Dairy Monitoring Co.

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SAN FRANCISCO
CVRWQCB

Date: December 17, 2012

To: Girma Getachew – Regional Water Quality Control Board

From: Miriam Romero-Garcia

Re: Tosta Dairy NMP dated 12/10/2012

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Per your request, please find enclosed a copy of the certified NMP for this dairy.

Feel free to contact our office if you have any questions.

Main Office: 1108 W. Main St. Ripon, CA 95366 209-599-4955

**Nutrient Management Plan Report**
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

COPY

## DAIRY FACILITY INFORMATION

**A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY:** Henry Tosta Dairy

Physical address of dairy:

| 20662 San Jose Road | Tracy | San Joaquin | 95304 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

Street and nearest cross street (if no address):

Date facility was originally placed in operation: 07/05/1962

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

County Assessor Parcel Number(s) for dairy facility:

0209-0290-0007-0000

**B. OPERATOR NAME:** Tosta, Henry Telephone no.: (209) 836-1286 (Landline) (209) 814-0139 (Cellular)

| 20662 San Jose RD | Tracy | CA | 95304 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

Operator should receive Regional Board correspondence (check): [X ] Yes [ ] No

**C. LEGAL OWNER NAME:** Tosta, Henry Telephone no.: (209) 836-1286 (Landline) (209) 814-0139 (Cellular)

| 20662 San Jose RD | Tracy | CA | 95304 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

Owner should receive Regional Board correspondence (check): [X ] Yes [ ] No

**D. CONTACT NAME:** Jim Avila, Dairy Monitoring Co Telephone no.: (209) 599-4955 (Landline) (Cellular)

Title: Service Provider

| P.O. Box 1440 | Ripon | CA | 95366 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

**CONTACT NAME:** Kashefi, Kion Telephone no.: (Landline) (209) 988-1724 (Cellular)

Title: Nutritionist/Crop Consultant PCA Lic #118793 CCA Lic #350384

| 624 E Service RD | Modesto | CA | 95358 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

AVAILABLE NUTRIENTS

## A. HERD INFORMATION

The existing milk cow dairy is currently regulated under the General Order.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

1,040 *milk and dry cows combined (regulatory review is required for expansions of 15% above baseline values)*

1,196 *milk and dry cows combined + 15% (pre-expansion limit)*

| | Milk Cows | Dry Cows | Bred Heifers (15-24 mo.) | Heifers (7-14 mo. to breeding) | Calves (4-6 mo.) | Calves (0-3 mo.) |
|---|---|---|---|---|---|---|
| Present count | 1,029 | 167 | 0 | 0 | 0 | 0 |
| Maximum count | 1,029 | 167 | 0 | 0 | 0 | 0 |
| Avg live weight (lbs) | 1,400 | 1,500 | 0 | 0 | | |
| Daily hours on flush | 3 | 0 | 0 | 0 | 0 | 0 |

Predominant milk cow breed: Holstein

Average milk production: 68 *pounds per cow per day*

## B. IRRIGATION SOURCES

| Irrigation Source Name | Type | Nitrogen (mg/L) | Phosphorus (mg/L) | Potassium (mg/L) | Discharge Rate |
|---|---|---|---|---|---|
| Canal Water | Surface water (canal, river) | 0.93 | 0.00 | 0.00 | 15 *cfs* |

## C. NUTRIENT IMPORTS

| Nutrient Type/Name | Quantity | Moisture | Nitrogen | Phosphorus (as P2O5) | Potassium (as K2O) |
|---|---|---|---|---|---|
| UN 32 | 80.00 *ton* | 0.0% | 32.000% | 0.000% | 0.000% |
| 3-10-10 | 70.00 *ton* | 0.0% | 3.000% | 10.000% | 10.000% |
| Urea | 6.50 *ton* | 0.0% | 46.000% | 0.000% | 0.000% |

Total nitrogen imported: 61,380.00 *lbs*

Total phosphorus imported: 6,118.00 *lbs*

Total potassium imported: 11,620.00 *lbs*

## D. NUTRIENT EXPORTS

| Nutrient Type/Name | Quantity | Moisture | Nitrogen | Phosphorus (as P2O5) | Potassium (as K2O) |
|---|---|---|---|---|---|
| Corral Solids | 3,300.00 *ton* | 15.1% | 2.300% | 0.660% | 3.460% |

Total nitrogen exported: 128,878.20 *lbs*

Total phosphorus exported: 16,087.87 *lbs*

Total potassium exported: 160,918.44 *lbs*

## E. STORAGE PERIOD

Storage period is the maximum period of time anticipated between land application of process wastewater (from storage ponds/lagoons) to croplands. A qualified agronomist and civil engineer should collaborate and collectively consider predominant soil types, soil infiltration rates, maximum depth, available water, field capacity, permanent wilting point, allowable depletion, crop water use, evapotranspiration, precipitation, irrigation system capacity, water delivery constraints, crop nutrient requirements, soil nutrient adsorbtion/desorption, rooting depth, nutrient accumulation/availability for current and future crop needs, facility wide process wastewater storage capacity and other factors as deemed necessary across all croplands where process wastewater is applied in selecting a storage period. In many cases conflicts will arise between crop water demands, crop nutrient demands and insufficient process wastewater storage capacity. Process wastewater may not be the best choice as a source of either water and/or nutrients to meet crop demands throughout the year. Groundwater and surface water vulnerability has been considered.

The storage period selected in this Nutrient Management Plan is consistent with the storage period selected in the Waste Management Plan.

