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Addendum to Sampling and Analysis Plan

Bar 20 Dairy - Bar 20 Dairy Farms

Regional Water Quality Control Board adopted revised Monitoring and Reporting Program Order No. R5-2007-0035 in February 2011. According to the revised Order, the following analyses will be added to the Sampling and Analysis Plan (Section II in Attachment C: Nutrient Management Plan, WDR Order No. R5-2007-0035).

Process Wastewater

Total dissolved solids (TDS) and un-ionized ammonia nitrogen (NH_3-N) are be analyzed for quarterly, while pH and EC will be analyzed annually.

General minerals (Ca, Mg, Na, HCO_3, CO_3, SO_4, Cl) are to be analyzed biannually (every two years).

Manure

General minerals (Ca, Mg, Na, S, Cl) and ash are to be analyzed biannually (every two years).

Plant Tissue

Fixed Solids (ash) are to be analyzed for Harvest tissue samples in addition to percent moisture, nitrogen, phosphorus, potassium.

Soil

Total phosphorus is no longer required. Instead, soluble (extractable) phosphorus is to be analyzed at least every five years.

Irrigation Water

Total dissolved solids (TDS) and ammonia nitrogen (NH_4-N) are to be analyzed annually.

Domestic and Agricultural Supply Wells

Ammonia nitrogen (NH_4-N) are to be analyzed annually and general minerals (Ca, Mg, Na, HCO_3, CO_3, SO_4, Cl, TDS) are to be analyzed every five years.

1910 W. McKinley, Suite 110 • Fresno, CA 93728-1298 • (559) 233-6129
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Nutrient Management Plan for Existing Milk Cow Dairies (WDR Order No. R5-2007-0035)
Bar 20 Dairy #2 and #3 Dairy, Fresno County, California

Regional Water Quality Control Board Order No. R5-2007-0035 requires Nutrient Management Plan (NMP) including land application area information (Items I.A.1, I.B., I.C., and I.D.), sampling and analysis for nutrient monitoring (Item II), evaluation of setbacks and buffers for surface water protection (Item IV) and record-keeping requirements (Item VI).

The following nutrient management plan follows the outline as set forth by the "Contents of a Nutrient Management Plan and Technical Standards for Nutrient Management for Existing Milk Cow Dairies" (Attachment C, WDR Order No. R5-2007-0035).

This portion presents Item II "Sampling and Analysis Plan" of the nutrient management plan

II. Sampling and Analysis

The nutrient management plan requires a nutrient balance based on the monitoring of soils, plant tissues, harvest tissue, irrigation water, solid manure and process wastewater. Samples of each of these monitoring components will be collected for analysis. This Sampling and Analysis Plan for the **Bar 20 Dairy #2 and #3 Dairy** is developed by a Dellavalle Laboratory, Inc. certified crop advisor.

Sampling Frequency and Schedule

The sampling frequency and schedule are shown below (Table 1). Analytical methods for solid manure, process waste water, well water, plant tissue, and soil sample analysis are listed in Table 2. The cropping rotation for each field may vary form year to year. The sampling plan for each specific crop is listed below. As the cropping rotations for each field change the sampling plan will adhere to schedule for each specific crop.

A. Winter Forage

Pre-plant soils will be collected in the fall prior to planting. Composite samples will be collected at one foot increments to a depth of three feet. The top foot will be analyzed for pH, EC, Ca, Mg, Na, Exchangeable Sodium Percentage (ESP), Gypsum or Lime Requirements, B, NO_3-N, PO_4-P, K, Zn, and total phosphorus (every 5 years). The second and third foot depths will be analyzed for NO_3-N.

A plant tissue sample will be collected during the growing season to monitor crop nutrient status. The samples will be analyzed for nitrogen, phosphorus and potassium.

Harvest tissue samples will be collect during harvest and will be analyzed for percent moisture, nitrogen, phosphorus, and potassium.

B. Corn (following winter forage)
Pre-plant soils will be collected in the spring either after the winter forage has been harvested or before corn sidedress fertilizer applications. Composite samples will be collected at one foot increments to a depth of two feet. Both the first and second foot depths will be analyzed for NO_3-N.

A plant tissue sample will be collected during the growing season to monitor crop nutrient status. The samples will be analyzed for nitrogen, phosphorus and potassium.

