GUIDELINES FOR COMPLETING A FIELD RISK ASSESSMENT FOR COMPLIANCE WITH WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035 FOR EXISTING MILK COW DAIRIES

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 submit a Statement of Completion by 31 December 2008 that a Field Risk Assessment has been completed.

The General Order (page C-5) specifies that the Field Risk Assessment is to "Evaluate 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."

Technical Standard VIII of Attachment C (page C-15) of the General Order further requires the following for the Field Risk Assessment: "The results of the water quality monitoring of discharges of manure, process wastewater, storm water, and tailwater to surface water from each land application area, as required by Monitoring and Reporting Program No. R5-2007-0035, shall be used by the Discharger to assess the movement of nitrogen and phosphorus from each land application area. The Discharger will follow guidelines provided by the Central Valley Water Board in conducting these assessments."

The results of discharge monitoring as required in Table 3 of Monitoring and Reporting Program No. R5-2007-0035 (MRP) (page MRP-4 to 6) and the results of any subsurface (tile) drainage as required in Table 4 of the MRP (page MRP-7) are necessary to assess the movement of nitrogen and phosphorus from land application areas to surface water. Completion of the following pages will guide the Discharger through the required Field Risk Assessment.

Each Discharger must complete Parts I and II below. If there have been no discharges of process wastewater, manure, storm water, tailwater (only applies to tailwater discharges that occur less than 60 days after application of manure and/or process wastewater), or subsurface (tile) drainage to surface water, then the Field Risk Assessment is complete with completion of Parts I and II below. If there have been one or more such discharges to surface water, then the Discharger should complete Parts I, II, and III below to complete the Field Risk Assessment. The Field Risk Assessment is part of the Nutrient Management Plan and should be maintained on site with other portions of the Nutrient Management Plan.

The Discharger can complete Part III of the Statements of Completion Form (available at http://www.waterboards.ca.gov/centralvalley/water_issues/dairies/complying_with_general_order/dairy_forms/statements_completion.pdf) and submit it to the Central Valley Water Board to satisfy the requirement for a Statement of Completion for the Field Risk Assessment.

9/26/2008

GUIDELINES FOR COMPLETING A
FIELD RISK ASSESSMENT
FOR COMPLIANCE WITH
WASTE DISCHARGE REQUIREMENTS
GENERAL ORDER NO. R5-2007-0035
FOR EXISTING MILK COW DAIRIES

Part I: Dairy Facility Information

A. Name of Dairy or Business Operating the Dairy: _____

Physical address of Dairy:

_____
Number and Street City County Zip Code

B. Operator Name: _____ Telephone No: _____

Operator mailing address:

_____
Number and Street City County Zip Code

C. Owner Name: _____ Telephone No: _____

Owner Mailing Address:

_____
Number and Street City County Zip Code

Part II: Identify Discharges

Have you had any of the following discharges from any of your land application areas to surface water between 3 May 2007 and 30 November 2008?

- Process wastewater _____ Yes _____ No
- Manure _____ Yes _____ No
- Storm Water _____ Yes _____ No
- Tailwater* (within 60 days of manure or wastewater application) _____ Yes _____ No
- Subsurface (tile) drainage _____ Yes _____ No

If you answered "No" to all of the above, then nitrogen and/or phosphorus have not moved from any of your land application areas to surface water and your Field Risk Assessment is complete.

If you answered "Yes" to any of the above, then you should complete Part III below for each of the discharges you identified above.

* This only includes a discharge of tailwater that occurs less than 60 days after application of manure and/or process wastewater.

9/26/2008

Part III: Discharge Sample Results

A. Document Sample Results

For each discharge that you identified above, complete the table below by filling in the date of sample collection and the laboratory and/or field results for the discharge sample for each source of discharge. The areas to complete are highlighted in yellow in the table.