Storage period: 120 *days*

APPLICATION AREA

**A. ASSESSOR PARCEL NUMBER:** 0209-0290-0003-0000

Legal owner of parcel: Kandholia Telephone no.: (209) 836-1286 (Landline) (Cellular)

| 20662 San Jose RD | Tracy | CA | 95304 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

**ASSESSOR PARCEL NUMBER:** 0209-0290-0006-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0209-0300-0016-0000

Legal owner of parcel: Echeverria Telephone no.: (661) 746-2396 (Landline) (Cellular)

| 18451 Wildwood RD | Buttonwillow | CA | 93206 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

**ASSESSOR PARCEL NUMBER:** 0209-0300-0018-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0212-0090-0001-0000

Legal owner of parcel: Owned by Dairy

**B. FIELD NAME:** 1

Cropable acres: 30

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [ ] Yes [X] No

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

Can process wastewater be delivered to the field at agronomic rates and times? [ ] Yes [X] No

Tailwater management method: Returned to top of field

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Winter Forage | Middle November | Middle May | 30 |
| Corn, silage | Early June | Early October | 30 |

**FIELD NAME:** 2

Cropable acres: 12

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [ ] Yes [X] No

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

Can process wastewater be delivered to the field at agronomic rates and times? [ ] Yes [X] No

Tailwater management method: Returned to top of field

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Winter Forage | Middle November | Middle May | 12 |
| Sudangrass, silage | Early June | Early August | 12 |

**FIELD NAME:** 3

Cropable acres: 85

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [ ] Yes [X] No

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

Can process wastewater be delivered to the field at agronomic rates and times? [ ] Yes [X] No

Tailwater management method: Returned to top of field

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Alfalfa, hay | Early January | Late December | 85 |

**FIELD NAME:** 4

Cropable acres: 80

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [ ] Yes [X] No

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

Can process wastewater be delivered to the field at agronomic rates and times? [X] Yes [ ] No

Tailwater management method: Returned to top of field

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Winter Forage | Middle November | Middle May | 80 |
| Corn, silage | Early June | Early October | 80 |

**FIELD NAME:** 6

Cropable acres: 118

Predominant soil type: Clay

Do irrigation system head-to-head flow conditions exist on the field? [ ] Yes [X] No

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

Can process wastewater be delivered to the field at agronomic rates and times? [ ] Yes [X] No

Tailwater management method: Returned to top of field

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Winter Forage | Middle November | Middle May | 118 |
| Corn, silage | Early June | Early October | 118 |

**FIELD NAME:** 8

Cropable acres: 97

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [ ] Yes [X] No

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

Can process wastewater be delivered to the field at agronomic rates and times? [ ] Yes [X] No

Tailwater management method: Returned to top of field

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Winter Forage | Middle November | Middle May | 97 |
| Corn, silage | Early June | Early October | 97 |

## C. LAND APPLICATION AREA FIELDS AND PARCELS

| Field name | Cropable acres | Total harvests | Parcel number |
|---|---|---|---|
| 1 | 30 | 2 | 0209-0290-00060000 |
| 2 | 12 | 3 | 0209-0300-00180000 |
| 3 | 85 | 7 | 0209-0300-00180000 |
| 4 | 80 | 2 | 0209-0290-00030000 |
| 6 | 118 | 2 | 0209-0300-00160000 |
| 8 | 97 | 2 | 0212-0090-00010000 |
| Land application area totals | 422 | 18 | |

NUTRIENT BUDGET

**A. NUTRIENT BUDGET FOR CROP:** 1 / Other

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content | 1 | 20.0 | 100.0 | 300.0 | 20.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Estimated | | | | | |
| Dry manure | 1 | 200.0 | 58.0 | 273.0 | 200.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 0.0 | 0.0 | 0.0 |
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 200.0 | 58.0 | 273.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 227.0 | 158.0 | 573.0 |
| Potential crop nutrient removal | 168.0 | 22.4 | 116.2 |
| Nutrient balance | 59.0 | 135.6 | 456.8 |
| Applied to removal ratio | 1.35 | 7.05 | 4.93 |

Fresh water applied: 0.00 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** 1 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content | 1 | 20.0 | 100.0 | 300.0 | 20.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Estimated | | | | | |
| Dry manure | 1 | 140.0 | 42.0 | 200.0 | 140.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| Starter fertilizer at planting | 1 | 12.0 | 40.0 | 40.0 | 12.0 |
| *Nutrient source:* Commercial fertilizer | | 90% | 50% | 75% | |
| *Application method:* Banding 3-10-10 | | | | | |
| Nutrient sources other than manure or process wastewater | 1 | 180.0 | 0.0 | 0.0 | 180.0 |
| *Nutrient source:* UN 32 | | 90% | 50% | 75% | |
| *Application method:* Sidedress - Applied at Planting | | | | | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** 1 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 6 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 7.5 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal Water | 1.3 | 0.0 | 0.0 | 12.0 |
| | 1.3 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 7.5 | 0.0 | 0.0 |
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 12.0 | 40.0 | 40.0 |
| Dry manure | 140.0 | 42.0 | 200.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 180.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 366.5 | 182.0 | 540.0 |
| Potential crop nutrient removal | 275.0 | 37.5 | 165.0 |
| Nutrient balance | 91.5 | 144.5 | 375.0 |
| Applied to removal ratio | 1.33 | 4.85 | 3.27 |

Fresh water applied: 2.98 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** 2 / Other

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Estimated | 1 | 20.0<br>50% | 100.0<br>50% | 300.0<br>50% | 20.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 200.0<br>25% | 58.0<br>50% | 273.0<br>85% | 200.0 |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 0.0 | 0.0 | 0.0 |

| | | | |
|---|---|---|---|
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 200.0 | 58.0 | 273.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 4.7 | | |
| Nutrients applied | 224.7 | 158.0 | 573.0 |
| Potential crop nutrient removal | 168.0 | 22.4 | 116.2 |
| Nutrient balance | 56.7 | 135.6 | 456.8 |
| Applied to removal ratio | 1.34 | 7.05 | 4.93 |

