Permit No. UGW490005
"Appendix C"

# Elberta Valley Ag
# Sampling and Analysis Plan

Revised August, 2020

1. Initial Training - Training in sampling procedures was first performed by Mike Zimmerman Well Service, LLC on April 11, 2006).

2. Ongoing Training - Subsequent sampling technicians have been trained by one or more existing technicians since 2006. Training also occurs whenever the DWQ engineer visits the dairy to participate in sampling.

3. Compliance Monitoring Period - Monitoring shall continue throughout the term of permit; semi-annually sampling for the monitoring wells and annually for treatment ponds. MW-4 is new and will be sampled on a quarterly basis until a minimum of eight (8) events have been completed to establish baseline ground water quality.

4. Water Level Measurement - In association with each well sampling event, water level measurements are made in each monitoring well prior to removal of any water from the well casing. These measurements are taken from the top of the well casing. Measurements are made to the nearest 0.01 foot.

5. Purging of well casing - The procedure is as follows:

A. Calculations are made from the well depth (provided by Mike Zimmerman Well Service, LLC) and from the water level measurements taken on sampling day. From this the feet of water in casing and casing volume is determined using an Elberta Valley Ag excel worksheet.

B. Three times (3X) the casing volume is calculated.

C. The pump time required is determined from the prior GPM test, and verified during current the purging process to calculate the minutes to achieve a 3X casing volume.

D. The appropriate sample bottles (supplied by analytical laboratory) are (labeled with sample location, date and time sampled.

E. Latex gloves are used during sampling.

F. Field measurements are taken: pH, specific conductance, water level and temperature.

G. Samples are taken.

H. Samples are preserved on ice for transportation to the analytical laboratory at the conclusion of sampling.

I. The chain of custody form is completed and accompanies the samples to the laboratory, and is signed over upon arrival.

J. Laboratory analysis requested: (as per Permit Part 1.F.1.f.ii)

- ammonia as nitrogen,
- nitrate + nitrite as nitrogen,
- bicarbonate,
- calcium,
- chloride,
- magnesium,
- potassium,
- sodium,
- sulfate, and
- Total Dissolved Solids (TDS).

6. Results of the monitoring well samples shall be submitted to the Division of Water Quality with the Ground Water Quality Monitoring Report.

7. Wastewater Analyses - The following analyses shall be performed on a wastewater sample from a representative treatment pond annually:

A. Field measurements: PH, specific conductance, temperature.

B. Laboratory Analysis: (as per UGW Part 1.F.1.g.ii)

- ammonia as nitrogen,
- nitrate + nitrite as nitrogen,
- total Kjeldahl nitrogen (TKN),
- bicarbonate,
- carbonate,
- calcium,
- chloride,
- magnesium,
- potassium,
- sodium,
- sulfate,
- phosphorous, and
- TDS.

8. Laboratory Approval - All water quality analyses shall be performed by a laboratory certified by the State of Utah to perform such analysis. Currently, sample analyses is performed by ChemTech Ford laboratory.

9. Analyses for nitrogen species shall be conducted at the same laboratory. Results of the treatment pond wastewater performance monitoring accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Ground Water Quality Monitoring Report.

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