STATE OF NEW MEXICO
BEFORE THE WATER QUALITY CONTROL COMMISSION

In the Matter of:	)	
PROPOSED AMENDMENT TO 20.6.2 NMAC (Dairy Rule)	)	**No. WQCC 09-13(R)**
New Mexico Environment Department, Petitioner.	)	

CLOSING ARGUMENT OF NEW MEXICO ENVIRONMENT DEPARTMENT

Pursuant to the New Mexico Water Quality Act ("Act"), NMSA 1978, §§ 74-6-1 to 74-6-17, Section 405 of the *Guidelines for Water Quality Control Commission Regulation Hearings*, and the Hearing Officer's Scheduling and Procedural Order issued on January 15, 2010, the New Mexico Environment Department ("Department" or "NMED") submits the following Closing Argument.

I. STANDARD FOR RULEMAKING

The Water Quality Control Commission ("Commission") adopts regulations pursuant to its authority in NMSA 1978, § 74-6-4. In adopting regulations, the Commission shall give weight it deems appropriate to all relevant facts and circumstances, including:

(1) character and degree of injury to or interference with health, welfare, environment and property;
(2) the public interest, including the social and economic value of the sources of water contaminants;
(3) technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved;
(4) successive uses, including but not limited to domestic, commercial,

industrial, pastoral, agricultural, wildlife and recreational uses;

(5) feasibility of a user or a subsequent user treating the water before a subsequent use;

(6) property rights and accustomed uses; and

(7) federal water quality requirements.

NMSA 1978, § 74-6-4(E).

In adopting regulations pursuant to Section 74-6-4(K), the Commission must also consider the best available scientific information. The Commission's decision to adopt a regulation must be based on substantial evidence. "Substantial evidence supporting administrative agency action is relevant evidence that a reasonable mind might accept as adequate to support a conclusion." *Oil Transportation Co. v. New Mexico State Corporation Commission*, 110 N.M. 568, 571, 798 P.2d 169, 172 (1990). The agency must consider all evidence in the record. *Perkins v. Department of Human Services*, 106 N.M. 651, 654, 748 P.2d 24, 27 (Ct. App. 1987).

II. INTRODUCTION

On December 22, 2009, the Department submitted a petition for regulatory change to the Water Quality Control Commission ("Commission"). The petition proposed to amend the Ground and Surface Water Protection Regulations, 20.6.2 NMAC, to include new rules for the dairy industry. The petition was in response to a 2009 amendment to the Water Quality Act requiring the Commission to adopt new industry-specific discharge permit rules for the dairy industry and "to specify in regulations the measures to be taken to prevent water pollution and to monitor water quality." NMSA 1978, § 74-6-4(K). A public hearing was held on the proposed amendment on April 13-16 and June 8-17, 2010. Participants were the Department, Dairy Industry Group for a Clean Environment ("DIGCE") and Amigos Bravos, Caballo Concerned Citizens Group,

Food and Water Watch and the Sierra Club Rio Grande Chapter (collectively, "the Coalition").

The Department's proposed dairy rule would add a new section, 20.6.2.3200 NMAC, Supplemental Permitting Requirements for All Dairy Facilities.[1] The Department's proposed rule was developed through an extensive public involvement and stakeholder process, including public meetings, the formation of an advisory committee, and extensive negotiations with stakeholders. See Testimony of Bill Olson, NMED Notice of Intent to Present Technical Testimony ("NOI") Attachment 1, pp. 9-11. In accordance with Section 74-6-4(K) of the Water Quality Act, the Department's proposal specifies the measures to be taken to prevent water pollution and to monitor water quality.

A. Summary of Proposed Dairy Rule

If adopted, the Department's proposed rule will institute ground water protections and monitoring that protect the dairy industry's long term viability while streamlining the permitting process and providing regulatory certainty for the industry. See testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 10.