Harvest tissue samples will be collect during harvest and will be analyzed for percent moisture, nitrogen, phosphorus, and potassium.

C. Sudan Grass
Pre-plant soils will be collected either in the spring after the winter forage is harvested or in the summer after the early corn is harvested. Composite samples will be collected at one foot increments to a depth of two feet. Both the first and second foot depths will be analyzed for NO_3-N.

Harvest tissue samples will be collect after each cutting and will be analyzed for percent moisture, nitrogen, phosphorus, and potassium.

D. Alfalfa
Soil samples will be collected in the spring prior to first cutting . Composite samples will be collected at one foot increments to a depth of three feet. The top foot will be analyzed for pH, EC, Ca, Mg, Na, Exchangeable Sodium Percentage (ESP), Gypsum or Lime Requirements, B, NO_3-N, PO_4-P, K, Zn, and total phosphorus (every 5 years). The second and third foot depths will be analyzed for NO_3-N.

Harvest tissue samples will be collect after each cutting and will be analyzed for percent moisture, nitrogen, phosphorus, and potassium.

E. Solid Manure
Solid manure samples will be collected in the spring and fall prior to land application events. In the spring solid manure is generally applied after the winter forage has been harvested and in the fall after the corn has been harvested. Solid manure samples will be collected approximately three to four weeks before application or being hauled of site.

F. Process Water
Process water samples will be collected quarterly during irrigation events. The samples will be collected from designated locations prior to mixing with fresh water.

G. Well Water
The agricultural and domestic wells will be sample annually for EC, and total nitrogen.

Table 1.
Sampling Frequency and Schedule

Double Crop

Monitoring Components	Winter Forage					Corn Silage						
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop: Winter Forage and Corn Silage												
Mid-season Plant Tissue		X						X				
Crop Harvest Analysis					X					X		
Pre-Sidedress Soil 2'						X						
Post Harvest Soil Analysis 3'										X		

Symbol "X" indicates the approximate sampling time.
Sampling schedule is tentative and can be changed due to weather conditions, field management practices, etc.

Alfalfa

Monitoring Components	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop: Alfalfa												
Soil Analysis 3'			X									
Crop Harvest Analysis				X	X	X	X	X	X	X	X	

Symbol "X" indicates the approximate sampling time.
Sampling schedule is tentative and can be changed due to weather conditions, field management practices, etc.

Process Water & Solid Manure

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Process Wastewater	1st Quart.			2nd Quart.			3rd Quart.			4th Quart.		
Solid Manure					X						X	
Solid Manure General Minerals											X	

Symbol "X" indicates the approximate sampling time.
Sampling schedule is tentative and can be changed due to weather conditions, field management practices, etc.

Table 2. Analytical Methods for Manure, Process Wastewater, Plant Tissue and Soil Samples

Sample	Constituent	Method*
Manure	Total Nitrogen	TMECC 04.02-D
	Phosphorus	TMECC 04.03-A
	Potassium	TMECC 04.04-A
	% Moisture	TMECC 03.09-A
Manure General Minerals	Calcium	TMECC 04.05-Ca
	Magnesium	TMECC 04.05-Mg
	Sodium	TMECC 04.05-Na
	Chloride	TMECC 04.05-Cl
	Sulfate	TMECC 04.05-S
Process Wastewater	Electrical conductivity	SM 2510 B
	Ammonia-nitrogen	SM 4500NH_4 G/EPA 350.1
	Total Kjeldahl nitrogen	SM 4500Norg G
	Total Phosphorus	SM 4500P F/EPA 200.7
	Potassium	SM 3120 B/EPA 200.7
	Nitrate-nitrogen	SM 4500NO_3 F/EPA 300.0
Annual Well Water	Electrical Conductivity	SM 2510 B
	Nitrate-nitrogen	SM 4500NO_3 E/EPA 300.0
	Total Kjeldahl nitrogen	SM 4500NH_3C
	Total Nitrogen	Calculation
Mid-Season Tissue (Winter Forage, Cotton, Grape)	Nitrate-nitrogen	B 3.10
	Total Nitrogen	B 2.20
	Phosphate	B 3.10
	Potassium	B 3.10
Mid-Season Tissue (Corn, Sorghum, Sudan, Almond)	Total Nitrogen	B 2.20
	Phosphorus	B 4.20
	Potassium	B 4.20
Crop Harvest Tissue	Total Nitrogen	TMECC 04.02-D
	Phosphorus	TMECC 04.03-A
	Potassium	TMECC 04.04-A
	% Moisture	TMECC 03.09-A
Soil	pH	S 1.10
	Electrical Conductivity	S 1.20
	Calcium	S1.60
	Magnesium	S1.60
	Sodium	S1.60
	ESP	Calculation
	Gyp or Lime Req	S15.10 / S2.50
	Boron	S1.50
	Nitrate-nitrogen	S3.10
	Phosphate	S4.10
	Potassium	S1.60
	Zinc	S6.10
	Organic Matter (LOI)	S9.20
	Total Phosphorus	B4.20

