

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

DAIRY FACILITY INFORMATION

A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY: Machado Dairy

Physical address of dairy:

<u>7413 S Mitchell RD</u>	<u>Turlock</u>	<u>Stanislaus</u>	<u>95380</u>
Number and Street	City	County	Zip Code

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

TRS Data and Coordinates:

<u>6S</u>	<u>9E</u>	<u>11</u>	<u>Mt. Diablo</u>	<u>37° 25' 27.61" N</u>	<u>120° 56' 30.61" W</u>
Township (T_)	Range (R_)	Section (S_)	Baseline meridian	Latitude (N)	Longitude (W)

Date facility was originally placed in operation: 01/01/1970

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

County Assessor Parcel Number(s) for dairy facility:

0057-0007-0004-0000 0057-0007-0005-0000 0057-0007-0006-0000

B. OPERATOR NAME: Machado, Isabel

Telephone no.: (209) 634-5026

Landline Cellular

<u>7413 S Mitchell RD</u>	<u>Turlock</u>	<u>CA</u>	<u>95380</u>
Mailing Address Number and Street	City	State	Zip Code

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

C. LEGAL OWNER NAME: Machado, Isabel

Telephone no.: (209) 634-5026

Landline Cellular

<u>7413 S Mitchell RD</u>	<u>Turlock</u>	<u>CA</u>	<u>95380</u>
Mailing Address Number and Street	City	State	Zip Code

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

D. CONTACT NAME: Nunes, Afton Marie

Telephone no.: (209) 238-2318

Landline Cellular (209) 681-1722

Title: Environmental Technician

<u>1211 L ST</u>	<u>Modesto</u>	<u>CA</u>	<u>95354</u>
Mailing Address Number and Street	City	State	Zip Code

CONTACT NAME: Machado, Johnny

Telephone no.:

Landline Cellular (209) 652-6929

Title: Owner/Operator

<u>7413 S Mitchell RD</u>	<u>Turlock</u>	<u>CA</u>	<u>95380</u>
Mailing Address Number and Street	City	State	Zip Code

CONTACT NAME: Mitchell, Michael

Telephone no.: (209) 664-1067

Landline Cellular

Title: Professional Engineer

<u>18836 Clausen RD</u>	<u>Turlock</u>	<u>CA</u>	<u>95380</u>
Mailing Address Number and Street	City	State	Zip Code

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HERD AND MILKING EQUIPMENT

A. HERD AND MILKING

The milk cow dairy is currently regulated under individual Waste Discharge Requirements.

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:

1,410 milk and dry cows combined (regulatory review is required for any expansion)

Type of Animal	Present Count	Maximum Count	Daily Flush Hours	Avg Live Weight (lbs)
Milk Cows	1,284	1,284	18	1,300
Dry Cows	126	126	5	1,400
Bred Heifers (15-24 mo.)	0	0	0	0
Heifers (7-14 mo.)	0	0	0	0
Calves (4-6 mo.)	0	0	0	
Calves (0-3 mo.)	0	0	0	

Predominant milk cow breed:

Holstein

Average milk production:

72 pounds per cow per day

Average number of milk cows per string sent to the milkbarn:

128 milk cows per string

Number of milkings per day:

2.0 milkings per day

Number of times milk tank is emptied/filled each day:

1.0 per day

Number of hours spent milking each day:

8.0 hours per day

B. MILKBARN EQUIPMENT AND FLOOR WASH

Bulk tank wash and sanitizing:

3.0 run cycles/wash

Bulk tank wash vat volume:

60 gallons/cycle

Bulk tank wash wastewater:

180.0 gallons/day

Pipeline wash and sanitizing:

3.0 run cycles/wash

Pipeline wash vat volume:

70 gallons/cycle

Pipeline wash wastewater:

420.0 gallons/day

Reused / recycled water is the source of parlor floor wash water:

Yes No

Milkbarn / parlor floor wash volume:

7,000 gallons/day

Plate coolers type:

Mechanically/Air Cooled

Plate coolers volume:

0 gallons/day

Vacuum pumps / air compressors / chillers type:

Mechanically/Air Cooled

Vacuum pumps / air compressors / chillers volume:

0 gallons/day

Milkbarn and equipment wastewater volume generated daily:

7,635 gallons/day

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B. SOLIDS SEPARATION PROCESS

