STATE OF NEW MEXICO
WATER QUALITY CONTROL COMMISSION

In the Matter of:	
PROPOSED AMENDMENTS	**No. WQCC 12-09(R)**
TO 20.6.6 NMAC (Dairy Rule)	**and**
	No. WQCC 13-08(R)

Dairy Industry Group for a Clean Environment,
Petitioner

WRITTEN REBUTTAL TESTIMONY OF WILLIAM C. OLSON

My name is William C. Olson, and I am presenting this rebuttal testimony in the New Mexico Water Quality Control Commission (Commission) rule-making hearing case No. WQCC 12-09(R) and No. WQCC 13-08(R) concerning September 4, 2012 and August 5, 2013 Dairy Industry Group for a Clean Environment (DIGCE) petitions to amend the Ground Water Protection – Supplemental Permitting Requirements for Dairy Facilities ("Dairy Rule" or "Rule"). As stated in my written direct testimony in this case, I am testifying as an expert witness on behalf of the Sierra Club Rio Grande Chapter, Amigos Bravos, Lea County Concerned Citizens, Rio Valle Concerned Citizens and Caballo Concerned Citizens (collectively the "Coalition").

I. INTRODUCTION

Pursuant to the Commission Hearing Officer's October 3, 2014 Procedural Order, the following is my written rebuttal testimony in response to the October 17, 2014 pre-filed written direct testimony of DIGCE and the New Mexico Environment Department (NMED).

As I have testified previously in my written direct testimony, I support the Commission's 2011 approved Dairy Rule as agreed to by DGCE, NMED and the Coalition in settlement litigation unless scientifically based evidence supports the need for changes to the Rule to

achieve the statutory requirements of the Water Quality Act (WQA). The Coalition, in its October 17, 2014 direct testimony, has proposed impoundment liner amendments based upon scientific evidence of ground water pollution and how a double liner system will protect ground water quality standards of the Commission. I do not support the DIGCE proposed language that eliminates ground water monitoring of known dairy sources of water pollution and effectively creates a point of compliance system allowing pollution of ground water under a dairy facility. This issue of point of compliance is discussed in detail in my October 17, 2014 written direct testimony in Coalition NOI Exhibit WCO-1, Written Testimony of William C. Olson, pgs. 22-28.

The purpose of my rebuttal testimony is to provide the Commission an analysis of the scientific and technical content of DIGCE's and NMED's written direct testimony and how it comports with the requirements of the WQA.

My testimony as contained in this document and **Coalition Rebuttal Exhibits WCO-21 through WCO-26** constitutes my written rebuttal testimony on DIGCE's proposed amendments to the Dairy Rule.

II. REBUTTAL TO DIGCE'S PRE-FILED DIRECT TESTIMONY

A. CHARLES W. FIEDLER TESTIMONY

Mr. Fiedler's written direct testimony supporting DIGCE's proposed changes to 20.6.6.23 NMAC is based on his supposition that the Dairy Rule is not consistent with monitoring requirements for United States Environmental Protection Agency (EPA) hazardous waste facilities, NMED Hazardous Waste Bureau Rules, NMED Solid Waste Bureau Rules and New Mexico Oil Conservation Division Rules which require complete characterization of the geology and hydrology of a site. I agree with Mr. Fiedler's premise that ground water pollution

from dairy facilities is analogous to ground water pollution that occurs from hazardous waste facilities, solid waste landfills, and oil and gas facilities and should be monitored in the same manner. However, Mr. Fiedler's rational for amending the Rule is not supported by the facts or the plain language of DIGCE's proposal and either ignores established facts or fails to provide scientific evidence in support of his arguments in favor of DIGCE's proposed language for the following reasons.

First, Mr. Fielder ignores extensive scientific evidence for the ground water monitoring well requirements of the Dairy Rule provided by scientific experts in the 2010 Dairy Rule hearings as contained in **Coalition Rebuttal Exhibit WCO-21** and eight supporting technical exhibits in **Coalition Rebuttal Exhibit WCO-22** as well as in **Coalition Rebuttal Exhibit WCO-23** and five supporting technical exhibits in **Coalition Rebuttal Exhibit WCO-24**. Mr. Fiedler also ignores approximately thirty-three detailed Commission findings of fact (FOF) contained in in the Commission's January 14, 2011 Proposed Statement of Reasons and Order (**Coalition NOI Exhibit WCO-7, pgs. 97-115 and pgs. 130-131**) that form the technical and scientific rationale for the 20.6.6.23 NMAC ground water monitoring requirements DIGCE seeks to change.

