will be inspected periodically for leaks. Any leaks and or broken pipes will be repaired and or replaced. Line will be flushed periodically to assure no sediment buildup in lines. Water will be drained during cold weather to prevent frozen lines and possible breakage. Shut off valves will be inspected annually. Broken valves will be replaced.

Concrete Gutters/Manure Transfer
Floor gutters and grates will be inspected periodically. All foreign material restricting manure flow will be removed. Broken floor gutters will be repaired and or replaced.

Concrete Curb/Manure Transfer
Concrete curbs will be inspected periodically. Broken curbs will be repaired. Manure will be prevented from flowing over the curb.

Pump/Manure Transfer
Pump will be operated and maintained according o manufacturer's manual. Liquids will be drained from pump during freezing weather. Pump will be inspected periodically to prevent debris from wrapping around the impeller. Broken lines will be replaced or repaired. Loose connections will be tightened.

Pipeline/Manure Transfer
Pipeline will be flushed regularly to prevent clogging. Any leaks or broken section will be repaired and or replaced.

Traveling Manure Gun/Manure Transfer
Manure gun will be operated and maintained according to manufacturer's manual. Liquids will be drained from gun during freezing weather. Nozzle will be checked periodically. Worn nozzles and or pipes will be repaired or replaced.

Roof
Roof will be inspected annually. Al rusted sections will be repaired and or replaced. Loose sections will be secured. All broken trusses, rafters, beams, poles, gutters and downspouts will be repaired and or replaced.

Trough or Tank
Watering facility will be inspected periodically. Damaged facility will be repaired. Float valves will be maintained in working order. Area immediately around the facility will be maintained in a stable condition.

Access Road
Promptly repair or replace damaged components as needed. Remove debris and litter from roadway surfaces, road ditches and drainage facilities. Maintain drainage facility capacities. Maintain good vegetative cover on all slopes and watercourses.

Roof Runoff Structure
Gutters will be inspected annually to insure all gutters are free of foreign materials. Broken gutters or downspouts will be replaced and or repaired. All gutters will be connected to downspouts. Leaky gutters and downspouts will be repaired. Weeds and sediment will be removed from outlets. All downspouts will be connected to outlets, which are kept free flowing. Broken rodent guards will be repaired or replaced.

Subsurface Drainage
Tile drainage system will be inspected annually. Outlets will be kept free of vegetation and sediment. If erosion is occurring at the outlet, it will be corrected. Damaged or broken lines will be replaced or repaired. Damaged or broken rodent guards will be repaired and or replaced. Rodents, such as moles, will be controlled. Heavy equipment traffic over the drainage tile will be avoided during times when the soils are saturated.

Underground Outlet
Gutter outlets will be inspected annually. Outlets will be kept free of vegetation and sediment. If erosion is occurring at the outlet, it will be corrected. Damaged or broken lines will be replaced or repaired. Damaged or broken rodent guards will be repaired and or replaced.

Channel Vegetation
Periodically inspect and evaluate channel vegetation to determine maintenance needs. Manage vegetative growth, as applicable, by mowing, controlled grazing, and integrated pest management or other means to maintain the desired cover.

Monitoring and Performance Standards

Neff Dairy will follow these recommended practices to monitor the performance of the manure application to the cropland and pasture.

- Test soil nitrates in manured fields after crop harvest or last cutting to determine whether nutrients were applied at correct amounts. The soil test goal is 55 pounds or less of soil nitrate (15ppm). Over 100 pounds of soil nitrate (27ppm) is excessive and the Neff Dairy should reduce manure applications, increaser crop yields, change crops, or make other adjustments.
- Soil sampling was done 11/28/05 and records are kept in with this manure management plan.
- Soil testing will be done annually in the fall for soil phosphorus amounts. Samples will be taken from soil sample areas # 2, 3.
- Record keeping of manure application.

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

NUTRIENT MANAGEMENT SPECIFICATION SHEET
CODE 590

Landowner/Operator: Neff Dairy

Job Location: T 6S, R 1E, Sec 6

County: Marion SWCD Marion County Farm/Tract No. 2138

Field No. 1-4

Prepared By: Hendrickson Date: 12/5/05

Purpose:

☐ To budget and supply nutrients for plant production.

☐ To properly utilize manure and organic by-products as a plant nutrient source.

☐ To minimize agricultural non-point source pollution of surface and ground water resources.

☐ To maintain or improve the physical, chemical and biological condition of soil.

Specifications:

☐ Manure is applied to the surface of permanent pastures in accordance with the enclosed Waste Utilization Conservation Practice Jobsheet.

☐ A target yield of 6 tons of dry matter per acre per yield for pasture and grass silage and 34 wet tons/acre for corn silage is planned to utilize the nitrogen in the manure and/or commercial applied fertilizer.

☐ Manure and commercial fertilizer is applied in accordance with soil tests.

☐ Manure and/or commercial fertilizer is applied in split applications.

☐ Soil tests are taken at least every 5 years.

☐ Manure test are taken every 5 years. Samples will be collected from the equipment that applies the manure and wastewater to the fields.

☐ No more than 307 lbs. of nitrogen is applied per acre per year in accordance with the below Nutrient Distribution, Soil and forage tests will be used to justify the rates.

Manure Application Equipment to be used:

~400 -1,000 lb. animal units
Big Gun Traveller

Manure Nutrient Distribution

Landowner: Neff Dairy **Date 12/5/05**

			Grazing		Solids			Liquids (Spreader)			Liquids (Pumping)			
Tract	Field #	Grazing Cycles /YR	# N supplied by grazing/ field/yr	# of N supplied by grazing/ ac/yr	Loads of solid/yr	# of N per field/yr solids	# of N per from solids	Loads of Liquids/yr	# of N per field/yr liquid	# of N per ac/yr from liquid	Hours of Pumping	# of N per field/yr liquid	# of N per ac/yr from liquid	Total # of N per ac/yr
2138	1	0	0	0	0	0	0	0	0	0	36	2541	123	123
2138	2	9	2279	124	0	0	0	0	0	0	34	2649	81	205
2138	3	9	5642	105	0	0	0	0	0	0	104	7292	117	222
2138	4	9	2930	133	0	0	0	0	0	0	36	2498	41	174
	Totals		10850		0	0		0	0		210	14980		

NOTE: For Farm Summary of all tracts you must highlight desired cell ranges go to Edit/Copy then click on the Summary Tab and click on Edit/Paste Special/ and under Paste select values/OK

Records are maintained of manure and or/or commmercial fertilizer applications.