Combined manure solids separation efficiency (weight basis): 50 %

Description of all solids separation equipment used in flushed lane manure management systems:

Two Settling basins
 Sand trap

C. MANURE AND BEDDING SOLIDS SUMMARY

	cubic feet		gallons	
	day	storage period	day	storage period
Manure generated by the herd (pre-separation):	3,070.10	368,413	22,965.98	2,755,918
Manure generated by the herd sent to pond(s):	1,852.87	222,344	13,860.43	1,663,252
Manure generated by the herd sent to dry lot(s):	851.99	102,239	6,373.34	764,800
Manure solids (herd) removed by separation:	176.81	21,218	1,322.65	158,718
Liquid component in separated solids not send to pond(s):	188.43	22,612	1,409.56	169,147
Imported and facility generated bedding sent to pond(s):	83.33	10,000	623.38	74,805
Total manure and bedding sent to pond(s):	1,936.20	232,344	14,483.81	1,738,057
Residual manure solids and bedding sent to pond(s) w/factor:	130.07	15,609	973.02	116,762
	cubic feet per year		gallons per year	
Residual manure solids and bedding sent to pond(s) w/factor:	47,477		355,151	

RAINFALL AND RUNOFF

A. RAINFALL ESTIMATES

Rainfall station nearest the facility: Turlock

25 year/24 hour storm event (default NOAA Atlas 2, 1973): 2.50 inches/storage period

25 year/24 hour storm event (user-override): _____ inches/storage period

Storage period rainfall (default DWR climate data): 8.56 inches/storage period

Storage period rainfall (user-override): _____ inches/storage period

Flood zone: Zone X

B. IMPERVIOUS AREAS

Name	Surface Area (sq. ft.)	Quantity	25yr/24hr Storm Runoff Coefficient	Storage Period Runoff Coefficient	Runoff Destination
Cow walk	4,080	2	0.79	0.82	Drains into pond(s).
Feed storage	100,800	1	0.79	0.82	Drains into pond(s).
Free stall feed lane	1,260	1	0.79	0.82	Drains into pond(s).
Free stall/heifer walk	7,000	2	0.79	0.82	Drains into pond(s).
Heifer feed lane	700	1	0.79	0.82	Drains into pond(s).
Middle free stall lane	1,320	2	0.79	0.82	Drains into pond(s).

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Surface area that does not run off into pond(s): 0 sq. ft.
 Surface area that runs off into pond(s): 127,560 sq. ft.
 Total surface area: 127,560 sq. ft.
 Runoff from normal storage period rainfall: 558,152 gallons/storage period
 Runoff from normal storage period rainfall with 1.5 factor: 837,228 gallons/storage period
 25 year/24 hour storm event runoff: 157,048 gallons/storage period
 Total surface area runoff: 715,200 gallons/storage period
 Total surface area runoff with 1.5 factor: 994,276 gallons/storage period

C. ROOF AREAS

Name	Surface Area (sq. ft.)	Quantity	Runoff Destination
Commodity barn	3,200	1	Wastewater pond
Freestall 1	28,000	1	Wastewater pond
Freestall 2	70,000	1	Wastewater pond
Hay barn	6,000	1	Wastewater pond
Heifer barn	35,000	1	Wastewater pond
Heifer barn 2	3,200	1	Wastewater pond
Milkbarn	13,000	1	Wastewater pond
Office	1,950	1	Wastewater pond

Surface area that does not run off into pond(s): 0 sq. ft.
 Surface area that runs off into pond(s): 160,350 sq. ft.
 Total surface area: 160,350 sq. ft.
 Runoff from normal storage period rainfall: 855,644 gallons/storage period
 Runoff from normal storage period rainfall with 1.5 factor: 1,283,466 gallons/storage period
 25 year/24 hour storm event runoff: 249,896 gallons/storage period
 Total surface area runoff: 1,105,540 gallons/storage period
 Total surface area runoff with 1.5 factor: 1,533,362 gallons/storage period

D. EARTHEN AREAS

Name	Surface Area (sq. ft.)	Quantity	25yr/24 Storm Coefficient	Storage Period Coefficient	Runoff Destination
Free stall corrals	70,000	1	0.64	0.66	Drains into pond(s).
Heifer corral	35,000	1	0.64	0.66	Drains into pond(s).