Second, Mr. Fiedler's argument in Section 4.6 on page 13 (and extensively repeated as justification for DIGCE's amendments throughout his testimony) is not reflected in DIGCE's proposed rule and is contrary to the plain language of DIGCE's proposed rule. Mr. Fiedler maintains that DIGCE's proposal requires characterization of the hydrogeology by developing a ground water investigation plan for each dairy where geotechnical borings would be installed and hydrogeologic studies would be used to determine the number and locations of monitoring wells. DIFCE's proposed language contains no such hydrogeologic characterization study

requirement for determining the number and location of monitoring wells, and Mr. Fielder does not point to any such language in DIGCE's proposal. DIGCE's proposed language is clear and unambiguous. DIGCE proposes to eliminate monitoring of each source of contamination at a facility and replace it with a point of compliance system with an arbitrary limitation that only three facility monitoring wells, or some cases only two wells, be installed to monitor an entire dairy facility. DIGCE's proposal has no requirement for developing or conducting site hydrogeologic characterizations to determine monitoring well locations consistent with EPA or state regulated hazardous waste facilities, solid waste landfills, and oil and gas facilities.

Third, Mr. Fiedler presents virtually no evidence or exhibits to support his arguments and only submits three limited exhibits with his testimony. Exhibit Fiedler – 1 is a general schematic diagram incorrectly demonstrating that a ground water gradient can be defined by only two monitoring wells (this is not possible as ground water flows three-dimensionally and its determination requires a minimum of 3 monitoring wells). Exhibit Fiedler – 2 is a general cartoon diagram of a theoretical dairy facility and current monitoring well system that assumes all sources of pollution to be monitored at a dairy are located directly in line with each other and the ground water hydraulic gradient (this may occur in some circumstances but is not typical). Exhibit Fiedler – 3 is a bibliography of fourteen reference materials of which only two references are utilized and discussed in his testimony. Mr. Fiedler presents no testimony, examples or accompanying evaluations and discussions of actual ground water characterization studies and monitoring well networks installed at hazardous waste, solid waste landfills, and oil and gas facilities that are comparable to those in DIGCE's proposed rule. In addition, Mr. Fiedler does not provide any evidence of how DIGCE's proposed monitoring well network will effectively prevent or monitor water pollution at dairies. In short, Mr. Fiedler presents no evidence or

exhibits that would scientifically demonstrate that DIGCE's proposed arbitrary three facility monitoring well scheme will provide for early detection of ground water pollution to prevent pollution, monitor water quality, and protect places of withdrawal pursuant to the statutory requirements of the WQA in Sections 74-6-4.E NMSA, 74-6-4.K NMSA, and 74-6-5.E(3) NMSA.

Mr. Fiedler's written direct testimony supporting DIGCE's proposed changes to 20.6.6.27 NMAC misrepresents DIGCE's changes as a general simplification of the Rule and as necessary to reduce redundancy and confusion in sections that have no alleged additional benefit. In fact, DIGCE's proposal eliminates all specific contingency requirements in 20.6.6.27 NMAC for repair and relining of failing impoundments that cause ground water contamination, including specific engineering design requirements. None of the deleted language regarding repair and relining requirements for impoundments appears in the sections he says are redundant. Mr. Fielder also does not address any of the relevant scientific and technical rationales and findings of fact by which these sections were adopted as detailed in the Commission's January 14, 2011 Proposed Statement of Reasons and Order (**Coalition NOI Exhibit WCO-7, pgs. 144-146, FOF 360-366**). In particular the Commission found, as a matter of fact, that "*the reason for the contingency requirements specific to impoundments is because impoundments pose the greatest potential threat to ground water quality due to the contaminant concentrations in dairy wastewater and stormwater, the large volumes of contaminated water contained in the impoundments, and the depths of water contained in the impoundments which provide the energy to move water and contaminants downward into the sub-surface*" (Coalition NOI Exhibit WCO-7, pg. 144, FOF 360). Nowhere in his testimony does Mr. Fiedler provide scientific or technical evidence contradicting these facts.

In summary, DIGCE's proposed modifications, as testified to by Mr. Fiedler, are unsupported by facts, do not have a scientific basis, are contrary to the plain language of DIGCE's proposal, do not fulfill the requirements of the WQA (in particular Sections 74-6-4(E), 74-6-4(K), and 74-6-5(E)(3) NMSA 1978) and, therefore, should not be adopted by the Commission.