Fresh water applied: 0.00 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** 2 / Sudangrass, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Estimated | 1 | 20.0<br>50% | 100.0<br>50% | 300.0<br>50% | 20.0 |
| Starter fertilizer at planting<br>*Nutrient source:* Commercial fertilizer<br>*Application method:* Broadcast | 1 | 60.0<br>46% | 0.0<br>0% | 0.0<br>0% | 60.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 3 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 7.8 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal Water | 2.6 | 0.0 | 0.0 | 10.0 |
| | 2.6 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 7.8 | 0.0 | 0.0 |
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 60.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 9.3 | | |
| Nutrients applied | 97.2 | 100.0 | 300.0 |
| Potential crop nutrient removal | 77.0 | 11.9 | 84.0 |
| Nutrient balance | 20.2 | 88.1 | 216.0 |

| | | | |
|---|---|---|---|
| Applied to removal ratio | 1.26 | 8.40 | 3.57 |

Fresh water applied: 3.10 *feet* Total harvests: 2

**NUTRIENT BUDGET FOR CROP:** 3 / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Estimated | 1 | 75.0<br>50% | 100.0<br>50% | 300.0<br>50% | 75.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 6 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 8.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal Water | 1.5 | 0.0 | 0.0 | 40.0 |
| | 1.5 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 75.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 97.9 | 100.0 | 300.0 |
| Potential crop nutrient removal | 120.0 | 10.8 | 84.0 |
| Nutrient balance | -22.1 | 89.2 | 216.0 |
| Applied to removal ratio | 0.82 | 9.26 | 3.57 |

Fresh water applied: 3.50 *feet* Total harvests: 7

**NUTRIENT BUDGET FOR CROP:** 4 / Other

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Estimated | 1 | 20.0<br>50% | 100.0<br>50% | 300.0<br>50% | 20.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 135.0<br>25% | 39.0<br>50% | 186.0<br>85% | 135.0 |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 0.0 | 0.0 | 0.0 |
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 135.0 | 39.0 | 186.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 162.0 | 139.0 | 486.0 |
| Potential crop nutrient removal | 120.0 | 19.2 | 99.6 |
| Nutrient balance | 42.0 | 119.8 | 386.4 |
| Applied to removal ratio | 1.35 | 7.24 | 4.88 |

Fresh water applied: 0.00 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** 4 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Estimated | 1 | 20.0<br>50% | 100.0<br>50% | 300.0<br>50% | 20.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 160.0<br>25% | 47.0<br>50% | 223.0<br>85% | 160.0 |
| Starter fertilizer at planting<br>*Nutrient source:* Commercial fertilizer<br>*Application method:* Banding 3-10-10 | 1 | 16.0<br>90% | 53.0<br>50% | 53.0<br>75% | 16.0 |
| Nutrient sources other than manure or process wastewater<br>*Nutrient source:* UN 32<br>*Application method:* Sidedress - Applied at Planting | 1 | 90.0<br>90% | 0.0<br>50% | 0.0<br>75% | 90.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 6 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 7.5 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal Water | 1.3 | 0.0 | 0.0 | 32.0 |
| | 1.3 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 7.5 | 0.0 | 0.0 |

| | | | |
|---|---|---|---|
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 16.0 | 53.0 | 53.0 |
| Dry manure | 160.0 | 47.0 | 223.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 90.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 300.5 | 200.0 | 576.0 |
| Potential crop nutrient removal | 220.0 | 30.0 | 132.0 |
| Nutrient balance | 80.5 | 170.0 | 444.0 |
| Applied to removal ratio | 1.37 | 6.67 | 4.36 |

Fresh water applied: 2.98 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** 6 / Other

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content | 1 | 20.0 | 100.0 | 300.0 | 20.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Estimated | | | | | |
| Dry manure | 1 | 200.0 | 58.0 | 273.0 | 200.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 0.0 | 0.0 | 0.0 |
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 200.0 | 58.0 | 273.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 227.0 | 158.0 | 573.0 |
| Potential crop nutrient removal | 168.0 | 22.4 | 116.2 |
| Nutrient balance | 59.0 | 135.6 | 456.8 |
| Applied to removal ratio | 1.35 | 7.05 | 4.93 |

Fresh water applied: 0.00 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** 6 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Estimated | 1 | 20.0<br>50% | 100.0<br>50% | 300.0<br>50% | 20.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 145.0<br>25% | 42.0<br>50% | 198.0<br>85% | 145.0 |
| Starter fertilizer at planting<br>*Nutrient source:* Commercial fertilizer<br>*Application method:* Banding 3-10-10 | 1 | 12.0<br>90% | 40.0<br>50% | 40.0<br>75% | 12.0 |
| Nutrient sources other than manure or process wastewater<br>*Nutrient source:* UN 32<br>*Application method:* Sidedress - Applied at Planting | 1 | 180.0<br>90% | 0.0<br>50% | 0.0<br>75% | 180.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 6 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 7.5 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal Water | 1.2 | 0.0 | 0.0 | 47.0 |
| | 1.2 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 7.5 | 0.0 | 0.0 |
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 12.0 | 40.0 | 40.0 |
| Dry manure | 145.0 | 42.0 | 198.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 180.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 371.5 | 182.0 | 538.0 |
| Potential crop nutrient removal | 275.0 | 37.5 | 165.0 |
| Nutrient balance | 96.5 | 144.5 | 373.0 |
| Applied to removal ratio | 1.35 | 4.85 | 3.26 |

Fresh water applied: 2.96 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** 8 / Other

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Estimated | 1 | 20.0<br>50% | 100.0<br>50% | 300.0<br>50% | 20.0 |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** 8 / Other