NOTE: Be careful to show nitrate-nitrogen (NO_3-N) results as NO_3-N and not as nitrate (NO_3). If your lab has reported the nitrate result as NO_3 (rather than NO_3-N), you must convert the NO_3 to NO_3-N by dividing the NO_3 concentration by 4.5.

If you have had more than one discharge from one of the sources listed in the table, you should complete a separate table for each discharge source.

B. Assess Sample Results

The concentrations of nitrogen and phosphorus in the discharge samples are used to assess if nitrogen or phosphorus is moving from the field to surface water. Completing the last column (Assessment) of the table for each discharge will provide the required assessment.

If the answer to any of the questions in the Assessment column is yes, nitrogen and/or phosphorus has moved from your facility to surface water and you must include in your Nutrient Management Plan proposed changes to your waste management practices that will eliminate or reduce the discharge of pollutants. Discharges of process wastewater or manure must be eliminated since they are prohibited under the General Order.

Discharges of stormwater, tailwater (only when discharged less than 60 days after application of manure and/or process wastewater), or subsurface (tile) drainage to surface water must either be eliminated or concentrations of nitrogen and/or phosphorus in the discharge reduced to below the receiving water limitation, or further evaluation provided on the discharges impact to surface water quality.

GUIDELINES FOR COMPLETING A FIELD RISK ASSESSMENT FOR COMPLIANCE WITH WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035 FOR EXISTING MILK COW DAIRIES

Source of Discharge	Date Sample Collected	Discharge Sample Results	Receiving Water Limitations[1]	Assessment
(circle the appropriate source) Process Wastewater OR Manure	_____	Lab: Total NH_4-N _____mg/L Unionized NH_4-N _____mg/L NO_3-N _____mg/L Total P _____mg/L	Total NH_4-N – see attached Chart[2] Unionized NH_4-N – 0.02 mg/L NO_3-N - 10 mg/L Total P[3] – 1 mg/L	Are the discharge sample results for any one of total NH_4-N, unionized NH_4-N, NO_3-N, or total P greater than the receiving water limitations? __ Yes[4] __No
Storm Water	_____	Field: Total NH_4-N _____mg/L Unionized NH_4-N _____mg/L Lab: NO_3-N _____mg/L Total P _____mg/L	Total NH_4-N – see attached Chart Unionized NH_4-N – 0.02 mg/L NO_3-N - 10 mg/L Total P – 1 mg/L	Are the discharge sample results for any one of total NH_4-N, unionized NH_4-N, NO_3-N 3, or total P greater than receiving water limitations? __ Yes[5] __No

GUIDELINES FOR COMPLETING A FIELD RISK ASSESSMENT FOR COMPLIANCE WITH WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035 FOR EXISTING MILK COW DAIRIES

Source of Discharge	Date Sample Collected	Discharge Sample Results	Receiving Water Limitations[1]	Assessment
Tailwater (when discharged less than 60 days after application of manure and/or process wastewater)	_____	Field: Total NH_4-N _____mg/L Unionized NH_4-N _____mg/L Lab: NO_3-N _____mg/L Total P _____mg/L	Total NH_4-N – see attached Chart Unionized NH_4-N – 0.02 mg/L NO_3-N - 10 mg/L Total P – 1 mg/L	Are the discharge sample results for any one of total NH_4-N, unionized NH_4-N, NO_3-N, or total P greater than receiving water limitations? __ Yes[5] __No
Subsurface (tile) Drainage	_____	Lab: NO_3-N _____mg/L Total P _____mg/L	NO_3-N - 10 mg/L Total P – 1 mg/L	Are the discharge sample results for any one of NO_3-N or total P greater than receiving water limitations? __ Yes[5] __No

[1] Less stringent limitations may apply to different areas but can only be determined through a site-specific assessment. Individual Dischargers may propose the application of less stringent limitations for consideration in monitoring and reporting programs.

[2] From Water Quality Goals, available at http://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_standards_limits/water_quality_goals/limit_tables_2008.pdf. Determine the total ammonia-nitrogen concentration based on the pH and temperature for the Continuous Concentration, 30-day Average for Fish Early Life Stages Present as shown in the table.