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Surface area that does not run off into pond(s):	<u>0</u> sq. ft.
Surface area that runs off into pond(s):	<u>105,000</u> sq. ft.
Total surface area:	<u>105,000</u> sq. ft.
Runoff from normal storage period rainfall:	<u>369,792</u> gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	<u>554,688</u> gallons/storage period
25 year/24 hour storm event runoff:	<u>104,727</u> gallons/storage period
Total surface area runoff:	<u>474,519</u> gallons/storage period
Total surface area runoff with 1.5 factor:	<u>659,415</u> gallons/storage period

E. TAILWATER MANAGEMENT

No fields with tailwater entered.

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LIQUID STORAGE

A. POND OR BASIN DESCRIPTION: LG1

Pond is rectangular in shape: Yes No

Dimensions			
Earthen Length (EL):	860 ft.	Earthen Depth (ED):	11 ft.
Earthen Width (EW):	182 ft.	Side Slope (S):	1.5 ft. (h:1v)
Free Board (FB):	2 ft.	Dead Storage Loss (DS):	1.0 ft.
Calculations			
Liquid Length (LL):	854 ft.	Storage Volume Adjusted for Dead Storage Loss:	1,105,088 cu. ft.
Liquid Width (LW):	176 ft.		
Pond Surface Area:	156,520 sq. ft.	Pond Marker Elevation:	8.4 ft.
Storage Volume:	1,229,778 cu. ft.	Evaporation Volume:	803,457 gals/period
		Adjusted Surface Area:	149,435 sq. ft.

POND OR BASIN DESCRIPTION: SB1

Pond is rectangular in shape: Yes No

Dimensions			
Earthen Length (EL):	407 ft.	Earthen Depth (ED):	11 ft.
Earthen Width (EW):	60 ft.	Side Slope (S):	1.5 ft. (h:1v)
Free Board (FB):	2 ft.	Dead Storage Loss (DS):	5.0 ft.
Calculations			
Liquid Length (LL):	401 ft.	Storage Volume Adjusted for Dead Storage Loss:	75,888 cu. ft.
Liquid Width (LW):	54 ft.		
Pond Surface Area:	24,420 sq. ft.	Pond Marker Elevation:	8.4 ft.
Storage Volume:	141,790 cu. ft.	Evaporation Volume:	114,193 gals/period
		Adjusted Surface Area:	21,239 sq. ft.

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POND OR BASIN DESCRIPTION: SB2

Pond is rectangular in shape: Yes No

Dimensions			
Earthen Length (EL):	<u>417</u> ft.	Earthen Depth (ED):	<u>11</u> ft.
Earthen Width (EW):	<u>60</u> ft.	Side Slope (S):	<u>1.5</u> ft. (h:1v)
Free Board (FB):	<u>2</u> ft.	Dead Storage Loss (DS):	<u>5.0</u> ft.
Calculations			
Liquid Length (LL):	<u>411</u> ft.	Storage Volume Adjusted for Dead Storage Loss:	<u>77,808</u> cu. ft.
Liquid Width (LW):	<u>54</u> ft.		
Pond Surface Area:	<u>25,020</u> sq. ft.	Pond Marker Elevation:	<u>8.4</u> ft.
Storage Volume:	<u>145,436</u> cu. ft.	Evaporation Volume:	<u>117,048</u> gals/period
		Adjusted Surface Area:	<u>21,770</u> sq. ft.

Potential storage losses (due to dead storage): 258,220.0 cubic feet - or - 1,931,619.7 gallons

Liquid storage surface area: 194,152 sq. ft.

Rainfall onto retention pond(s): 1,099,024 gallons/storage period

Rainfall runoff into retention pond(s): 1,783,588 gallons/storage period

Normal rainfall onto retention pond(s) with 1.5 factor: 1,648,536 gallons/storage period

Normal rainfall runoff into retention pond(s) with 1.5 factor: 2,675,383 gallons/storage period