Nutrient management plans are reviewed annually and adjustments are made as needed.

Manure is not applied within 30 feet of an open watercourse.

DESIGN APPROVAL:

Practice Code No.	Practice	Leand Discipline	Controlling Factor	Units	Job Class				
					I	II	III	IV	V
590	Nutrient Management	CED-EE& BCSD-Agron	Area	Acres	160	320	640	All	All

This practice is classified as Job Class II

Design approved by: /s/ Date:_____

Job Title:

CLIENTS ACKNOWLEGEMENT STATEMENT:

The client acknowledges that:

a. They have received a copy of this specification and under-stands the contents and requirements.

b. The following information must be provided NRCS by the client before this practice can be certified as applied:

☐ Nutrient management application records including soil, water, plant and organic by-product test results.

☐ Documentation showing amount, rate, form and application method of nutrient applied

☐ Annual review of nutrient management including adjustments made.

c. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.

d. Maintain records of nutrient application as required by state and local regulations.

Accepted by:/s/ Ernest Neff Date: 12/28/05

CERTIFICATION;

I have completed a review of the nutrient management and the specification's application and certify this practice has been applied.

Certification by:/s/ Ernest Neff Date: 12-28-05

Job Title: owner

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Waste Utilization

Conservation Practice Jobsheet

633 OR-JS

Natural Resources Conservation Service, Oregon — February 2002

Client Neff Dairy Inc. Date December 7, 2005

Definition

Waste Utilization is the beneficial use of agricultural wastes such as manure and wastewater or other organic residues.

Purpose

The ultimate purpose of waste utilization is to insure the proper use of agricultural wastes while protecting soil, water, air, plant, and animal resources. Agricultural wastes can be used to provide nutrients for crops, forage, and fiber production and forest products. Agricultural waste also can be used as an amendment to improve or maintain soil structure, provide feedstuff for livestock, or provide a source of energy. The focus of this job sheet will be the use of agricultural wastes to provide fertility for crops, forage, and fiber production and forest products; and to supply organic material to the soil.

Where used

Waste utilization is used where agricultural wastes (primarily animal manure and polluted runoff from livestock and poultry operations) are generated and collected as part of a resource management system. Wastes can be used as a source of fertility on cropland and pastureland, and occasionally on forest land or rangeland. Use of the Soil Condition Index (SCI) can be used to determine the effects of organic material on soil quality.

Conservation Management Systems

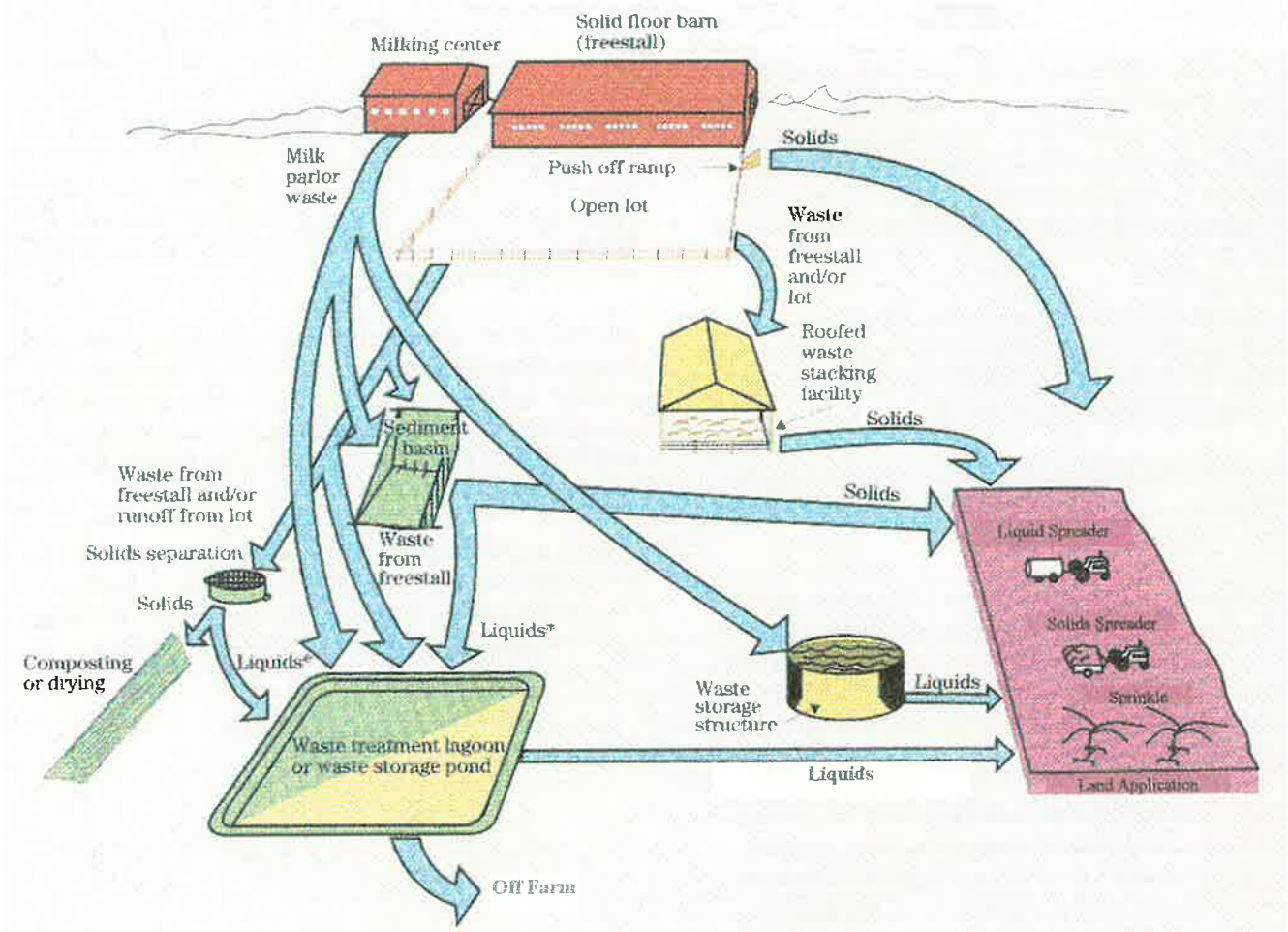
Waste utilization is generally one of several components of a resource management system used to manage manure and polluted water from livestock and poultry operations. Where the wastes are used to supply the fertility needs of crop and pasture, waste utilization is done as part of an overall resource management plan for the enterprise.