*Reference
TMECC: Test Methods for the Examination of Composting and Compost
SM: Standard Methods for the Examination of Water and Wastewater, 19th ed.
S or B: Soil, Plant and Water Reference Methods for the Western Region, 3rd ed., 2005

Sampling Locations and Methods

Soil

A composite sample will be made from at least 10 to 30 sub-samples collected by soil probe or auger in each field or sampling unit, depending on block size and soil type variability. Samples will be collected from across the field in a pattern diagonal to, or perpendicular to the irrigation flow direction. At least three or more samples will come from the upper third of the field.

Plant Tissue

Sampling sites for mid-season tissue will be the same as soil sampling. Appropriate plant parts will be collected for the analysis. A composite sample will be made from at least 10 to 30 sub-samples collected from each sampling unit.

Harvest tissue samples will be collected during harvest from each field. A composite sample will be made from at least 10 to 30 sub-samples collected in each field.

Silage samples may be substituted for the harvest tissue samples. The procedure of silage sampling will be followed as described in *Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies* by the RWQCB.

Manure

Manure is stored at a dry manure storage site. Sampling shall follow the *solid manure sampling protocol* published by U C Davis and CQDAP. A composite manure sample will be collected from at least 10 to 20 locations of manure source. Samples will be collected from at least one foot below the surface of the manure pile.

Separate manure samples may be collected if manure sources are significantly different from one another, such as from corral scraping from milking cows, dry cows or heifers; separated solids, etc.

Process Wastewater

Samples of process wastewater shall be collected from designated locations prior to any dilution or blending with irrigation water. Samples will be collected during a process wastewater irrigation event. These samples shall be collected in accordance to the *liquid manure sampling protocol* published by UC Davis and CQDAP.

Domestic / Agricultural Supply Well / Irrigation Water

Well water samples will be collected according to the *irrigation (fresh) water sampling protocol* published by U C Davis and CQDAP. They will be collected prior to any dilution or blending with wastewater and nearest to the wellhead. The pump will run for a minimum of 30 minutes or after at least three well volumes have been purged from wells before the sample collection.

VI. Record keeping

Identify the records that will be maintained for each land application area identified in 1A above.

Currently, the discharger is working to collecting the information and records including;

- Expected and actual crop yields
- For each field, identify the crop, acreage, and planting and harvest dates
- Dates, location, approximate weight and moisture content (or volume and density) of solid manure applied to each field
- Dates, location, and volume of process wastewater applied to each field
- Record weather conditions at time of application and for 24 hours prior
- Written description of the process used to determine application rate for solid manure or wastewater
- Calculations showing total nitrogen, phosphorus and potassium to be applied to each field (from all sources) and the amount actually applied.
- Method used for each application (e.g. spreading, flood irrigation, etc.)

Reference List

Composting Council Research and Education Foundation. 2004. Test Methods for the Examination of Composting and Compost [Online]. Available at http://www.tmecc.org/tmecc/

Eaton, A.D., Clesceri, L.S., and Greenberg, A.E., (ed.) 1995. Standard Methods for the Examination of Water and Wastewater. 19th ed. Am. Public Health Assoc., Washington, DC.

Gavlak, R.G., Horneck, D.A., and Miller, R.O., 2005. Soil, Plant and Water Reference Methods for the Western Region. WREP-125. 3rd edition.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

SAMPLING AND ANALYSIS PLAN FOR EXISTING MILK COW DAIRIES UNDER WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035

CDQAP – WDR General Order Reference Binder TAB 6.10, Version 2-29-08

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PART I. DAIRY FACILITY INFORMATION

Name of Dairy or Business Operating the Dairy: **Bar 20 Dairy 2 and #3**

Physical address of Dairy:

Ex. 6 Personal Privacy (PP)

Number and Street City County Zip Code

PART II. 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.