Storage period evaporation (default): 11.50 inches/storage period

Storage period evaporation (user-override): _____ inches/storage period

Storage period evaporation volume: 1,034,698 gallons/storage period

Manure and bedding sent to pond(s): 1,738,057 gallons/storage period

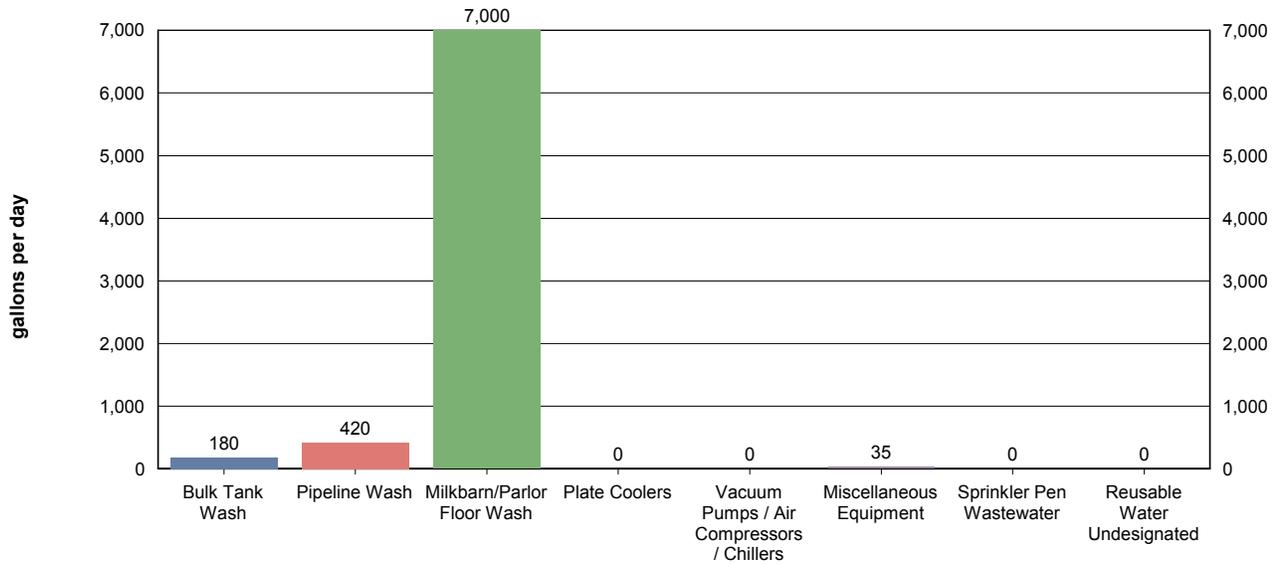
Milkbarn water sent to pond(s): 916,200 gallons/storage period

Fresh flush water for storage period: 0 gallons/storage period

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CHARTS

A. MILKBARN WASTEWATER SENT TO POND(S)

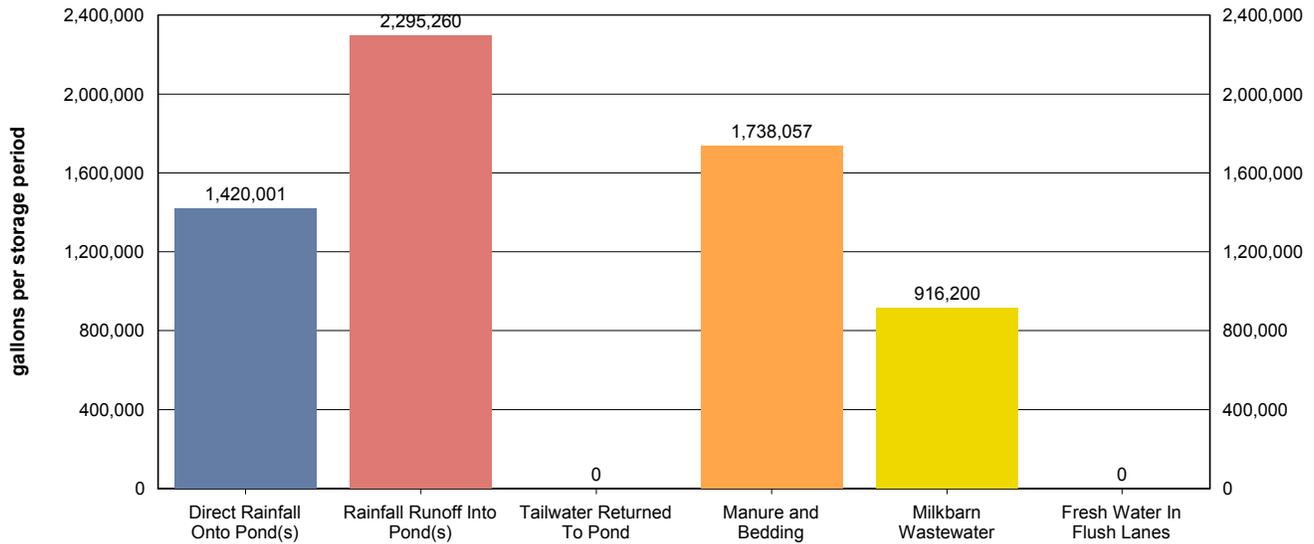


Values shown in chart are approximate values per day.