Waste Utilization Planning

Waste utilization components of the conservation plan will contain the following information:

- field map and soil map
- crop rotation or sequence
- results of soil, water, plant, and organic material samples analyses
- expected yield
- sources of nutrients to be applied
- nutrient budget, including credits of nutrients available
- recommended nutrient rates, form, timing, and method of application
- location of designated sensitive areas
- guidelines for operation and maintenance

Waste utilization is most effective when used with other conservation practices such as cover crop, residue management, conservation buffers, irrigation water management, nutrient management, pest management, and conservation crop rotation.



* Liquids from lot runoff discharged to waste storage pond only

Schematic of a Resource Management System for a Dairy

Operation and maintenance

Operation and maintenance activities shall include record keeping for 5 years or longer that includes the following:

- Quantity of manure and other agricultural wastes produced, and their nutrient content.
- Soil test results.
- Dates and rates of waste application where land applied, and the dates and amounts of waste removed from the system due to feeding, energy production, or export from the operation.
- Waste application methods.
- Crops grown and yields (both yield goals and measured yield).
- Other tests as needed, such as determining the nutrient content of the harvested product.
- Calibration of the application equipment.
- Changes in soil condition(SCI).
- Plan map showing fields where waste is applied.

Specifications

Site specific requirements for waste utilization are listed on specification sheets. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See NRCS practice standard, Waste Utilization, code 633. Use NRCS's Agricultural Waste Management Field Handbook or locally accepted references for procedures to calculate values such as residual nitrogen from past waste applications, and to estimate available nutrients in wastes where lab analyses are not available.

Natural Resources Conservation Service, Oregon February 2002

WASTE UTILIZATION SPECIFICATION SHEET

Client: Neff Dairy Inc.

Location: T 6S, R 1E, Sec 6

County/SWCD: Marion Farm/Tract No: 2138

Prepared By: Jim Hendrickson Date: December 7, 2005

Perform the following operations:
❑ Have your technical assistance provider review the resource management system plan for your operation at least once every 5 years.
❑ Maintain records for all waste applications.
❑ Calibrate application equipment to apply wastes in accordance with the recommended amount and timing specified on the nutrient budget specification sheet, NRCS practice code 590, for the crop being grown.
❑ Chemical analysis of soils, plant tissue and waste should be used annually to monitor and adjust amounts of waste applied. Refer to Oregon State University Extension Service publication EC1478, "Soil Test Interpretation Guide" for guidance in getting soil tested and interpreting soil test results. Refer to Oregon State University Extension publication EM8585, "Manure Application Rates for Forage Production" and EM8768, "Calculating Dairy Manure Nutrient Application Rates" for guidance in getting animal waste tested for nutrient concentrations and computing application rates.
❑ Apply waste in a manner that will cover no more than 25 percent of the leaf surface with solids unless clean water applications are planned immediately after wastes are applied. For pasture/hayland it is best to apply waste 7 days after harvesting forage by haying or grazing.
❑ To reduce odor problems, apply waste in mid morning when temperatures are warming and air is rising rather than in the afternoon or evening when air is cooling and settling. Avoid applications during periods of fog.
❑ Do not apply waste directly into an open watercourse or where waste is likely to enter an open watercourse. Observe all waste application setbacks identified in the resource management system plan.
❑ Do not apply waste to fields where there is no growing crop. If applications are needed during fall and winter periods due to unforeseen circumstances, such as the storage facilities being full, use the following guidelines for waste applications: a) Only spread waste on fields that are growing a crop, preferably grass. b) Increase all waste application setbacks identified in the resource management system plan by 50 feet. c) Don't apply waste during any rainfall event that will cause runoff. d) Use maximum travel rates for the traveling big gun sprinkler and solids spreader. e) Use soil tests, such as the Pre-sidedress Soil Nitrate test, to determine if additional applications of waste are needed on those fields receiving emergency winter applications.
❑ Do not apply waste to fields with frozen or snow covered soil conditions unless provisions are made to control runoff.
❑ Do not spread waste on fields where soils are saturated, ponded, flooded and/or during times when waste is likely to runoff into open watercourses.
❑ Be aware of the location of sensitive areas, concerns of neighbors or concerns of the public which require special application procedures
❑ Handle all waste material with caution. Wear appropriate protective clothing.
❑ Clean up residual materials from equipment and dispose of properly.
❑ Equipment used in waste utilization should be regularly inspected and maintained as needed in accordance with equipment operation and maintenance guidelines from the manufacturer or provided by NRCS.
Additional Guidance and Notes:

Animal Waste Management Plan
Minimum Required Element

Irrigation Water Management

Management of Irrigation Water for:

Neff Dairy

During the growing season, irrigation water will be applied according to the volume of water to be applied, the frequency of application, soil infiltration and permeability, and the capacity of the irrigation system.

No irrigation water and/or wastewater will be applied to saturated or flooded soils. Special care is needed when irrigation water and/or wastewater is applied to the fields immediately adjacent on either side of waterways because these soils have slow infiltration rates and occasional flooding. Application rates will be no more than 2 inches irrigation water per hour and will be considerably less, particularly in the fields located near open waterways. In all fields, irrigation water and/or wastewater will be applied at rates that minimize transport of sediment, nutrients, and chemicals to surface waters and that minimize leaching of nutrients and chemicals to groundwater.

To maintain manure pond storage capacity, irrigation water may occasionally be added to the storage pond to suspend settled solids and pump the suspended solids onto the fields during the growing season. Application rates shall not exceed soil infiltration rates or crop requirements for nitrogen and shall avoid nutrient leaching to groundwater and runoff to surface water.