Certified Crop Adviser # 37137

QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL — DATE: 3/1/11

Hitoshi Suyama

PRINT OR TYPE NAME

1910 W McKinley, Ste 110 Fresno, CA 93728

MAILING ADDRESS

559 233 6129 — PHONE NUMBER

hitoshis@dellavallelab.com — EMAIL ADDRESS

PART III. 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	SIGNATURE OF OPERATOR
Stephen J. Shehadey	Stephen J. Shehadey
PRINT OR TYPE NAME	PRINT OR TYPE NAME
3/2/11	3/2/11
DATE	DATE

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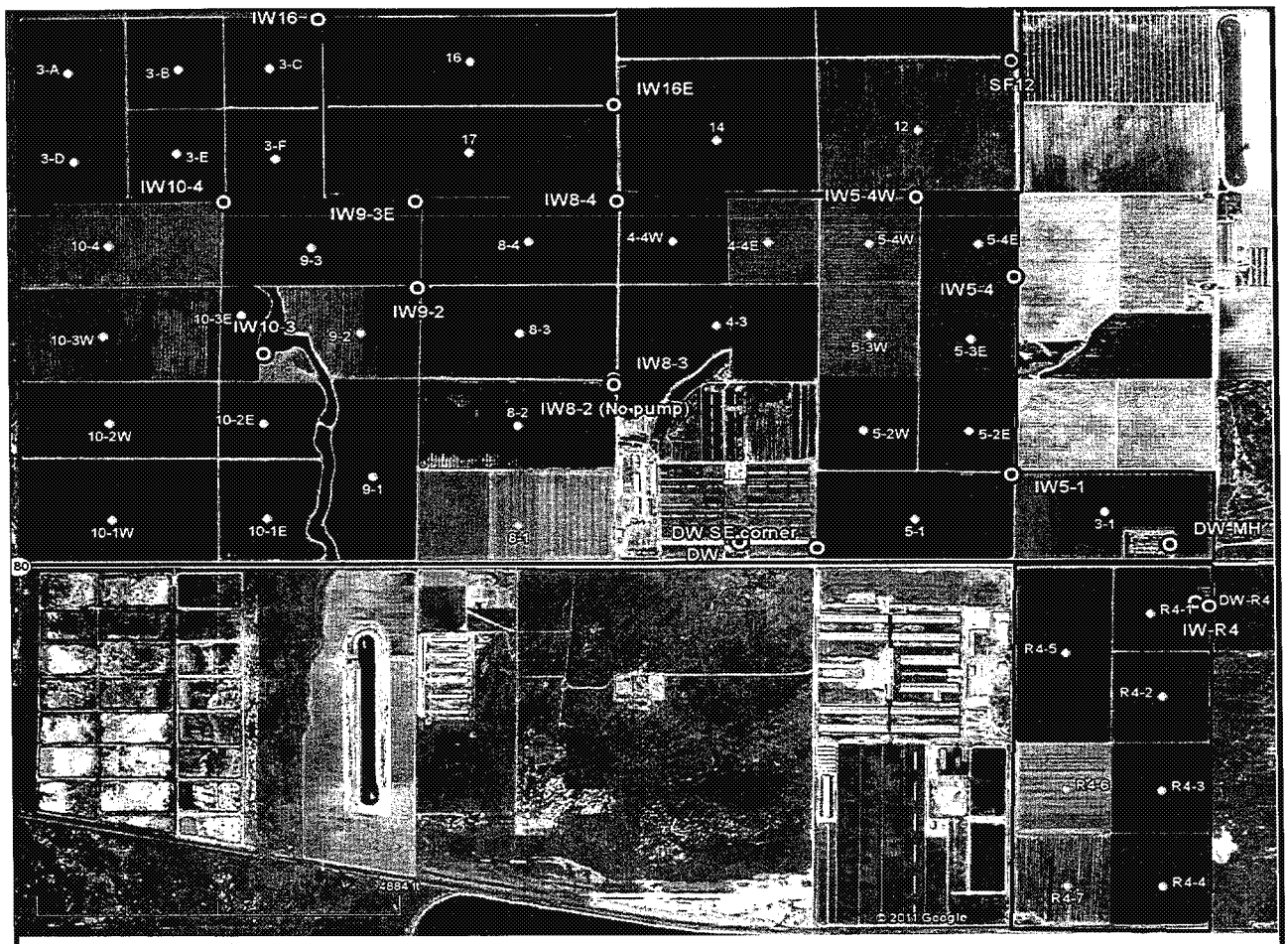