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Dry manure | 1 | 200.0 | 58.0 | 273.0 | 200.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 0.0 | 0.0 | 0.0 |
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 200.0 | 58.0 | 273.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 227.0 | 158.0 | 573.0 |
| Potential crop nutrient removal | 168.0 | 22.4 | 116.2 |
| Nutrient balance | 59.0 | 135.6 | 456.8 |
| Applied to removal ratio | 1.35 | 7.05 | 4.93 |

Fresh water applied: 0.00 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** 8 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content | 1 | 20.0 | 100.0 | 300.0 | 20.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Estimated | | | | | |
| Dry manure | 1 | 145.0 | 42.0 | 198.0 | 145.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| Starter fertilizer at planting | 1 | 12.0 | 40.0 | 40.0 | 12.0 |
| *Nutrient source:* Commercial fertilizer | | 90% | 50% | 75% | |
| *Application method:* Banding 3-10-10 | | | | | |
| Nutrient sources other than manure or process wastewater | 1 | 180.0 | 0.0 | 0.0 | 180.0 |
| *Nutrient source:* UN 32 | | 90% | 50% | 75% | |
| *Application method:* Sidedress - Applied at Planting | | | | | |
| In season irrigation (no fertilizer) | 6 | 0.0 | 0.0 | 0.0 | 7.6 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

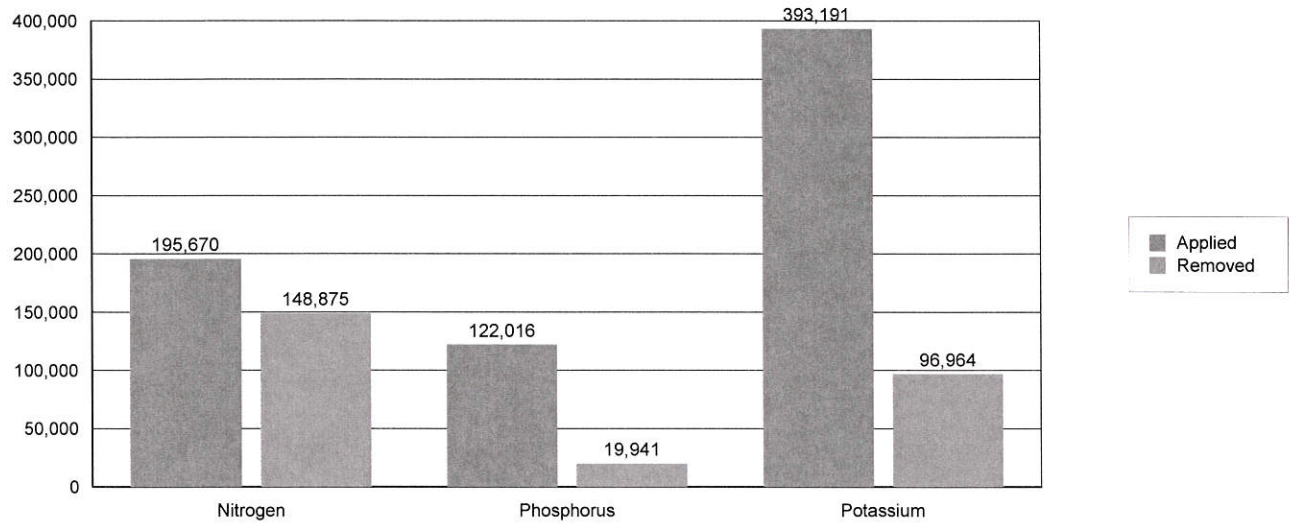
| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal Water | 1.3 | 0.0 | 0.0 | 39.0 |
| | 1.3 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 7.6 | 0.0 | 0.0 |
| Existing soil nutrient content | 20.0 | 100.0 | 300.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 12.0 | 40.0 | 40.0 |
| Dry manure | 145.0 | 42.0 | 198.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 180.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 371.6 | 182.0 | 538.0 |
| Potential crop nutrient removal | 275.0 | 37.5 | 165.0 |
| Nutrient balance | 96.6 | 144.5 | 373.0 |
| Applied to removal ratio | 1.35 | 4.85 | 3.26 |

Fresh water applied: 2.99 *feet* Total harvests: 1

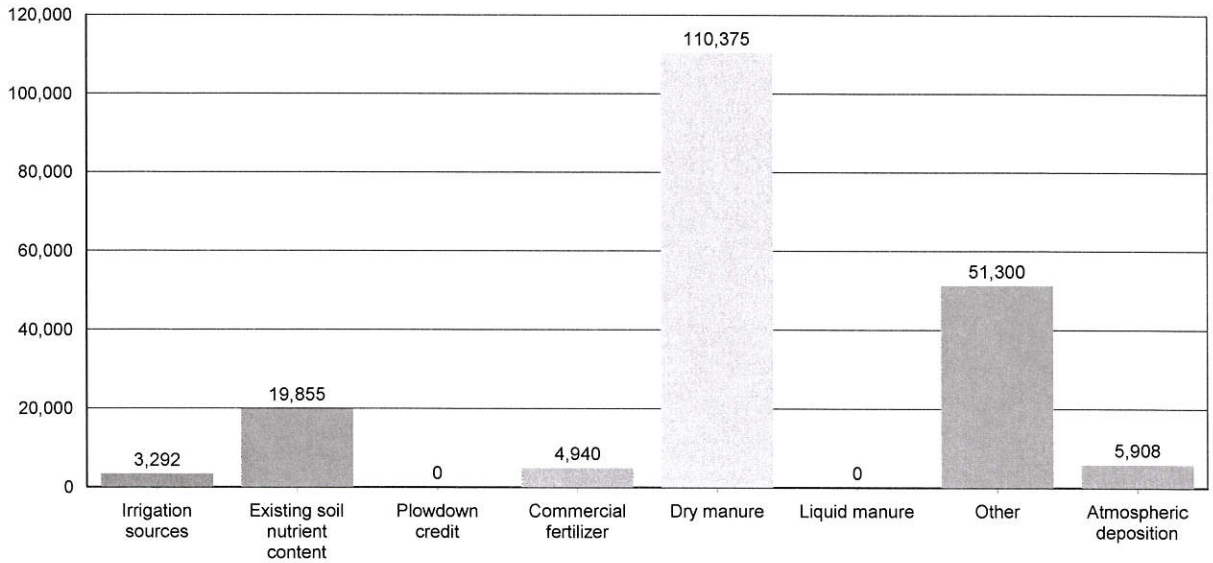
## NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