Signature of Legally Authorized Representative: Ernest Neff

Print Name: Ernest Neff Date: 12/28/05

Neff Dairy 2005 Tile Map

Neff Property

Tile Lines

Aerial Photograph Provided by Marion County Farm Service Agency.

T2138

N

This acreage is for FSA program purposes only. No warranty is made for any other use.

NEFF DAIRY 2005 BURIED MAINLINE MAP

Manure Buried Line

Manure Buried Line

Freshwater Buried Line

Neff Property

Aerial Photograph Provided by Marion County Farm Service Agency.

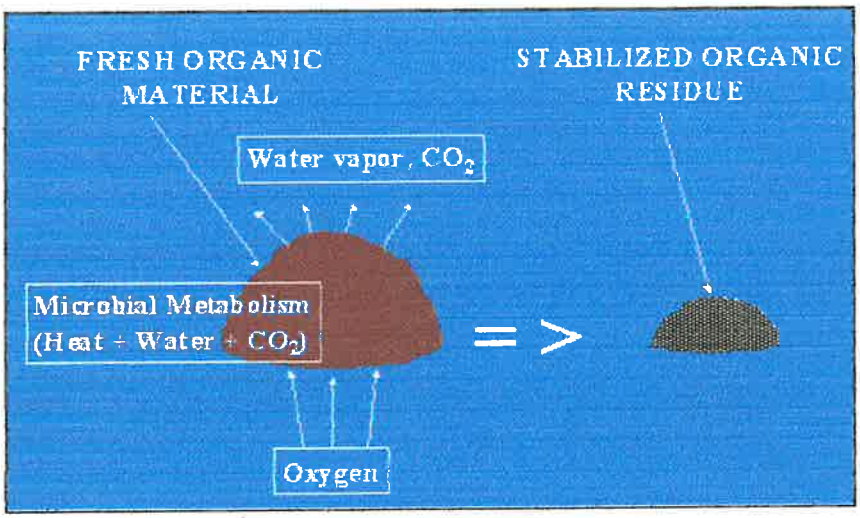
T2138

N

This acreage is for FSA program purposes only. No warranty is made for any other use.

Mortalities

Mortalities are handled at the Neff Dairy in a composting fashion located on the solids storage facility concrete curbed pad. Owner states that this process works really well and the animal is fully composted. This operation uses the solids from the separator and covers the animal very similar to the below pictured diagram.



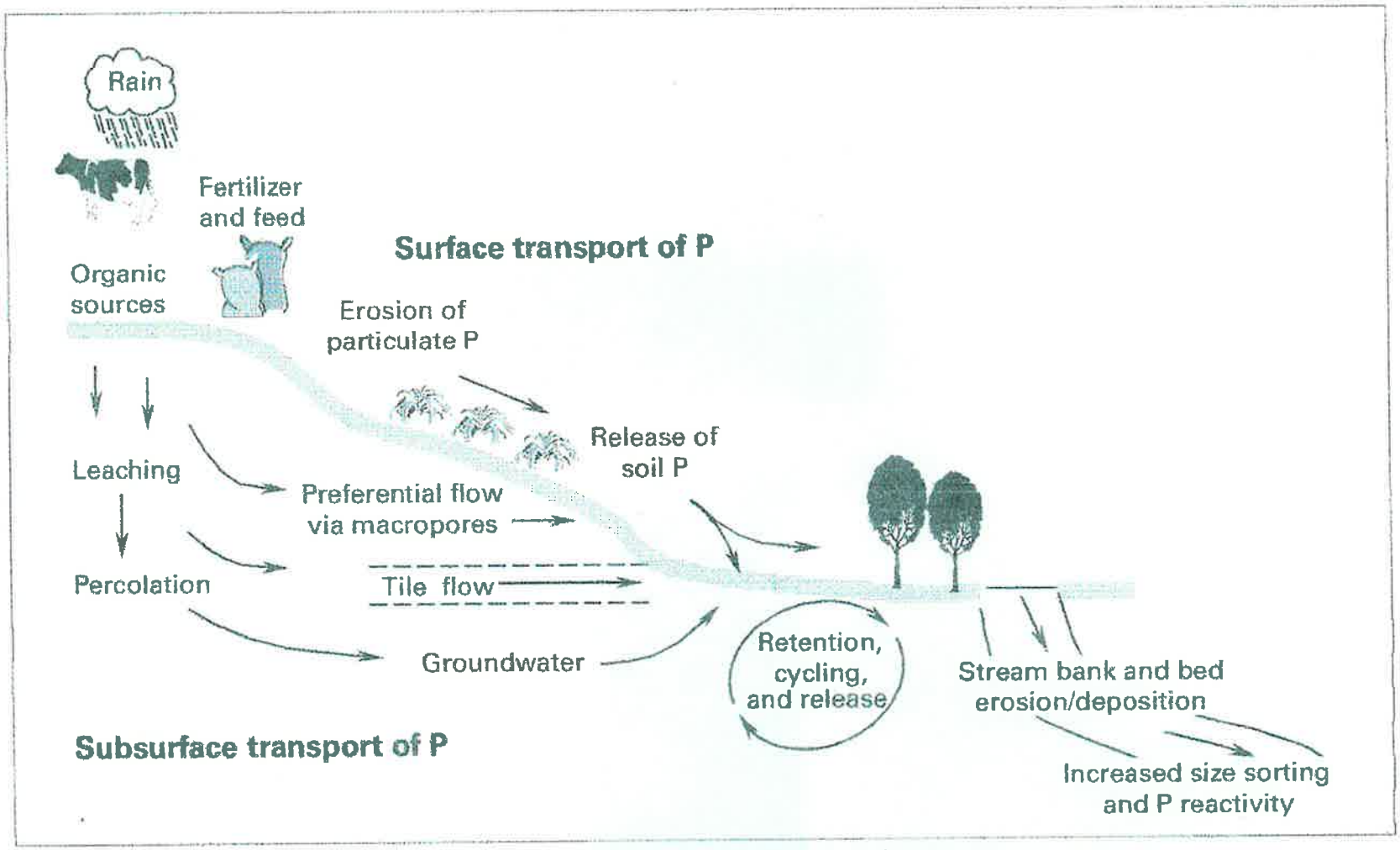


Figure 34-11. Factors affecting P transport to surface waters in agricultural ecosystems.

clean, plastic container. An 8- to 10-foot section of 0.5- to 0.75-inch plastic pipe can also be used: extend the pipe into the pit with ball plug open, pull up the ball plug (or press your thumb over the end to form an air lock), and remove the pipe from the manure, releasing the air lock to deposit the manure in the plastic container.