Bar 20 Dairy Farms
Bar 20 Ranch 4

Legend

⊙ Well

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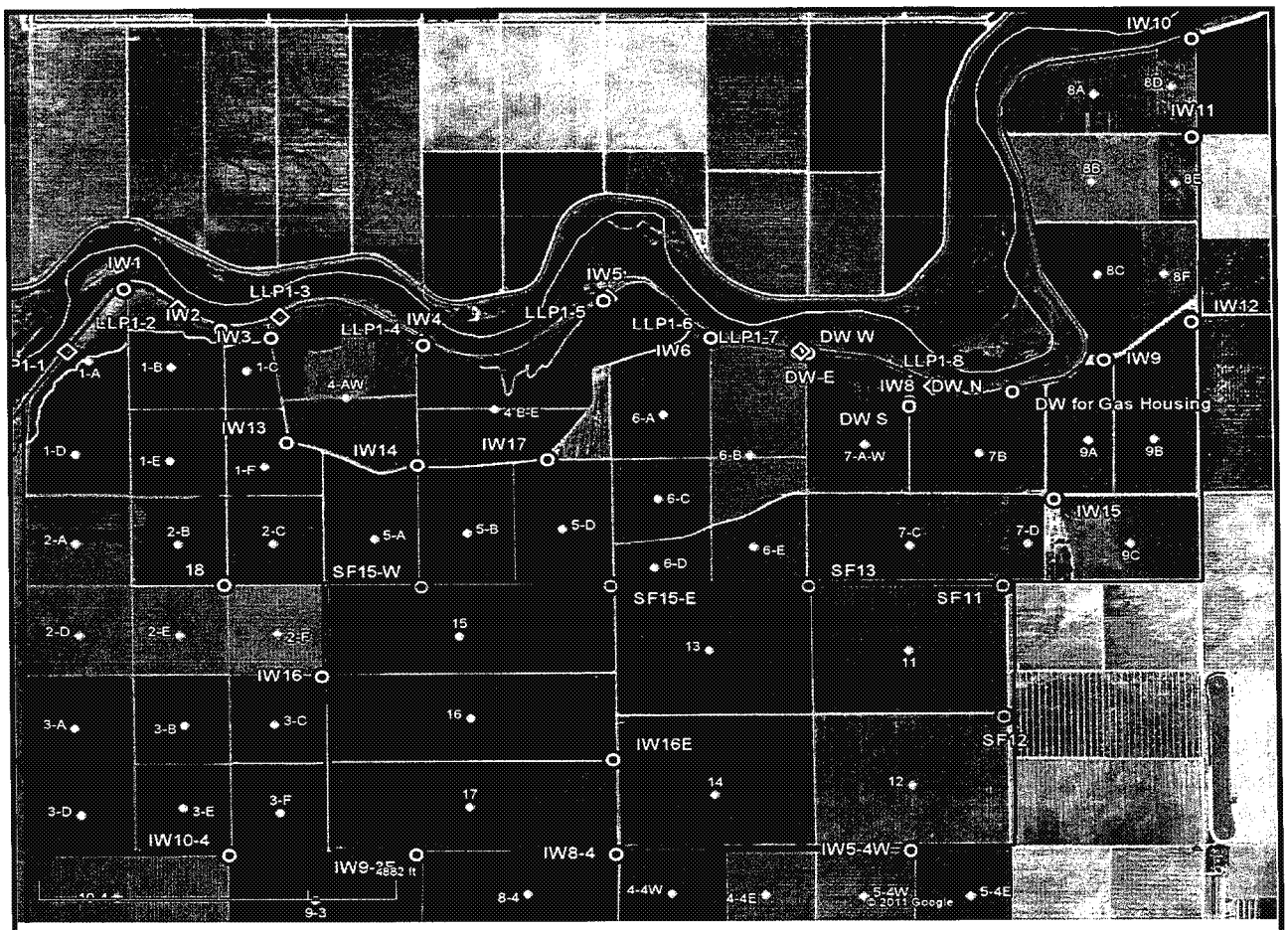