B. MARK TURNBOUGH TESTIMONY

The overall focus of Mr. Turnbough's testimony is to provide a limited regulatory impact assessment of the ground water monitoring requirements in the existing Dairy Rule and then make conclusions about the existing Dairy Rule's potential impacts on regulated entities, the regulators and the environment. There are a number of problems with Mr. Turnbough's testimony as discussed below.

On pages 5 and 6, he states that his evaluation, and subsequently conclusions and opinions, regarding the impacts on regulated entities, the regulators and the environment, are based on his review of 1) "*applicable statutory and regulatory requirements that were in place prior to the adoption of the Dairy Rule*"; 2) "*testimony in support of and in opposition to the Dairy Rule*"; 3) "*the Dairy Rule*"; and 4) "*data collected from Final and Draft Permits issued under the Dairy Rule*". While he addresses limited portions of the Dairy Rule regarding the number of monitoring wells required by rule and the associated costs for new monitoring wells, his testimony contains no review of the overall statutory and regulatory requirements that were in place prior to the adoption of the Dairy Rule and no review of testimony in support of and in opposition to the current Dairy Rule. As a result, any conclusions or assertions that he provides in his evaluation other than the cost of monitoring wells is unsupported by any scientific and technical testimony, exhibits or facts.

Moreover, Mr. Turnbough's regulatory evaluation is incomplete because it contains only an evaluation of existing rules and not those proposed by DIGCE in its petition for amendment of the Rule. He includes no evaluation of the significant potential impacts from DIGCE's proposed point of compliance monitoring system on regulated entities, the regulators and the environment, which constitutes a major issue in this hearing as discussed in detail in my direct testimony in **Coalition NOI Exhibit WCO-1, Written Testimony of William C. Olson, pgs. 22-28**. He also does not provide any evaluation of the actual environmental impacts of the 57% of New Mexico dairies that have caused ground water pollution in excess of state standards.

On page 11 of his written direct testimony, Mr. Turnbough provides his estimate of the cost of compliance with the monitoring well requirements of the Dairy Rule. There are several technical problems with his calculations of the costs of compliance as set out below. Mr. Turnbough bases his cost estimate on his assumption that the average monitoring well depth at dairy facilities is 100 feet yet he provides no evidence to support this claim. A review of NMED data on depth to ground water data in **Coalition NOI Exhibit WCO-5** shows that the depth to ground water at dairies ranges from 5 feet to 428 feet. Such a wide distribution has the potential to skew the available data and subsequent cost calculations that use data averages. Based upon NMED's 2009 data the median depth to ground water at New Mexico dairy facilities is 75 feet, meaning 50% of all the dairies have a depth to ground water of less than 75 feet. A further review of NMED's data in **Coalition NOI Exhibit WCO-5** shows that approximately two-thirds of all dairies have a depth to ground water of less than 100 feet. Of these facilities, approximately one-third of them have a depth to ground water of less than 50 feet and a median depth to ground water of 25 feet. Mr. Turnbough does not address these facts in his testimony. Additionally, Mr. Turnbough's final calculation of costs do not account for the fact that

monitoring wells are a long-term capital cost designed for the active life of the facility and post closure monitoring nor does he account for the cost of compliance as a percentage of gross dairy income.

As set out in EPA's September 1986 RCRA Ground Water Monitoring Technical Enforcement Guidance Document, monitoring wells are designed to have long term structural integrity for the active life of the facility and post closure monitoring, typically a period of 30 years or more (**Coalition Rebuttal Exhibit WCO-25, pg. 81, paragraph 3**). Using Mr. Turnbough's cost estimate number of $85,039 per facility for monitoring well installation, the average cost per year per dairy over a typical 30 year dairy facility life for monitoring wells required under the Dairy Rule is $2,835. Based on DIGCE's 2010 testimony of an average dairy gross income of $6.4 million per year (**Coalition Rebuttal Exhibit WCO-26, pg. 2, paragraph 5**), monitoring well installation costs would be 0.04% of average gross yearly income. Likewise, using Mr. Turnbough's estimated increased monitoring well sampling cost of $48,165 per year under the Dairy Rule and DIGCE's above referenced average dairy gross income of $6.4 million per year, the increase in water quality sampling costs under the Dairy Rule monitoring requirements is 0.75% of average gross yearly dairy income.