Lagoon sludge. Lagoon sludge is somewhat more difficult to obtain a representative sample. Two common methods are used. One method requires lagoon pumpdown to the sludge layers. Then, during sludge agitation, a

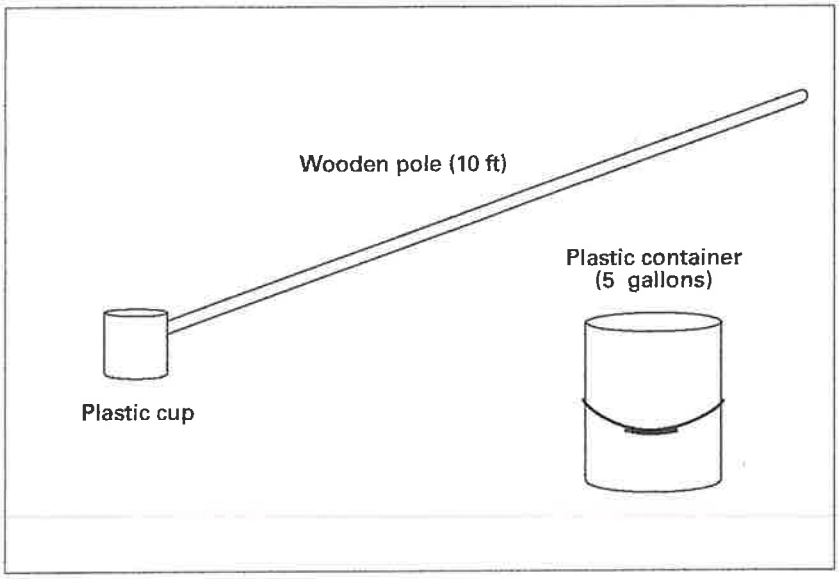


Figure 35-1. Liquid manure sampling device.

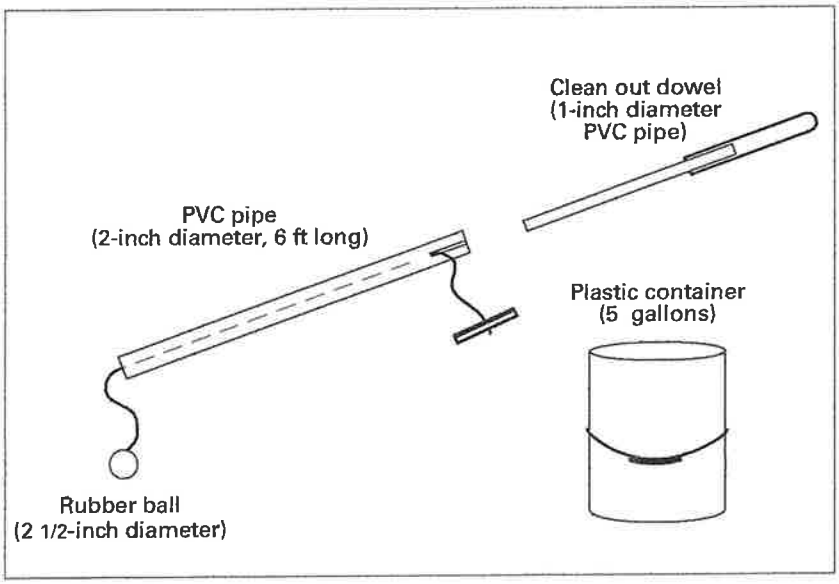


Figure 35-2. Composite sampling device.

liquid or slurry type of sample described above may be collected. The other method requires insertion of a probe to the bottom of the lagoon to obtain a column of material. A "sludge-judge" is a device commonly used for this type of sampling. The sludge component of this column is then released into a clean plastic bucket, and several (12-20) other sampling points around the lagoon are likewise collected to obtain a composite, representative sample. This procedure must be performed with a boat or mobile floating dock.

For analysis, most labs require at least 1 pint of material in a plastic container. The sample should not be rinsed into the container because doing so dilutes the mixture and distorts nutrient evaluations. However, if water is typically added to the manure prior to land application, a proportionate quantity of water should be added to the sample.

Solid Manure

Solid manure samples should represent the manure's average moisture content. A 1-quart sample is adequate for analysis. Samples should be taken from approximately eight different areas in the manure pile, placed in a clean plastic container, and thoroughly mixed. Approximately 1 quart of the mixed sample should be placed in a plastic bag, sealed, and shipped directly to the lab. Samples stored for more than two days should be refrigerated. Figure 35-3 shows a device for sampling solid manure.

Solid manure samples should represent the manure's average moisture content.

Sampling within dry litter houses. Litter can be sampled in production houses prior to litter cleanouts, but care must be taken to collect a uniform sample. With a clean plastic bucket, collect 10 to 15 small samples from each house. Place the samples into the plastic bucket. Samples should be taken at the depth of cleanout, being careful not to dig into the dirt floor. Cake litter samples should be taken at the depth of cake removal. Litter samples from brooder breeder slat houses should be taken after the slat manure and litter is mixed during the cleanout process. Thoroughly mix the samples in the bucket, and place approximately 1 quart of material in a plastic freezer bag or wide mouth plastic bottle. Lastly, seal and mark the litter sample with the farm name and an identification number and/or code.