### A. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL POTENTIAL




| | Total N (lbs) | Total P (lbs) | Total K (lbs) |
|---|---|---|---|
| Irrigation sources | 3,291.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 19,855.0 | 75,900.0 | 227,700.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 4,940.0 | 14,040.0 | 14,040.0 |
| Dry manure | 110,375.0 | 32,076.0 | 151,451.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 51,300.0 | 0.0 | 0.0 |
| Atmospheric deposition | 5,908.0 | | |
| Nutrients applied to all crops | 195,669.7 | 122,016.0 | 393,191.0 |
| Potential crop nutrient removal | 148,875.0 | 19,941.1 | 96,964.4 |
| Nutrient balance | 46,794.7 | 102,074.9 | 296,226.6 |
| Applied to removal ratio | 1.31 | 6.12 | 4.06 |

## B. POUNDS OF NITROGEN APPLIED BY NUTRIENT SOURCE




| | Total N (lbs) | Total P (lbs) | Total K (lbs) |
|---|---|---|---|
| Irrigation sources | 3,291.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 19,855.0 | 75,900.0 | 227,700.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 4,940.0 | 14,040.0 | 14,040.0 |
| Dry manure | 110,375.0 | 32,076.0 | 151,451.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 51,300.0 | 0.0 | 0.0 |
| Atmospheric deposition | 5,908.0 | | |
| Nutrients applied to all crops | 195,669.7 | 122,016.0 | 393,191.0 |
| Potential crop nutrient removal | 148,875.0 | 19,941.1 | 96,964.4 |
| Nutrient balance | 46,794.7 | 102,074.9 | 296,226.6 |
| Applied to removal ratio | 1.31 | 6.12 | 4.06 |

NUTRIENT BALANCE

## A. WHOLE FARM BALANCE

| | Total N (lbs) | Total P (lbs) | Total K (lbs) |
|---|---|---|---|
| Nutrients in storage from herd* | | | |
| Daily gross | 1,020.3 | 169.5 | 536.2 |
| Annual gross | 372,425.7 | 61,866.8 | 195,710.9 |
| Net to pond storage after ammonia losses (30% loss applied) | 29,920.5 | 7,230.5 | 24,463.9 |
| Net to drylot storage after ammonia losses (30% loss applied) | 230,777.5 | 54,636.3 | 186,739.9 |
| Net in storage (30% loss applied) | 260,698.0 | 61,866.8 | 211,203.8 |
| Irrigation sources | 3,291.7 | 0.0 | 0.0 |
| Atmospheric deposition | 5,908.0 | | |
| Imports | 61,380.0 | 6,118.0 | 11,620.0 |
| Exports | 128,878.2 | 16,087.9 | 160,918.4 |
| Potential crop nutrient removal | 148,875.0 | 19,941.1 | 96,964.4 |
| Nutrient balance | 53,524.5 | 31,955.8 | -35,059.1 |
| Nutrient balance ratio | 1.36 | 2.60 | 0.64 |

* Potassium excretion from milk cows and dry cows only.

SAMPLING AND ANALYSIS PLAN

## A. MANURE SAMPLING AND ANALYSIS PLAN

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Each application to each land application area | For each applied manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.<br><br>For each applied manure source, a scaled weight by truckload will be recorded. | Corral solids<br>Settling basin solids<br>Freestall scrapings | pH (if requested), total dissolved solids, electrical conductivity, nitrate-nitrogen (only when pond is aerated), total Kjeldahl nitrogen, total phosphorus, and total potassium | Percent moisture |
| Once every two years | For each manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Corral solids<br>Settling basin solids<br>Freestall scrapings<br>Freestall scrapings | None required | General minerals: calcium, magnesium, sodium, sulfur, chloride, and fixed solids (ash). |
| Twice per year | For each manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Corral solids<br>Settling basin solids<br>Freestall scrapings | None required | Total nitrogen, total phosphorus, potassium, and percent moisture |

## A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Each offsite export of manure | For each manure source exported, a composite sample "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.<br><br>For each manure source exported, a scaled weight by truckload will be recorded. | Corral solids<br>Settling basin solids<br>Freestall scrapings | Total weight (tons) exported | Percent moisture |

**A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | Field Analytes | Lab Analytes |
| Annually | Annual estimation for total manure dry weight applied to each field will be quantified using the following:<br><br>Dry weight applied from a source to a crop per application event = weight applied * (1 - (percent moisture / 100))<br>Dry weight applied to crop per application event = sum of dry weights applied from each source<br>Dry weight applied to a crop = sum of dry weights applied during each application<br>Dry weight applied to a field = sum of dry weights applied to each crop<br><br>Annual estimation for total manure dry weight exported will be quantified using the following:<br><br>Dry weight exported from a source per event = weight exported * (1 - (percent moisture / 100))<br>Dry weight exported per event = sum of dry weights exported from each source<br>Dry weight exported to any offsite destination = sum of dry weights exported per event | Corral solids<br>Settling basin solids<br>Freestall scrapings | Total dry weight (tons) manure applied annually to each land application area, and total dry weight (tons) manure exported offsite annually | None required |