[3] The total phosphorus receiving water limitation is an interim limitation until a limit is established. This interim limit is based on consideration of the *Nutrient Criteria Development; Notice of Ecoregional Nutrient Criteria* (Federal Register: January 6, 2003 (Volume 68, Number 3), which establishes a nutrient criteria for total phosphorus of 0.047 mg/l in streams and rivers for ecoregion 1 (Willamette and Central Valleys) and on the USEPA *Results of the Nationwide Urban Runoff Program* (EPA #832R83112, December 1983), which reported a 90th percentile median concentration of 0.70 mg/L total phosphorus for urban runoff nationwide.

[4] If yes, your Nutrient Management Plan must propose changes to your waste management practices that will eliminate any discharges of process wastewater or manure to surface water from the land application area(s) since such discharges are prohibited under the General Order.

[5] If yes, you must include in your Nutrient Management Plan proposed changes to your waste management practices that will eliminate the discharge, reduce the discharge concentrations to below the receiving water limit, or that will provide further evaluation on the impact to surface water.

WATER QUALITY LIMITS FOR CONSTITUENTS AND PARAMETERS
FRESHWATER AQUATIC LIFE - AMMONIA

USEPA National Recommended Water Quality Criteria to Protect Freshwater Aquatic Life
Total Ammonia Nitrogen

	Continuous Concentration, 30-day Average (mg N/L)‡																				Maximum Concentration 1-hour Average (mg N/L)		
	Fish Early Life Stages Present										Fish Early Life Stages Absent												
	Temperature, degrees C										Temperature, degrees C												
pH	0	14	16	18	20	22	24	26	28	30	0-7	8	9	10	11	12	13	14	15 †	16 †	Salmonids Present	Salmonids Absent	pH
6.5	6.67	6.67	6.06	5.33	4.66	4.12	3.62	3.18	2.80	2.46	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06	32.6	48.8	6.5
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97	31.3	46.8	6.6
6.7	6.44	6.44	5.86	5.15	4.52	3.96	3.50	3.07	2.70	2.37	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86	29.8	44.6	6.7
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72	28.0	42.0	6.8
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56	26.2	39.2	6.9
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37	24.1	36.1	7.0
7.1	5.67	5.67	5.15	4.53	3.96	3.50	3.08	2.70	2.38	2.09	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15	21.9	32.9	7.1
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90	19.7	29.5	7.2
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61	17.5	26.2	7.3
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30	15.3	23.0	7.4
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97	13.3	19.9	7.5
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61	11.4	17.0	7.6
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25	9.64	14.4	7.7
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	8.11	12.1	7.8
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54	6.77	10.1	7.9
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21	5.62	8.41	8.0
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91	4.64	6.95	8.1
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63	3.83	5.73	8.2
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.582	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39	3.15	4.71	8.3
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17	2.59	3.88	8.4
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990	2.14	3.20	8.5
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836	1.77	2.65	8.6
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707	1.47	2.20	8.7
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601	1.23	1.84	8.8
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513	1.04	1.56	8.9
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442	0.885	1.32	9.0

Notes:

† At 15 C and above, the criterion for fish early life stages absent is the same as the criterion for fish early life stages present.

‡ In addition, the highest four-day average within the 30-day period should not exceed 2.5 times the Criteria Continuous Concentration shown in the above table.

Criteria Continuous Concentration

30-day average total ammonia nitrogen (in mg N/L) ‡

when fish early life stages are present:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \times MIN\left(2.85, 1.45 \times 10^{0.028 \times (25-T)}\right)$$

when fish early life stages are absent:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \times 1.45 \times 10^{0.028 \times (25-MAX(T,7))}$$

where T = temperature in degrees C

Criteria Maximum Concentration

1-hour average total ammonia nitrogen (in mg N/L)

where salmonid fish are present:

$$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

where salmonid fish are not present:

$$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$