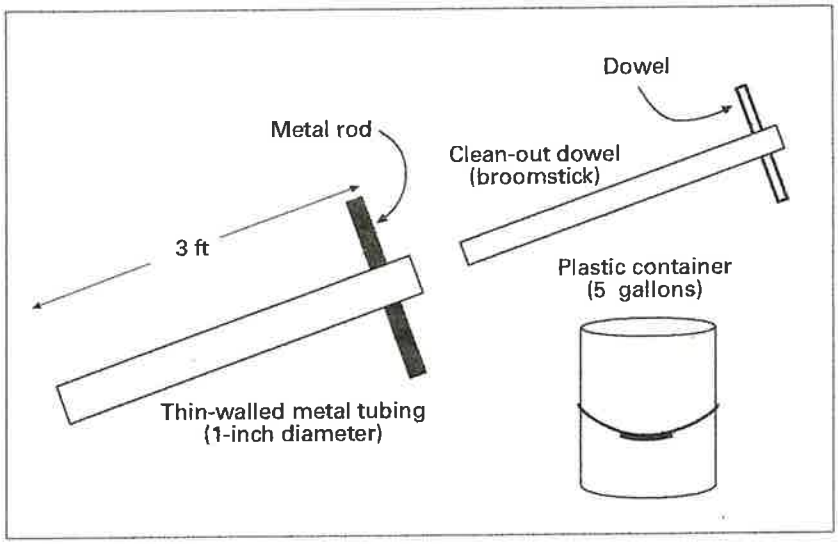


Figure 35-3. Solid manure sampling device.

A & L WESTERN AGRICULTURAL LABORATORIES

MODESTO OFFICE
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PORTLAND OFFICE
10220 S.W. NIMBUS AVE., BLDG K-9 • PORTLAND, OR 97223 • (503) 968-9225 FAX (503) 598-7702

REPORT NUMBER
05-326-041

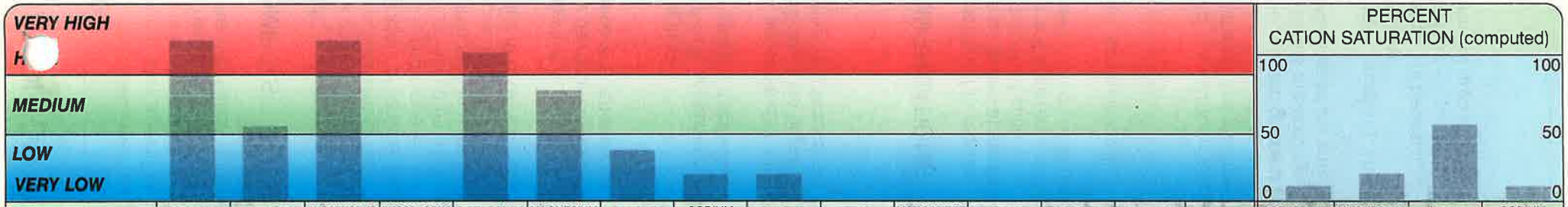
SEND TO: JIM HENDRICKSON
9665 SW ARDENWOOD ST
PORTLAND, OR 97225

GROWER: NEFF DAIRY

SUBMITTED BY:

GRAPHICAL SOIL ANALYSIS REPORT

DATE OF REPORT: 11/28/2005 LAB NO: 59207 SAMPLE ID: #1 PAGE: 1



RATING	ORGANIC MATTER %	NITROGEN NO3-N ppm	PHOSPHORUS WEAK BRAY ppm	PHOSPHORUS NaHCO3-P ppm	POTASSIUM K ppm	MAGNESIUM Mg ppm	CALCIUM Ca ppm	SODIUM Na ppm	SULFUR SO4-S ppm	ZINC Zn ppm	MANGANESE Mn ppm	IRON Fe ppm	COPPER Cu ppm	BORON B ppm		POTASSIUM K %	MAGNESIUM Mg %	CALCIUM Ca %	SODIUM Na %
TEST RESULTS	7.4	17	59	81	593	391	1801	28	3							9.3	19.8	55.2	0.7

LOW AVERAGE HIGH

ECe dS/m — INCREASING SALINITY →

16.3 CEC meq/100g

EX. LIME

6.0 pH

ACIDIC BASIC

← INCREASING NEED FOR LIME

NaHCO3-P unreliable at this soil pH

BUFFER pH: 6.3

SOIL FERTILITY GUIDELINES

CROP: RATE:

DOLOMITE (100 score)	LIME (100 score)	GYPSUM	ELEMENTAL SULFUR	NITROGEN N	PHOSPHATE P_2O_5	POTASH K_2O	MAGNESIUM Mg	SULFUR SO_4-S	ZINC Zn	MANGANESE Mn	IRON Fe	COPPER Cu	BORON B	REFER TO BACK

COMMENTS

Darcy Peebles

DARCY PEEBLES, CCA

A & L WESTERN LABORATORIES, INC.

EXPLANATION OF SOIL FERTILITY GUIDELINES

CROP

Crops are listed in the same order as they appear on the information sheet or cover letter, submitted with soil samples. If you do not specify a desired yield goal, one will be selected on the basis of the information supplied.

SOIL AMENDMENTS

DOLOMITIC AND CALCITIC LIME

Limestone recommendations are based on the SMP buffer index. Normally, they will be sufficient to raise the soil pH to 6.5. Comments will stipulate otherwise, when dealing with organic soils or acid-loving crops.
Limestone recommendations will be based on a six-inch depth of soil. If lime is to be incorporated to a greater depth, rates can be increased accordingly. However, adequate incorporation is essential to avoid localized high pH zones.
If the magnesium saturation of the soil is less than 15%, dolomitic limestone will generally be recommended. If it is greater than 15%, calcitic limestone will generally be recommended.

GYPSUM AND ELEMENTAL SULFUR

Gypsum may be recommended if soils contain more than 5% sodium saturation or more than 25% magnesium saturation.
Elemental sulfur or acids will be recommended if free lime is present or if the soil pH is considered too high.
Note that gypsum DOES NOT effectively reduce soil pH.

FERTILIZER RECOMMENDATIONS

Fertilizer recommendations are designed to provide sufficient nutrients for the crop to be grown at the desired yield level and to build toward a balanced cation exchange capacity. However, if a soil is severely deficient of nutrients, it may be economically impractical to raise levels sufficiently in one year.
If soil nutrient levels are excessive, comments will indicate this.

NITROGEN

Time of application and type of nitrogen fertilizer are two primary considerations in best management practices (BMP's).
Timing of applications should coincide with greatest crop demand, unless slow-release fertilizers are employed.
Nitrate-nitrogen is immediately available to the crop, but is also subject to leaching.
Ammonium-nitrogen is less subject to leaching, and may be considered in the fertilizer program.
Urea-nitrogen is subject to leaching until bacterial conversion into the ammonium form takes place.
Specially coated slow-release forms of urea are also available.