**B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN**

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Each application | For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Lagoons 1 thru 7 | Date applied, definition of land application area and volume (gallons or acre-inches) applied | None required |
| Quarterly during one application event | For field measurement: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.<br><br>For laboratory analyses: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Lagoons 1 thru 7 | Electrical conductivity (may be done in laboratory) | Nitrate-nitrogen (only when pond is aerated), ammonium-nitrogen, total Kjeldahl nitrogen, total phosphorus, total potassium and total dissolved solids |
| Once every two years | For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Lagoons 1 thru 7 | None required | General minerals: calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, and chloride |

## B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN (CONTINUED)

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Annually, prior to blending with irrigation water | For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Lagoons 1 thru 7 | None required | pH (if requested), total dissolved solids, electrical conductivity, nitrate-nitrogen (only when pond is aerated), total Kjeldahl nitrogen, total phosphorus, and total potassium |

## C. SOIL SAMPLING AND ANALYSIS PLAN

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Once every five years (may be distributed over a five year period by sampling 20% annually) | For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Field 1: 30 acres<br>Field 2: 12 acres<br>Field 3: 85 acres<br>Field 4: 80 acres<br>Field 6: 118 acres<br>Field 8: 97 acres | None required | Soluble phosphorus (Olsen test) |
| Recommended: Spring pre-plant for each crop | For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Field 1: 30 acres<br>Field 2: 12 acres<br>Field 3: 85 acres<br>Field 4: 80 acres<br>Field 6: 118 acres<br>Field 8: 97 acres | - | 0 to 1 foot: Nitrate-nitrogen and organic matter<br>1 to 2 feet: Nitrate-nitrogen |
| Fall pre-plant for each crop | For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Field 1: 30 acres<br>Field 2: 12 acres<br>Field 3: 85 acres<br>Field 4: 80 acres<br>Field 6: 118 acres<br>Field 8: 97 acres | None required | 0 to 1 foot: Electrical conductivity, nitrate-nitrogen, soluble phosphorus, potassium, organic matter |

## D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |

## D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN (CONTINUED)

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Each crop harvest from each land application area | For each field and crop, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.<br><br>For each field and crop, a scaled weight by truckload will be recorded. | Field 1: winter forage/corn<br>Field 2: winter forage/sudan silage<br>Field 3: alfalfa<br>Field 4: winter forage/corn<br>Field 6: winter forage/corn<br>Field 8: winter forage/corn | Total weight (tons) of harvested material removed from each land application area | Total nitrogen, total phosphorus, total potassium (expressed on a dry weight basis), fixed solids (ash) and percent moisture |
| Mid-season, if necessary to assess need for additional nitrogen fertilizerduring the growing season (only if Discharger wants to add fertilizer in excess of 1.4 times the nitrogen expected to be removed by the harvested portion of the crop) | For each field and crop, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | Field 1: winter forage/corn<br>Field 2: winter forage/sudan silage<br>Field 3: alfalfa<br>Field 4: winter forage/corn<br>Field 6: winter forage/corn<br>Field 8: winter forage/corn | None required | Total nitrogen, expressed on a dry weight basis |

## E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Each irrigation event for each land application area | Canal 1 - flow rate multiplied by runtime | Canal | Date applied, source of water, volume (gallons or acre-inches)1 applied | None required |

## E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN (CONTINUED)

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| One irrigation event during each irrigation season during actual irrigation events – for each irrigation water source (well and canal) | For each irrigation source, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.<br><br>[OR]<br><br>Groundwater monitoring data will be used to satisfy monitoring requirements for all irrigation well water.<br><br>Irrigation district data will be used to satisfy monitoring requirements for all canal/surface water. | Canal | None required | Electrical conductivity, total-nitrogen2, total dissolved solids<br>Data collected to satisfy the groundwater monitoring requirements will satisfy this requirement for irrigation wells |

## F. OTHER SAMPLING AND ANALYSIS PLAN

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Annually for each domestic and agricultural supply well present in the production and land application areas | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | DOMESTIC AND AGRICULTURAL SUPPLY WELLS:<br>Canal<br>1-Domestic Well | Electric conductivity (may be done in laboratory), ammonium nitrogen3 | Nitrate- nitrogen, ammonium nitrogen if field test presence3 |
| Every five years (may be distributed over a 5-year period by sampling 20% of the wells annually) | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | DOMESTIC AND AGRICULTURAL SUPPLY WELLS:<br>Canal<br>1-Domestic Well | - | Calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, chloride, and total dissolved solids |

**F. OTHER SAMPLING AND ANALYSIS PLAN (CONTINUED)**

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| Annually thereafter for each tile drain present in the production and land application areas | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | SUBSURFACE (TILE) DRAINAGE SYSTEMS | Electric conductivity (may be done in laboratory) and ammonium nitrogen (see footnote 3) | Nitrate-nitrogen and total phosphorus, ammonium nitrogen if field test indicates presence3 |
| Daily during each discharge | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | DISCHARGES (INCLUDING OFF-PROPERTY DISCHARGES) OF MANURE OR PROCESS WASTEWATER, from the production area or land application area | Electric conductivity (may be done in laboratory), temperature and pH. Record: date, time, approximate volume (gallons) or weight (tons), duration, location, source, and ultimate destination of discharge4 | Nitrate-nitrogen, total ammonia-nitrogen, un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, total dissolved solids, BOD5, total suspended solids, and total and fecal coliform |
| Daily during each discharge to surface water – for surface water both upstream and downstream of the discharge | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | DISCHARGES (INCLUDING OFF-PROPERTY DISCHARGES) OF MANURE OR PROCESS WASTEWATER, from the production area or land application area | Electric conductivity, dissolved oxygen, temperature and pH | Nitrate-nitrogen, total ammonia-nitrogen, un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, total dissolved solids, total suspended solids, and total and fecal coliform |
| Daily during each discharge to surface water – for the discharge and for surface water both upstream and downstream of the discharge | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | STORM WATER DISCHARGES TO SURFACE WATER FROM THE PRODUCTION AREA | Electric conductivity, dissolved oxygen, temperature, pH, total ammonia-nitrogen and un-ionized ammonia-nitrogen Record: date, time, approximate volume (gallons), duration, location, source, and ultimate destination of discharge4 | Nitrate-nitrogen, turbidity, total phosphorus, total and fecal coliform |

