

Jeffrey, can you check if these divisions are in UMS. If not please add in them & look @ adding dist below. These ~~that~~ people should report on a calendar year.

27 October, 2003

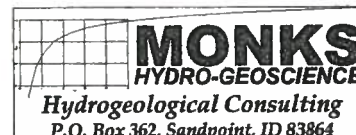
John F. Westra, Western Regional Manager

Western Regional Office

Idaho Department of Water Resources

2735 Airport Way

Boise, ID 83705-5082



RECEIVED

OCT 30 2003

WATER RESOURCES
WESTERN REGION

RE: September 2003 water meter and water quality report

Dear Mr. Westra:

This letter reports the monthly water meter measurements from the wells at Nederend Dairy #1 as required by the Conditions of Approval and Remarks for Transfer No. 5313 of Water Right No. 57-07045. Water meter measurements through September 25, 2003 are summarized in the table below.

Date:	Nederend #3			Nederend #2			Total Acre-Feet
	Meter:	Gallons:	Acre-Feet:	Meter:	Gallons:	Acre-Feet:	
13-Jan-03	59268500	41,700	0.13	123688300	9,280,800	28.48	28.61
13-Feb-03	59329400	60,900	0.19	130803500	7,115,200	21.84	22.02
20-Mar-03	60019000	689,600	2.12	139309100	8,505,600	26.10	28.22
16-Apr-03	60074350	55,350	0.17	145546500	6,237,400	19.14	19.31
14-May-03	60200650	126,300	0.39	151994300	6,447,800	19.79	20.18
11-Jun-03	63217700	3,017,050	9.26	157733400	5,739,100	17.61	26.87
22-Jul-03	71199900	7982200	24.50	165251100	7517700	23.07	47.57
21-Aug-03	75835300	4,635,400	14.23	171555000	6303900	19.35	33.57
25-Sep-03	75835300	0	0.00	180811400	9256400	28.41	28.41
year-to-date total:							254.76

Nitrogen water quality data from the past three months of samples are summarized in the following table. The nitrate levels in all five of the wells open to the shallow aquifer exceeded the EPA mcl of 10.0 mg/L nitrate as N.

Summary of Nitrate and Ammonia Levels over Past Three Months						
Well Name:	July 03 ammonia	August 03 ammonia	September 03 Ammonia	July 03 nitrate	August 03 nitrate	September 03 Nitrate
Nederend Domestic	0.04	<0.01	<0.01	19.5	23.1	40.3
Nederend #2	NS	0.5	0.03	NS	15.0	16.5
Nederend #3	1.42	NS	NS	19.0	NS	NS
MW-1	NS	NS	<0.01	NS	NS	20.6
MW-2	NS	NS	<0.01	NS	NS	40.1
MW-3	NS	NS	<0.01	NS	NS	18.9
NS = not sampled						

Nitrate levels in well Nederend Domestic have more than doubled since July 2003 and have reached the highest levels recorded since sampling began in February 1999. Coliform and fecal coliform bacteria were not detected in the September 2003 Nederend Domestic sample. The Nederend Domestic well is upgradient of Nederend Dairy's waste handling and storage facilities. Therefore, it is unlikely that water quality in the well is being influenced by on-site activities.

Nitrate in well Nederend #2 has also gone up significantly since the well was last sampled, going from 8.32 mg/L in May of 2003 to 16.5 mg/L in September. This well is also upgradient of the waste handling and storage facilities at Nederend Dairy. Water quality at Nederend #2 is probably being influenced by up-gradient off-site activities. The cone of depression in the shallow aquifer from pumping well Nederend #2 probably is drawing water

from beneath the cornfield just north of the well, thus waste and/or fertilizer application on the cornfield could also be influencing water quality.

Three new monitoring wells were constructed at Nederend Dairy during September 2003. Hiddleston Drilling, Inc constructed the wells using a hollow-stem auger rig. The locations of these wells and other wells open to the shallow aquifer with water quality data are shown on the attached map. All of the wells are constructed of 2-inch PVC with threaded connections. Screens are size 0.010" slotted PVC. Colorado silica sand was used to sand pack the screens, and bentonite was used for the surface seal. The 2" diameter wells are enclosed inside 6" steel casing with a locking cap set in a concrete pad.

Well MW-1 was drilled near production well Nederend #2, just north of Thompson Road. MW-1 was drilled to a depth of 50' and is screened from 35'-50' below ground surface (bgs). From 0'-43' bgs was brown sand with some clayey-sand layers. A spit-spoon sample taken at 35'-37' was brown, silty-clay. Coarse-grained sand & gravel were encountered from 43'-49'. Depth to water at MW-1 was 33.63' below casing top (bct) on September 25, 2003.