Larry A Shehadey Farms, LTD
Shehadey Farms

Legend

Well

Leach Line Pump

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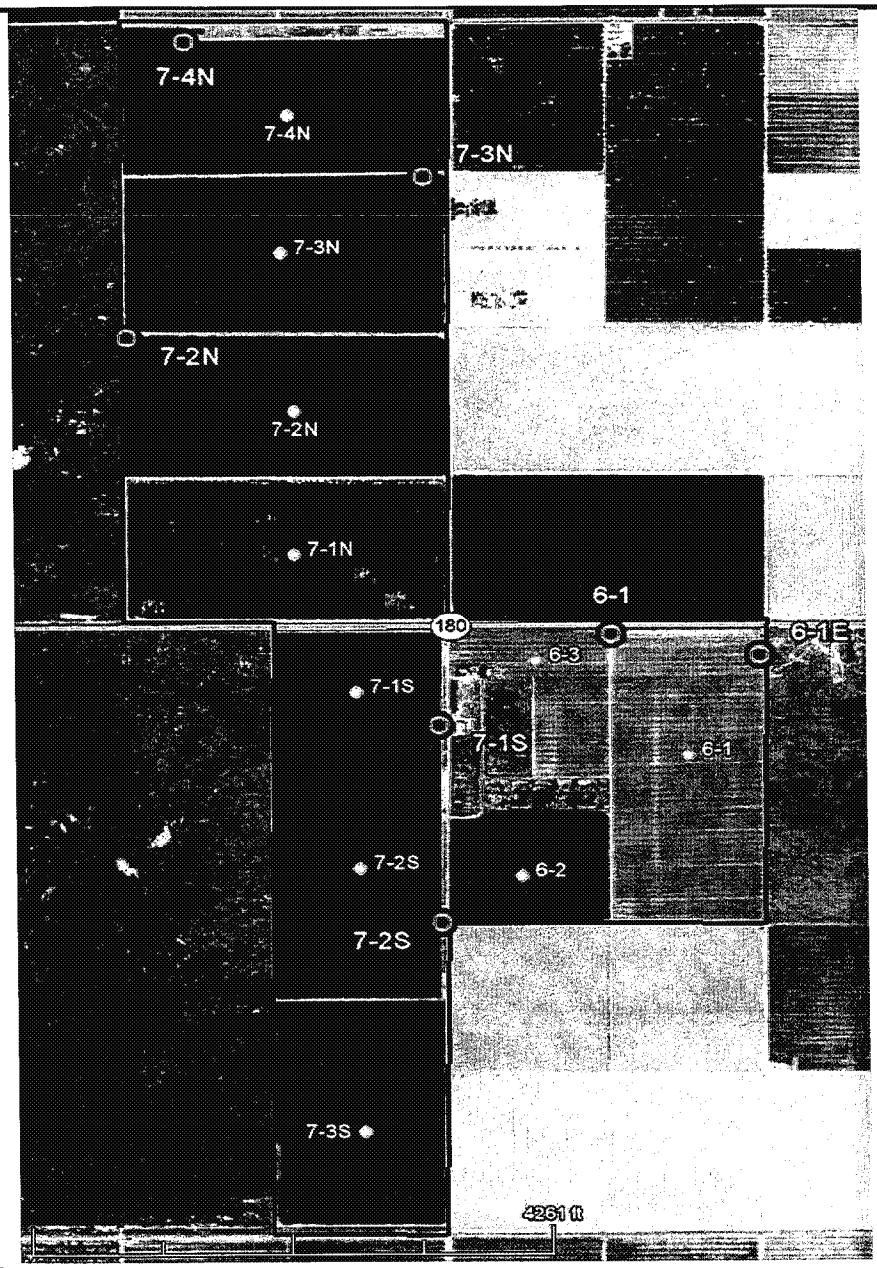
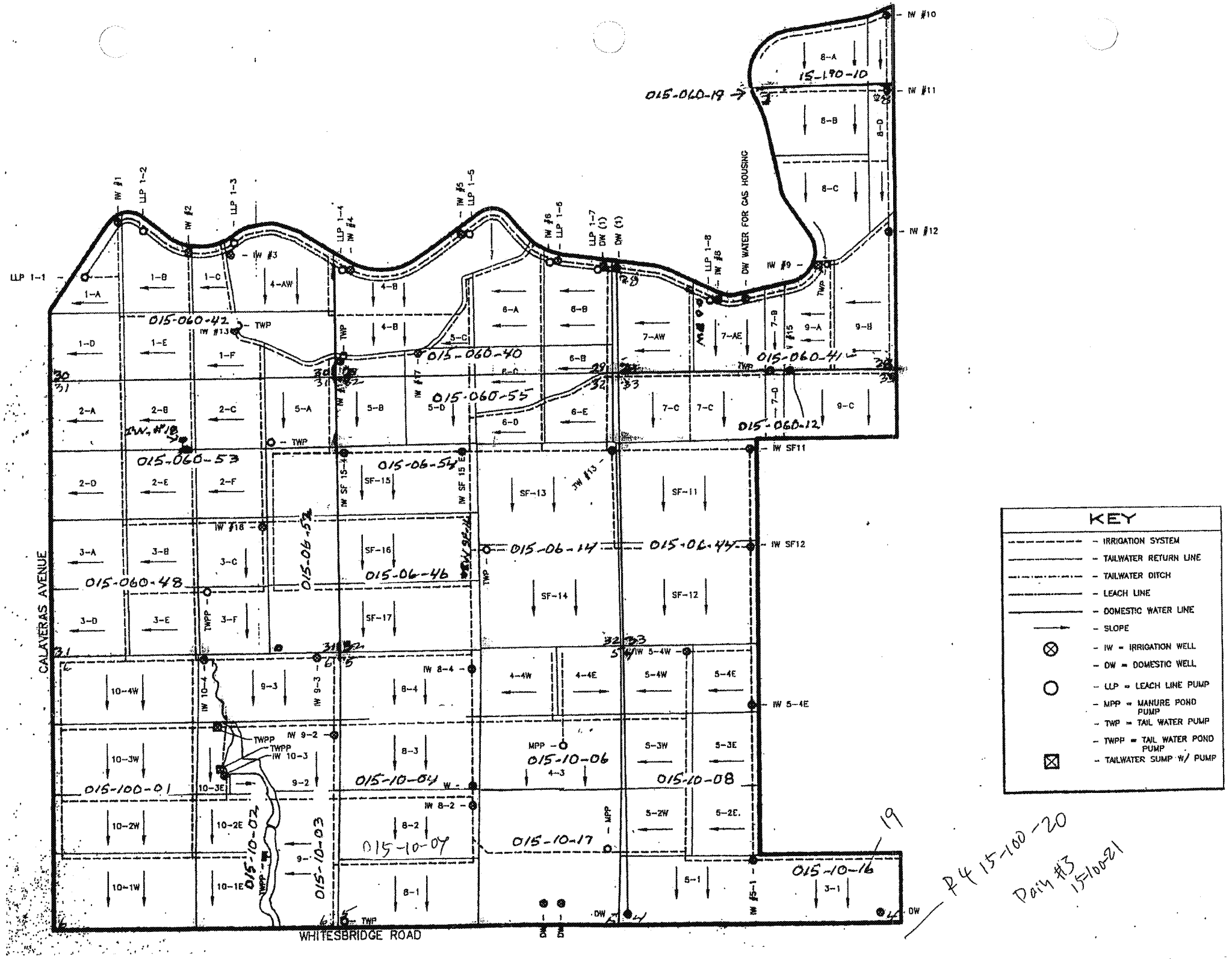