## F. OTHER SAMPLING AND ANALYSIS PLAN (CONTINUED)

| Frequency | Sampling Methods | Source | Minimum data collection requirements | |
|---|---|---|---|---|
| | | | Field Analytes | Lab Analytes |
| First storm event of the wet season and during the peak storm season (typically February) each year from one third of the land application areas (sample areas within the land application area to be rotated each year) | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | STORM WATER DISCHARGES TO SURFACE WATER FROM THE LAND APPLICATION AREA | Electric conductivity, temperature, pH, total ammonia-nitrogen and un-ionized ammonia-nitrogen Record: date, time, approximate volume, duration, location, and ultimate destination of discharge | Nitrate- nitrogen, total phosphorus, turbidity, total and fecal coliform |
| Each discharge from each land application area where irrigation has occurred <60 days after application of manure and/or process wastewater (liquid manure) | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | TAIL WATER DISCHARGES TO SURFACE WATER FROM THE LAND APPLICATION AREA | Electric conductivity, temperature, pH, total ammonia-nitrogen and un-ionized ammonia-nitrogen Record: date, time, approximate volume (gallons), duration, location, and ultimate destination of discharge | NONE |
| First discharge of the year where irrigation has occurred < 60 days after application of manure and/or process wastewater (liquid manure) | A sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. | TAIL WATER DISCHARGES TO SURFACE WATER FROM THE LAND APPLICATION AREA | Electric conductivity, temperature, pH, total ammonia-nitrogen and un-ionized ammonia-nitrogen Record: date, time, approximate volume (gallons), duration, location, and ultimate destination of discharge | Nitrate-nitrogen, total phosphorus, total and fecal coliform |

# NUTRIENT MANAGEMENT PLAN REVIEW

## A. NUTRIENT MANAGEMENT PLAN REVIEW

Person who created the NMP: Jim Avila, Dairy Monitoring Co *See above for contact information.*
Date the NMP was drafted: 12/05/2012
Person who approved the final NMP: Kashefi, Kion *See above for contact information.*
Date of NMP implementation: 12/05/2012

## ATTACHED MAP AND DOCUMENTATION REFERENCES

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Nutrient Management Plan for the reporting schedule of 'July 1, 2009'.

### A. PRELIMINARY DAIRY FACILITY ASSESSMENT

The NMP will include the initial Preliminary Dairy Facility Assessment (Attachment A) and the annual updates as required by Monitoring and Reporting Program No. R5-2007-0035. Copies of these assessments shall be maintained for 10 years.

### B. LAND AREA MAP(S)

Identify each land application area (under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) on a single published base map

1. A field identification system (Assessor's Parcel Number; land application area; crops grown); indication if each land application is owned, rented, or leased by the Discharger; indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.

2. Process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities; flow meter locations; drainage ditches and canals, culverts, draining controls (berms, levees, etc.), and drainage easements.

Application area map reference number: #1

Identify each field under control of the Discharger and within five miles of the dairy where neither process wastewater nor manure is applied. Each field shall be identified on a single published base map at an appropriate scale by the following:

1. Assessor's Parcel Number.
2. Total acreage.
3. Information on who owns or leases the field

Non-application area map reference number: #1

Setbacks, Buffers, and Other Alternatives to Protect Surface Water (see Technical Standard VII):

1. Identify all potential surface waters or conduits to surface water that are within 100 feet of any land application area.
2. For each land application area that is within 100 feet of a surface water or a conduit to surface water, identify the setback, vegetated buffer, or other alternative practice that will be implemented to protect surface water (Technical Standard VII).

Setbacks and buffers map reference number: #1

### C. PROCESS WASTEWATER WRITTEN AGREEMENTS

Provide copies of written agreements with third parties that receive process wastewater for their own use from the Discharger's dairy (Technical Standards V.A.1 and V.A.3).

**Nutrient Management Plan Report**
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

## SAMPLING AND ANALYSIS PLAN CERTIFICATION

### A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Henry Tosta Dairy

Physical address of dairy:

| 20662 San Jose Road | Tracy | San Joaquin | 95304 |
|---|---|---|---|
| Physical Address Number and Street | City | County | Zip Code |

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

### B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

*I certify that I meet the requirements as a certified specialist in developing nutrient management plans as described in Attachment C of Waste Discharge Requirements General Order No. R5-2007-0035 and that I prepared the Sampling and Analysis plan.*

Nutritionist/Crop Consultant PCA Lic #118793 CCA Lic #350384
TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL — DATE: 12/10/12

Kion Kashefi
PRINT OR TYPE NAME

624 E Service RD; Modesto, CA 95358
MAILING ADDRESS

(209) 988-1724
PHONE NUMBER

### C. OWNER AND/OR OPERATOR CERTIFICATION

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

| SIGNATURE OF OWNER OF FACILITY | SIGNATURE OF OPERATOR OF FACILITY |
|---|---|
| Henry Tosta / HENRY TOSTA | |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 12-11-12 | |
| DATE | DATE |