PHOSPHATE

Phosphate fertilization is essential for vigorous root development and early crop establishment.
Phosphate recommendations based on soil tests may sometimes seem excessive. Phosphate reserves from a greater depth may prove to be adequate, particularly in tree and vine crops. A foliar analysis is always recommended to confirm overall phosphate status.

POTASH

Potash recommendations are based on both the parts per million of potassium existing in the soil and the percent potassium saturation. Sandy soils tend to hold less potassium and a higher cation saturation percentage may be advised.
In order to avoid damage, normally no more than 20 to 40 lb of potash per acre should be banded close to seed. Further quantities may be broadcast or water-run.

MAGNESIUM

Low levels of soil magnesium may be corrected by either adding dolomitic limestone where soil pH is also low, or by adding neutral salts such as magnesium sulfate (Epsom salt) and sulfate of potash magnesia where soil pH is acceptable.
Dolomitic limestone may contain 10 to 12% Mg.
Magnesium sulfate contains 10% Mg.
Sulfate of potash magnesia contains 11% Mg.

SULFATE-SULFUR

Sulfur is absorbed by plant roots in a sulfate form (SO_4).
Note that if elemental sulfur or gypsum is recommended, there is no need to add further sulfur.
Elemental sulfur will slowly convert to sulfuric acid (H_2SO_4) through microbial action.
Gypsum ($Ca\ SO_4\ 2H_2O$) contains up to 18% sulfate-sulfur.

MICRONUTRIENTS

(Zn, Mn, Fe, Cu, B)
Recommendations for micronutrients are given in the elemental form and on a broadcast basis.
Banded applications: divide the rate by a factor of 2 to 3.
Chelated materials: follow label directions.
In many cases, the most efficient application of micronutrients is through microirrigation or foliar sprays.
Always confirm micronutrient deficiencies through tissue analysis, particularly when considering boron applications.

HOME GARDENS, TURF, AND ORNAMENTALS

Recommendations may be converted into pounds per thousand square feet when dealing with smaller areas.

lb/ac ÷ 43 = approximately lb/1000 sq ft

For additional information, refer to the A & L Agronomy Handbook

Revised 12/99

A & L WESTERN AGRICULTURAL LABORATORIES

MODESTO OFFICE
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PORTLAND OFFICE
10220 S.W. NIMBUS AVE., BLDG K-9 • PORTLAND, OR 97223 • (503) 968-9225 FAX (503) 598-7702

REPORT NUMBER
05-326-041

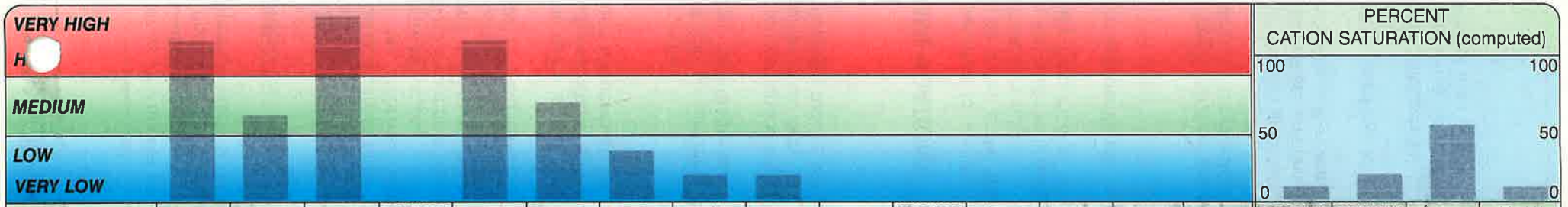
SEND TO: JIM HENDRICKSON
9665 SW ARDENWOOD ST
PORTLAND, OR 97225

GROWER: NEFF DAIRY

SUBMITTED BY:

GRAPHICAL SOIL ANALYSIS REPORT

DATE OF REPORT: 11/28/2005 LAB NO: 59208 SAMPLE ID: #2 PAGE: 2



RATING	ORGANIC MATTER %	NITROGEN NO3-N ppm	PHOSPHORUS WEAK BRAY ppm	PHOSPHORUS NaHCO3-P ppm	POTASSIUM K ppm	MAGNESIUM Mg ppm	CALCIUM Ca ppm	SODIUM Na ppm	SULFUR SO4-S ppm	ZINC Zn ppm	MANGANESE Mn ppm	IRON Fe ppm	COPPER Cu ppm	BORON B ppm		POTASSIUM K %	MAGNESIUM Mg %	CALCIUM Ca %	SODIUM Na %
TEST RESULTS	7.1	19	91	102	591	271	1400	23	3							11.6	17.1	53.6	0.8

LOW AVERAGE HIGH

ECe dS/m — INCREASING SALINITY →

13.0 CEC meq/100g

EX. LIME

5.9 pH

ACIDIC BASIC

← INCREASING NEED FOR LIME

NaHCO3-P unreliable at this soil pH

BUFFER pH: 6.4

SOIL FERTILITY GUIDELINES

CROP: RATE:

DOLOMITE (100 score)	LIME (100 score)	GYPSUM	ELEMENTAL SULFUR	NITROGEN N	PHOSPHATE P_2O_5	POTASH K_2O	MAGNESIUM Mg	SULFUR SO_4-S	ZINC Zn	MANGANESE Mn	IRON Fe	COPPER Cu	BORON B	REFER TO BACK

COMMENTS

Darcy Peebles

DARCY PEEBLES, CCA

A & L WESTERN LABORATORIES, INC.

EXPLANATION OF SOIL FERTILITY GUIDELINES

CROP

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SOIL AMENDMENTS

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Gypsum may be recommended if soils contain more than 5% sodium saturation or more than 25% magnesium saturation.
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Note that gypsum DOES NOT effectively reduce soil pH.

FERTILIZER RECOMMENDATIONS

Fertilizer recommendations are designed to provide sufficient nutrients for the crop to be grown at the desired yield level and to build toward a balanced cation exchange capacity. However, if a soil is severely deficient of nutrients, it may be economically impractical to raise levels sufficiently in one year.
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SULFATE-SULFUR
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Gypsum ($Ca\ SO_4.2H_2O$) contains up to 18% sulfate-sulfur.