Shehadey Farms

Legend

⊙ Well



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Bar 20 Dairy #2

Submitted with Annual Report. KRD.

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Ex. 6 Personal Privacy (PP)

FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES

This form consists of six parts and can be used to document compliance with the requirements in Waste Discharge Requirements General Order No. R5-2007-0035 for owners/operators of existing milk cow dairies (Dischargers) to:

1. Identify cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map;

2. Propose and schedule corrective action to prevent backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map; and/or

3. Document 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 dairy's Site Map.

The Discharger must complete this form except for Parts IV and V, which are to be completed by a trained professional[1]. Both the owner and the operator of the dairy must sign the certification statement in Part VI. Additional sheets may be attached as necessary to complete Parts I, II, and III.

A Site Map must be attached to this form that shows all water supply wells, irrigation wells, and surface water bodies in the dairy's Production Area and all Land Application Areas that are under the Discharger's control. The Site Map must also show all wastewater conveyance structures, wastewater discharge points to surface water, and where wastewater is mixed/blended with fresh irrigation water in these areas. Each of these locations must be identified by a name or number and listed in Part II below. Completion of Part II will identify how backflow can or does occur at each location and any current backflow preventive measures.

PART I: DAIRY FACILITY INFORMATION

A. Name of Dairy or Business Operating the Dairy: Bar 20 Dairy #2 & #3

Physical address of Dairy:

Ex. 6 Personal Privacy (PP)

Number and Street | City | County | Zip Code

B. Operator Name: Shehadey, Steve Telephone No: Ex. 6 Personal Privacy (PP)

Operator mailing address:

P.O. Box 1231 | Fresno | CA | 93715-1231

Number and Street | City | County | Zip Code

C. Owner Name: Same as above Telephone No: _____

Owner Mailing Address:

Number and Street | City | County | Zip Code

[1] A trained professional could be a person certified by the American Backflow Prevention Association, an inspector for a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training.

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FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES

PART II: IDENTIFICATION OF EXISTING BACKFLOW CONDITIONS (due by 1 July 2008)
The attached Site Map identifies all of the locations in the Production Area and all Land Application Areas under the control of the Discharger at the dairy identified in Part I above where there are cross-connections that could, or do, allow the backflow of wastewater into a water supply well, irrigation well, or surface water. For each location shown on the map, the table below describes:

a. How and where wastewater can potentially, or does, backflow to a groundwater supply and/or surface water supply (if there are no current or potential backflow problems, indicate so with "none"), and

b. How backflow of process wastewater into the groundwater or surface water supply is currently prevented (if there is no current prevention method, indicate so with "none").

Location Where Backflow can Occur	How Backflow Can or Does Occur	Current Backflow Preventive Measure
IW 15	No cross connection	No Air gap
IW 16	Cross connection	No Air gap
IW 10-4 (previously called 9-3W)	Cross connection	Sufficient 10" Air gap
IW 9-3 E	Cross connection	Sufficient 10" Air gap
IW 10-3 (previously called 10-2)	Cross connection	Sufficient >10" Air gap
6-1E (previously called 1)	No cross connection	No Air gap
6-1 (previously called 2)	No cross connection	Sufficient 10" Air gap
7-1S (previously called 5)	No cross connection	No Air gap
7-2S (previously called 6)	No cross connection	No Air gap

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FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES

PART III: PROPOSED BACKFLOW CORRECTIVE ACTIONS AND SCHEDULE (due by 1 July 2008)
For each location identified in Part II above where there is currently no backflow prevention, the table below identifies:

a. The method proposed to be implemented that will prevent backflow, and

b. A schedule to install the preventive measure.

If there are no current or potential backflow problems identified in Part II above, this Part does not need to be completed.

Location With No Current Backflow	Proposed Backflow Prevention Method	Schedule to Install Proposed Backflow Prevention Method
IW 16	Sufficient 10" Air gap	2011

PART IV: DOCUMENTATION OF EXISTING BACKFLOW CONDITIONS AND PROPOSED BACKFLOW PREVENTION METHODS (due by 1 July 2008)
As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named above and my personal examination of the wastewater system, the above information in Part II above is true, accurate, and complete and the proposed backflow prevention method in Part III above will be effective to prevent the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.

_____
QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

_____
SIGNATURE OF TRAINED PROFESSIONAL DATE

_____
PRINT OR TYPE NAME

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FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES

PART V: DOCUMENTATION THAT THERE ARE NO CROSS-CONNENCTIONS THAT WOULD ALLOW THE BACKFLOW OF WASTEWATER INTO A WATER SUPPLY WELL, IRRIGATION WELL, OR SURFACE WATER (due by 1 July 2009)

As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named in Part I above and my personal examination of the wastewater system, that the backflow prevention methods proposed in Part III above (if any) have been completed, and/or there are currently no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.

CDQAP Training Workshop
QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

Hitoshi Suyama — 6/24/2011
SIGNATURE OF TRAINED PROFESSIONAL — DATE

Hitoshi Suyama
PRINT OR TYPE NAME

PART VI: 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.

Steve Shehadey	Steve Shehadey
SIGNATURE OF OWNER	SIGNATURE OF OPERATOR
Steve Shehadey	Steve Shehadey
PRINT OR TYPE NAME	PRINT OR TYPE NAME
6/29/11	6/29/11
DATE	DATE