**Nutrient Management Plan Report**
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET CERTIFICATION

## A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Henry Tosta Dairy

Physical address of dairy:

| 20662 San Jose Road | Tracy | San Joaquin | 95304 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

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

## B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

*I certify that I meet the requirements as a certified specialist in developing nutrient management plans as described in Attachment C of Waste Discharge Requirements General Order No. R5-2007-0035 and that I prepared the Nutrient Budget plan.*

Nutritionist/Crop Consultant PCA Lic #118793 CCA Lic #350384
TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL — DATE: 12/10/12

Kion Kashefi
PRINT OR TYPE NAME

624 E Service RD; Modesto, CA 95358
MAILING ADDRESS

(209) 988-1724
PHONE NUMBER

## C. OWNER AND/OR OPERATOR CERTIFICATION

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

| | |
|---|---|
| Henry Tosta | Henry Tosta |
| SIGNATURE OF OWNER OF FACILITY | SIGNATURE OF OPERATOR OF FACILITY |
| Henry Tosta HENRY TOSTA | |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 12-11-12 | |
| DATE | DATE |

**Nutrient Management Plan Report**
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

## STATEMENTS OF COMPLETION

Waste Discharge Requirements General Order No. R5-2007-0035 for Existing Milk Cow Dairies (General Order) requires owners and operators of existing milk cow dairies (Dischargers) to develop and implement a Nutrient Management Plan for their land application areas (land under control of the Discharger, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient cycling). The Discharger is required to maintain the NMP at the dairy, make the NMP available to Central Valley Water Board staff during their inspections, and submit the NMP to the Executive Officer upon request.

The General Order requires the Discharger to submit two Statements of Completion during development of the NMP. The Discharger may use this form to comply with the General Order requirement to submit one or both of these Statements of Completion. Parts A and E must be completed for each Statement of Completion. Parts B, C and D are to be completed for the Statements of Completion due by 1 July 2008, 31 December 2008 and 1 July 2009, respectively. Both the owner and the operator of the dairy must sign this form in Part E below.

### A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Henry Tosta Dairy

| 20662 San Jose Road | Tracy | San Joaquin | 95304 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

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

Operator name: _____ Telephone no.: _____ _____
Landline Cellular

_____ _____ _____ _____
Mailing Address Number and Street City State Zip Code

Legal owner name: Tosta, Henry Telephone no.: (209) 836-1286 (209) 814-0139
Landline Cellular

| 20662 San Jose RD | Tracy | CA | 95304 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

## B. STATEMENT OF COMPLETION DUE 1 JULY 2008

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 1 July 2008:

☑ **Item I.A.1 Land Application Information**
Identification of land used for manure application and needed information on a facility map.

☑ **Item I.B Land Application Information**
Information list for information provided on map above.

☑ **Item I.C Land Application Information**
Copies of written third-party process wastewater agreements.

☑ **Item I.D Land Application Information**
Identification of fields under control of the discharger within five miles of the dairy where neither process wastewater nor manure is applied.

☑ **Item II Sampling and Analysis Plan**

☑ **Item IV Setbacks, Buffers, and Other Alternatives to Protect Surface Water**
Identification of all potential surface waters or conduits to surface waters within 100 feet of land application areas and appropriate protection.

☑ **Item VI Record-Keeping Requirements**
Identification of monitoring records that will be maintained as required in the production and land application areas.

Has Item II (Sampling and Analysis Plan) of the Nutrient Management Plan been certified by a Certified Nutrient Management Specialist as required in the General Order?

☑ Yes ☐ No

## C. STATEMENT OF COMPLETION DUE 31 DECEMBER 2008

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 31 December 2008:

☑ **Item V Field Risk Assessment**
Evaluation of the effectiveness of management practices used to control the discharge of waste constituents from land application areas by assessing the water quality monitoring results of discharges of manure, process wastewater, tailwater, subsurface (tile) drainage, or storm water from the land application areas.

## D. STATEMENT OF COMPLETION DUE 1 JULY 2009

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 1 July 2009:

☑ **Item I.A.2 Land Application Area Information**
Identification of process wastewater conveyance, mixing and drainage information for each land application area on a facility map.

☑ **Item III Nutrient Budget**
Established planned rates of nutrient applications by crop based on nutrient monitoring results for each land application area.

Has Item III (Nutrient Budget) of the Nutrient Management Plan been certified by a Certified Nutrient Management Specialist as required in the General Order?

☑ Yes ☐ No

## E. CERTIFICATION STATEMENT

*I certify under penalty of law that I have completed the items of the Nutrient Management Plan that are checked in Parts B, C and/or D above for the dairy identified in Part A above and that the appropriate certified nutrient management specialist has certified the items requiring such certification as noted in part B and/or D above and that I have personally examined and am familiar with the information submitted in Parts A, B, C and D of this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

Henry Tosta

SIGNATURE OF OWNER OF FACILITY | SIGNATURE OF OPERATOR OF FACILITY

Henry Tosta HENRY TOSTA

PRINT OR TYPE NAME | PRINT OR TYPE NAME

12-11-12

DATE | DATE

# Henry Tosta Dairy

2009 Land Application Map

500 250 0 500

Feet

## Legend

- Facility Area
- Land Units
- APN Parcels
- Drainage Controls Point
- Drainage Controls Line
- Discharge and Sampling Location
- Flow Meter
- Pumping Facility
- Mixing Point
- Surface Water Conveyance
- Wastewater Transfer Canal
- Wastewater Transfer Pipe
- Wastewater Pipe w/ Discharges

Wells

- Dairy
- Domestic
- Domestic w/in 600ft
- Groundwater Monitoring
- Irrigation

- Drainage Flow Direction

Please Note:
Berms and/or levees are along surface water conveyances

# NMP Map #1