Total milkbarn wastewater generated daily: 7,635 gallons/day
 Total milkbarn wastewater generated per period: 916,200 gallons/storage period

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B. PROCESS WASTEWATER (NORMAL PRECIPITATION)



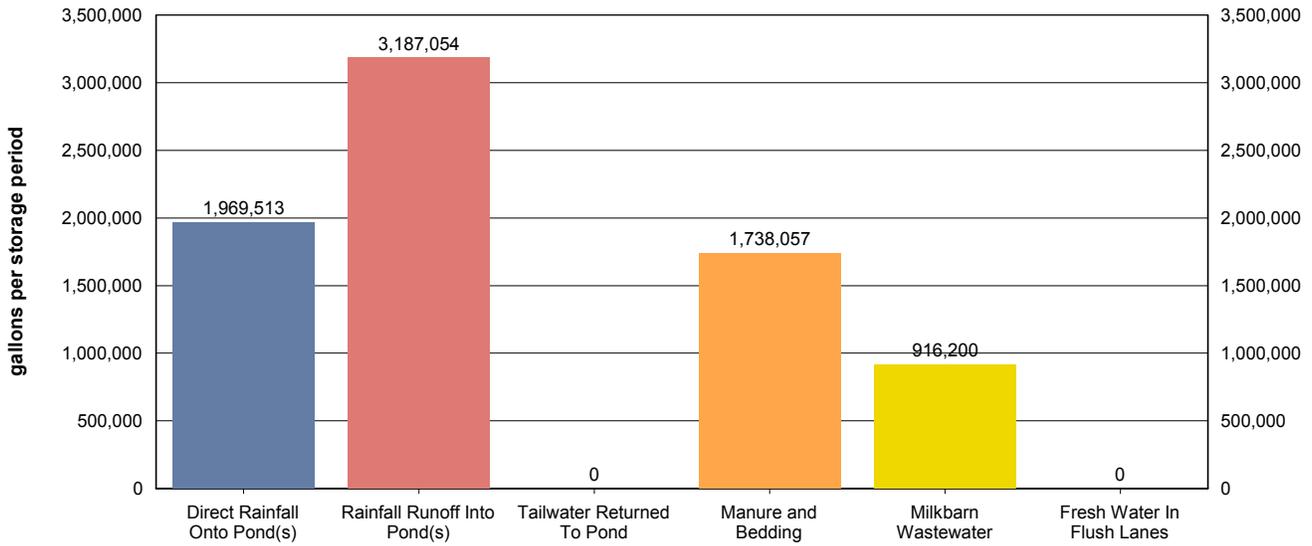
Values shown in chart are approximate values for storage period.

Storage period:	<u>120</u> days
Total process wastewater generated daily:	<u>53,079</u> gallons/day
Total process wastewater generated per period:	<u>6,369,517</u> gallons/storage period
Total process wastewater removed due to evaporation:	<u>1,034,698</u> gallons/storage period
Total storage capacity required:	<u>5,334,819</u> gallons
	<u>713,162</u> cu. ft.
Existing storage capacity (adjusted for dead storage loss):	<u>9,416,358</u> gallons
	<u>1,258,784</u> cu. ft.

Considering normal precipitation, existing capacity meets estimated storage needs: Yes No

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C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)