Well MW-2 was drilled northwest of the solids separator ponds and wastewater storage lagoon. MW-2 is 40' feet deep, with 10' of screen from 30'-40' bgs. From 0'-33' was brown sand with a few clayey, clumpy layers. From 33'-40' bgs was sand & gravel. Depth to water in MW-2 was 28.12' bct on September 25, 2003.

Well MW-3 was drilled just north of the mixing pond to a depth of 30' and 10' of screen was installed. From 0'-15' was brown sand, from 15'-19' was clayey, clumpy sand, and from 19'-30' was sand and gravel. Depth to water in MW-3 was 18.80' bct on September 25, 2003.

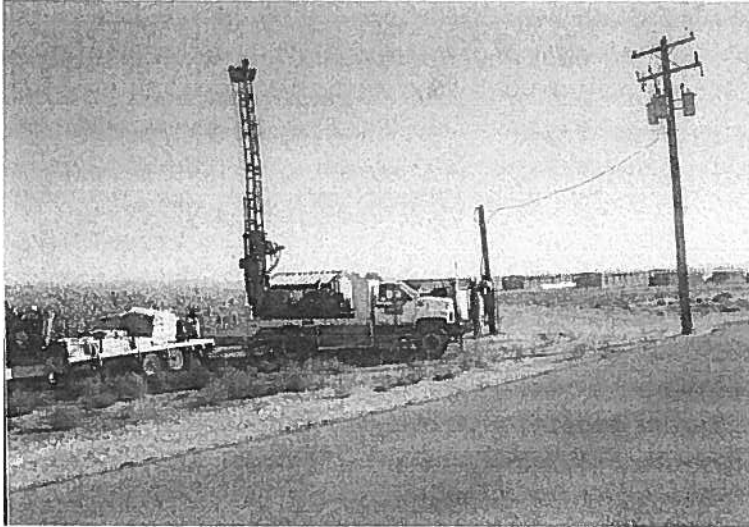
Water samples from the drainage ditch just north of well Nederend Domestic and from Nederend Domestic were submitted to Source Molecular, Inc.'s DNA analysis lab in Gainesville Florida to try to determine the source of the fecal coliform bacteria and increasing nitrate concentrations in the well. No fecal coliform bacteria were detected in the sample from the well. Analysis of the ditch sample indicates animal and human waste as probable sources. The ditch sample was also analyzed for the same constituents as are routinely analyzed for well samples. Ammonia, nitrate, chloride and sulfate in the ditch sample were considerably lower than in the well sample. Comparison of analytical results from the drainage ditch and Nederend Domestic suggest that the drainage ditch is not a likely source for the nitrate and fecal coliform bacteria detected in Nederend Domestic.

Sincerely,

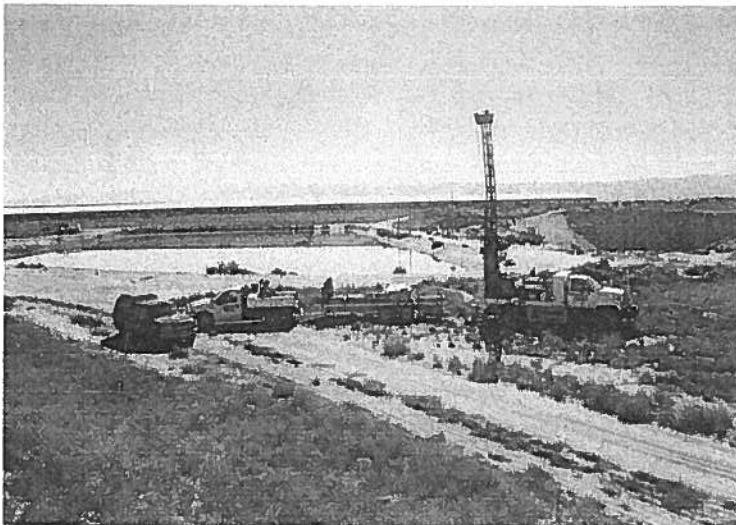


John Monks, P.G.
Hydrogeologist

Cc: Hans Nederend, Ilene Dobbin (COCOA), Gary Bahr (ISDA)



Drilling MW-1 just north of Thompson Road. Control panel and well house for well Nederend #2 are visible behind the drill rig.



Drilling MW-2 at the northwest corner of the main wastewater lagoon. Dairy barns in background. Sand pit visible just above the drill rig.

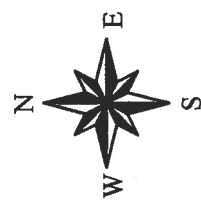


Drilling MW-3 alongside road leading down from the embankment for the mixing pond.

Nederend Dairy Monitoring Wells

EXPLANATION

- Nederend lagoons
- Nederend Dairy Barns & Buildings
- Monitored Wells
 - open to both aquifers
 - shallow aquifer wells



2 Miles

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