MICRONUTRIENTS
(Zn, Mn, Fe, Cu, B)
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HOME GARDENS, TURF, AND ORNAMENTALS

Recommendations may be converted into pounds per thousand square feet when dealing with smaller areas.

lb/ac ÷ 43 = approximately lb/1000 sq ft

For additional information, refer to the A & L Agronomy Handbook

Revised 12/99

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10220 S.W. NIMBUS AVE., BLDG K-9 • PORTLAND, OR 97223 • (503) 968-9225 FAX (503) 598-7702

REPORT NUMBER
05-326-041

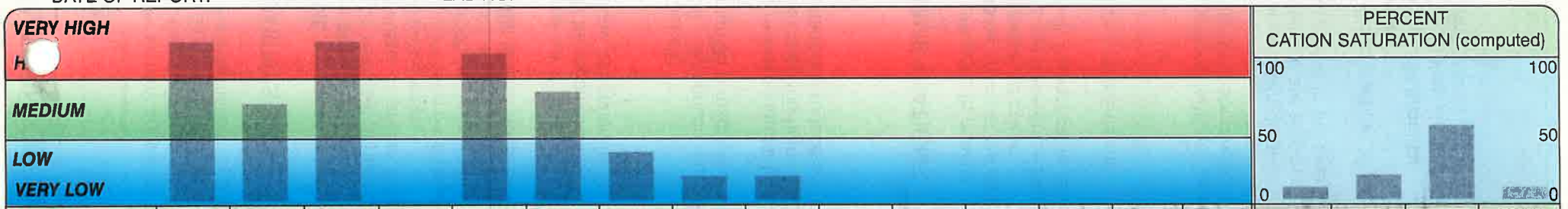
SEND TO: JIM HENDRICKSON
9665 SW ARDENWOOD ST
PORTLAND, OR 97225

GROWER: NEFF DAIRY

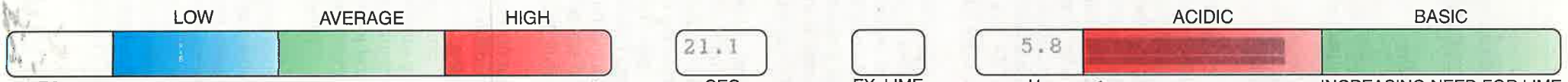
SUBMITTED BY:

GRAPHICAL SOIL ANALYSIS REPORT

DATE OF REPORT: 11/28/2005 LAB NO: 59209 SAMPLE ID: #3 PAGE: 3



RATING	ORGANIC MATTER %	NITROGEN NO3-N ppm	PHOSPHORUS WEAK BRAY ppm	PHOSPHORUS NaHCO3-P ppm	POTASSIUM K ppm	MAGNESIUM Mg ppm	CALCIUM Ca ppm	SODIUM Na ppm	SULFUR SO4-S ppm	ZINC Zn ppm	MANGANESE Mn ppm	IRON Fe ppm	COPPER Cu ppm	BORON B ppm		POTASSIUM K %	MAGNESIUM Mg %	CALCIUM Ca %	SODIUM Na %
TEST RESULTS	7.0	20	80	87	716	474	2235	44	2							8.7	18.5	52.9	0.9



NaHCO3-P unreliable at this soil pH

BUFFER pH: 6.6

SOIL FERTILITY GUIDELINES

CROP: RATE:

DOLOMITE (100 score)	LIME (100 score)	GYPSUM	ELEMENTAL SULFUR	NITROGEN N	PHOSPHATE P_2O_5	POTASH K_2O	MAGNESIUM Mg	SULFUR SO_4-S	ZINC Zn	MANGANESE Mn	IRON Fe	COPPER Cu	BORON B	REFER TO BACK

COMMENTS

Darcy Peebles

DARCY PEEBLES, CCA

A & L WESTERN LABORATORIES, INC.

EXPLANATION OF SOIL FERTILITY GUIDELINES

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HOME GARDENS, TURF, AND ORNAMENTALS

Recommendations may be converted into pounds per thousand square feet when dealing with smaller areas.

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REPORT NUMBER
05-32[illegible]6-041

SEND TO: JIM HENDRICKSON
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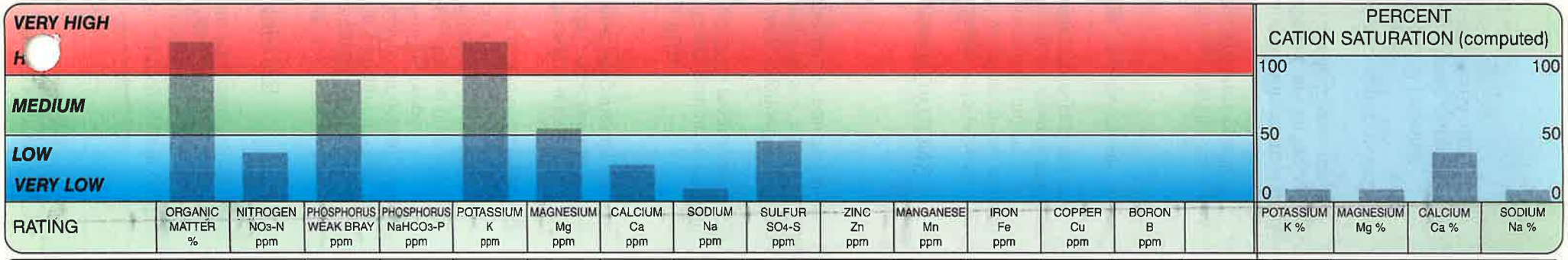
PORTLAND, OR 97225

GROWER: NEFF DAIRY

SUBMITTED BY:

GRAPHICAL SOIL ANALYSIS REPORT

DATE OF REPORT: 11/28/2005 LAB NO: 59210 SAMPLE ID: #4 PAGE: 4



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TEST RESULTS	12.5	11	30	47	891	291	1892	8	10							11.9	12.5	49.4	0.2

LOW AVERAGE HIGH

ECe dS/m — INCREASING SALINITY →

19.1 CEC meq/100g

EX. LIME

5.5 pH

ACIDIC BASIC

← INCREASING NEED FOR LIME

NaHCO3-P unreliable at this soil pH

BUFFER pH: 6.0

SOIL FERTILITY GUIDELINES

CROP: RATE:

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