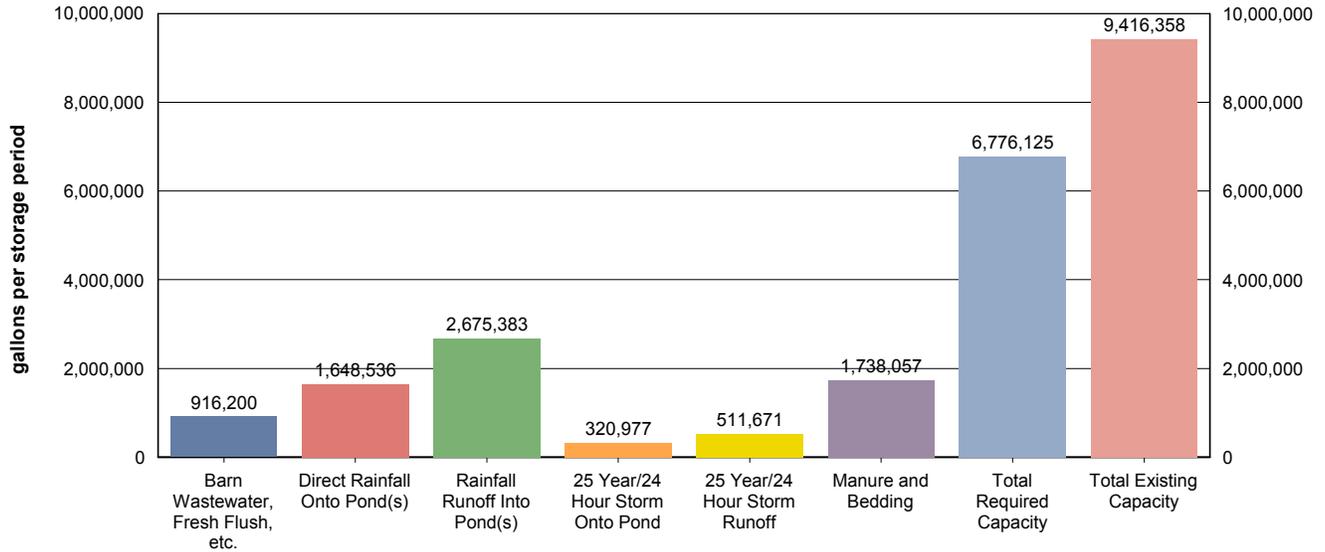
Values shown in chart are approximate values for storage period.

Storage period:	<u>120</u> days
Total process wastewater generated daily:	<u>65,090</u> gallons/day
Total process wastewater generated per period:	<u>7,810,823</u> gallons/storage period
Total process wastewater removed due to evaporation:	<u>1,034,698</u> gallons/storage period
Total storage capacity required:	<u>6,776,125</u> gallons
	<u>905,836</u> cu. ft.
Existing storage capacity (adjusted for dead storage loss):	<u>9,416,358</u> gallons
	<u>1,258,784</u> cu. ft.

Considering factored precipitation, existing capacity meets estimated storage needs: Yes No

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D. STORAGE VOLUME ASSESSMENT (NORMAL PRECIPITATION WITH 1.5 FACTOR)



Values shown in chart are approximate values for storage period.

Storage period:	<u>120</u> days
Barn wastewater, fresh flush water, and tailwater:	<u>916,200</u> gallons/storage period
Manure and bedding sent to pond:	<u>1,738,057</u> gallons/storage period
Precipitation onto pond:	<u>1,648,536</u> gallons/storage period
Precipitation runoff:	<u>2,675,383</u> gallons/storage period
25 year/24 hour storm onto pond:	<u>320,977</u> gallons/storage period
25 year/24 hour storm runoff:	<u>511,671</u> gallons/storage period
Residual solids after liquids have been removed (liquid equivalent):	<u>116,762</u> gallons/storage period
Total process wastewater removed due to evaporation:	<u>1,034,698</u> gallons/storage period
Total required capacity:	<u>6,776,125</u> gallons/storage period
Total existing capacity:	<u>9,416,358</u> gallons/storage period
Existing capacity meets estimated storage needs:	<input checked="" type="checkbox"/> Yes [] No

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REQUIRED ATTACHMENTS

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Waste Management Plan for the reporting schedule of 'July 1, 2010'.

A. SITE MAP(S)

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: structures used for animal housing, milk parlor, and other buildings; corrals and ponds; solids separation facilities (settling basins or mechanical separators); other areas where animal wastes are deposited or stored; feed storage areas; drainage flow directions and nearby surface waters; all water supply wells (domestic, irrigation, and barn wells) and groundwater monitoring wells.

Production area map reference number: Production area map

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land 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) including the following in sufficient detail: a field identification system (Assessor's Parcel Number; field by name or number; total acreage of each field; crops grown; indication if each field is owned, leased, or used pursuant to a formal agreement); 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.

Application area map reference number: Land application map

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all cropland (land that is part of the dairy but not used for dairy waste application) including the following in sufficient detail: Assessor's Parcel Number, total acreage, crops grown, and information on who owns or leases the field. The Waste Management Plan shall indicate if such cropland is covered under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R5-2006-0053 for Coalition Group or Order No. R5-2006-0054 for Individual Discharger, or updates thereto).