On pages 12 through 15 of his direct testimony Mr. Turnbough provides general opinions on environmental regulatory impacts of the existing Rule and general conclusions and recommendations, all based on his theory that the Dairy Rule lacks a scientific basis. In fact, extensive scientific and technical evidence exists as to the purpose and necessity of the Rule requirements in the 2010 hearing record of the Commission. Similar to Mr. Fielder's testimony, Mr. Turnbough ignores extensive scientific evidence for the ground water monitoring well requirements of the Dairy Rule provided by scientific experts in the 2010 Dairy Rule hearings as

contained in **Coalition Rebuttal Exhibit WCO-21** and eight supporting technical exhibits in **Coalition Rebuttal Exhibit WCO-22** as well as in **Coalition Rebuttal Exhibit WCO-23** and five supporting technical exhibits in **Coalition Rebuttal Exhibit WCO-24**. Mr. Turnbough also ignores approximately thirty-three detailed Commission findings of fact contained in the Commission's January 14, 2011 Proposed Statement of Reasons and Order (Coalition NOI Exhibit WCO-7, pgs. 97-115 and pgs. 130-131) that form the technical and scientific rationale for the 20.6.6.23 NMAC ground water monitoring requirements that DIGCE seeks to change. While Mr. Turnbough states on page 5 of his testimony that one of the steps he took in preparing his testimony was "*to review testimony in support of and in opposition to the Dairy Rule*", his testimony contains no analysis or review of any of this prior scientific and technical testimony and exhibits. Therefore, since he provides no testimony or evidence to contest the scientific and technical testimony, evidence and facts upon which the Dairy Rule is based, his conclusions and recommendations have no basis in fact. A case in point occurs on page 12, paragraph 2 of his testimony when he questions the basis of why 160 acres was chosen as the size of a sprinkler or drip irrigated field for monitoring. The rationale for this requirement is simply found in the hearing record as DIGCE's own proposed acreage limit, based on the acreage effectively irrigated. NMED accepted DIGCE's rationale and the Commission later adopted it as a rule requirement (**Coalition Rebuttal Exhibit WCO-23, pg. 80**).

In addition, his recommendations and conclusions on pages 13 to 15 of his testimony do not contain any testimony, analysis or information regarding how DIGCE's proposed changes to the Rule meet the requirements of the WQA.

Given that his recommendations and conclusion are generally not supported by facts, have no scientific basis, and do not fulfill the requirements of the WQA (in particular Sections

74-6-4(E), 74-6-4(K), and 74-6-5(E)(3) NMSA 1978), Mr. Turnbough's conclusions and recommendations do not provide support for the adoption of DIGCE's petition in this matter and the Commission should not adopt them.

III. REBUTTAL TO NMED's PRE-FILED DIRECT TESTIMONY OF JERRY SCHOEPPNER

Mr. Schoeppner provides testimony on the history of the Dairy Rule, the regulatory framework of discharge permitting, NMED's actions in implementing the Rule and NMED administrative and staffing problems that affect implementation of the Rule. On page 15 of his testimony he also includes several recommendations for providing discretion to NMED to approve alternate methods that are equally protective of ground water without the need for a variance. However, NMED provides no amended rule language for consideration and no associated scientific or technical testimony or evidence in support of this. These recommendations could have merit but I reserve any comment on these issues until NMED presents the proposed language that Mr. Schoeppner's pre-filed direct testimony does not provide.

In addition, a review of his testimony shows that NMED provides no testimony or comment on any of DIGCE's proposed amendments to the Dairy Rule that are the subject of this hearing. Consequently, I reserve the right to provide additional responsive testimony if and when NMED provides further testimony or comment on the content of DIGCE's proposed rule changes.

IV. CONCLUSION

The above rebuttal testimony in this document and the information contained in exhibits **Coalition Rebuttal Exhibits WCO-21 through WCO-26** constitutes my rebuttal testimony. In

conclusion, I oppose the changes to the Dairy Rule except those that I have identified in my written direct testimony and exhibits. It is my professional opinion, except to the extent described in my written direct testimony proposing and attesting to the need for more stringent liner requirements rather than the elimination or relaxation of the current regulations, that the current regulations are reasonable and comport with the best available science applied to the prevention of pollution from dairies, and are necessary to comply with the WQA.

As I have stated above, DIGCE provides virtually no scientific basis or evidence supporting its proposed rule change or demonstrating how its proposed changes meet the statutory requirements of the WQA. Furthermore, as NMED has taken no position on DIGCE's proposed changes to the Rule, I reserve the right to submit additional testimony if additional testimony is provided by NMED.

I again recommend that the Commission adopt the Coalition proposed modifications to the Dairy Rule and reject DIGCE's petitions for the reasons set out herein above, in my written direct testimony and in my supporting exhibits attached to my written direct testimony and this rebuttal testimony.

Thank you. That concludes my rebuttal testimony.

I, William C. Olson, swear that the foregoing is true and correct to the best of my knowledge.

William C. Olson