Non-application area map reference number: Production area map

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all off-property domestic wells within 600 feet of the production area or land application area(s) associated with the dairy and the location of all municipal supply wells within 1,500 feet of the production area or land application area(s) associated with the dairy.

Well area map reference number: Production area map

Provide a site map (or maps) of appropriate scale to show property boundaries and a vicinity map, north arrow and the date the map was prepared. The map shall be drawn on a published base map (e.g., a topographic map or aerial photo) using an appropriate scale that shows sufficient details of all facilities.

Vicinity map reference number: Vicinity map

B. PROCESS WASTEWATER MAP(S)

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: process wastewater conveyance structures, discharge points, and discharge /mixing points with irrigation water supplies; pumping facilities and flow meter locations; upstream diversion structures, drainage ditches and canals, culverts, drainage controls (berms/levees, etc.), and drainage easements; and any additional components of the waste handling and storage system.

Production infrastructure system area map reference number: Production area map

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Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land 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) including the following in sufficient detail: process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities; flow meter locations; drainage ditches and canals, culverts, drainage controls (berms, levees, etc.), and drainage easements.

Land application infrastructure system area map reference number: Land application map

C. EXCESS PRECIPITATION CONTINGENCY REPORT

There were no attachment references entered or required for this attachment section.

D. OPERATION AND MAINTENANCE PLAN

Provide an operation and maintenance plan to ensure that there is no discharge of waste or storm water to surface waters from the production area, and that groundwater is protected (see Attachment B, Pg B-7 of the Waste Discharge Requirements General Order No. R5-2007-0035 for additional requirements).

E. FLOOD PROTECTION / INUNDATION REPORT

Provide a published flood zone map that shows the facility is outside the relevant flood zones.

Flood zone map and/or document reference number: FEMA Flood Map

F. BACKFLOW PROTECTION

Attach documentation from a trained professional (i.e. a person certified by the American Backflow Prevention Association, an inspector from a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training), as specified in Required Reports and Notices H.1 of Waste Discharge Requirements General Order No. R5-2007-0035, that there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the Site Map.

Backflow documentation reference number: Backflow protc doc

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CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Machado Dairy
Physical address of dairy:

7413 S Mitchell RD	Turlock	Stanislaus	95380
Number and Street	City	County	Zip Code

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

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I have reviewed the portion of the waste management plan that is related to storage capacity facility and design specifications in accordance with Item II, Attachment B of the Waste Discharge Requirements General Order for Existing Milk Cow Dairies - Order No. R5-2007-0035 and certify that this plan was prepared by, or under the responsible charge of, and certified by a civil engineer who is registered pursuant to California law or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work.

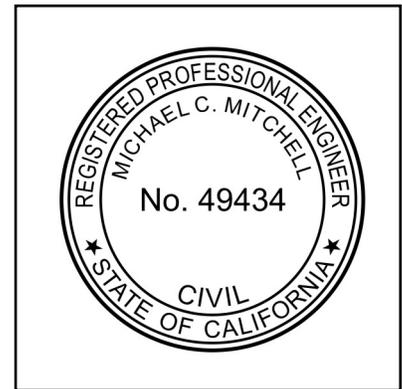
Storage capacity is:

Insufficient

- Retrofitting Plan/Schedule/Design Criteria attached in accordance with Attachment B, II.B. 1-5 and Attachment B, II. C.

Sufficient

- Certification 1 - Certified in accordance with Attachment B, II. A. 1-8. (no contingency plan)
- Certification 2 - Certified in accordance with Attachment B, II. A. 1-8, II. C. (with contingency plan attached)



CIVIL ENGINEER'S WET STAMP

4/17/14

SIGNATURE OF CIVIL ENGINEER

DATE

Michael Mitchell

PRINT OR TYPE NAME

18836 Clausen RD; Turlock, CA 95380

MAILING ADDRESS

(209) 664-1067

PHONE NUMBER

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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.

Isabel Machado

Johnny Machado

SIGNATURE OF OWNER

SIGNATURE OF OPERATOR

Isabel Machado

JOHNNY MACHADO

PRINT OR TYPE NAME

PRINT OR TYPE NAME

10/28/14

10/28/14

DATE

DATE