Key elements of the proposed dairy rule will:

- require synthetic lining of all new and retrofitted wastewater and combination wastewater/stormwater impoundments;
- where the depth to ground water is less than or equal to 50 feet, require a primary and secondary liner with leak detection;
- provide for grandfathering the use of existing dairy impoundments where the existing impoundment is not actively causing ground water contamination in excess of Commission standards;
- require the use of flow meters to measure the volume of wastewater discharged a the dairy facility;

[1] State Records has requested that the Dairy Rule be reformatted as Title 20, Chapter 6, Part 6. The rule will need to be reformatted for this change, following adoption by the Commission. See testimony of William C. Olson, NMED NOI Attachment 1, p. 14; NMED NOI Attachment 10.

- provide enhanced public notice to property owners in the vicinity of a dairy facility;
- require setbacks for production and land application areas;
- specify requirements for leachate management and backflow prevention;
- protect against ground water contamination from land application areas by requiring a nutrient management plan; and
- require dairy facilities to install a minimum of one ground water monitoring well hydrologically downgradient of each source of ground water contamination and one monitoring well hydrologically upgradient of all ground water contamination sources.

In support of the proposed dairy rule, the Department has provided information to allow the Commission to consider all factors required by Section 74-6-4(K) of the Water Quality Act, including the interest of the public in maintaining uncontaminated ground water, and the social and economic value of the industrial source of the water contaminants. See testimony of William C. Olson, NMED NOI Attachment 1, pp. 18-19; NMED Rebuttal Attachment 1, p. 3. The Department acknowledges the importance of the dairy industry to New Mexico and its social and economic value, as dairies provide jobs and a source of income for some New Mexicans. Testimony of William C. Olson, NMED NOI Attachment 1, p. 18; Hearing Transcript ("Hearing Tr.") Volume ("Vol.") 6, p. 1283. One source has estimated the economic value of dairy production in New Mexico to be approximately $2.7 billion annually. *Id*. The dairy industry is New Mexico's largest agricultural industry and generates more cash receipts than any other agricultural activity in the state. DIGCE Ex. 17, p. 2144. For the period of 2004-2007, annual cash receipts were in excess of one billion dollars. DIGCE Ex. 19, p. 1. With an average herd size of 2,113 cows, the average dairy farm in New Mexico is not a small business. Testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 10. The average annual gross income for a New Mexico dairy is $6.4 million. DIGCE Ex. 19, p. 3.

The Department's proposed rule is responsive to stakeholder concerns. Where possible, the Department proposes cost effective and efficient measures to prevent ground water contamination. Testimony of William C. Olson, NMED NOI Attachment 1, p. 13. The Department's proposed rule is designed so that, where possible, requirements are phased in to avoid unnecessary economic burdens on the industry. See testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1296. Many of the "new" requirements, including synthetic liners for impoundments, monitoring wells, and flow meters, have been required conditions of discharge permits for dairies for a number of years. See testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 7; see also testimony of Alva Carter, Hearing Tr. Vol. 9, p. 2007 ("If you look at the proposal from the Environment Department, this is a lot of stuff that we were already doing."). The Department's proposed rule goes to great lengths to allow the continuation of practices that have not affected ground water quality at existing dairies. Testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 6. Dairies that have not contaminated ground water or that are in the process of remediating ground water contamination will not be required to install costly new liners for existing wastewater impoundments. Testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 4. The Department's proposal for synthetic liners only applies to the construction of new wastewater impoundments after the effective date of the dairy rule, or the retrofitting of an existing wastewater impoundment with a failing liner that is actively causing ground water contamination. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 40. Based upon discussions between the Department and the industry, the proposed rule also includes an exception to monitoring well requirements that allows for the use of one monitoring well

to monitor more than one contamination source in specific circumstances. Testimony of William C. Olson, NMED NOI Attachment 8, p. 80. The continued use of existing ground water monitoring wells that substantially comply with the requirements of the proposed rule will also be allowed. Testimony of George Schuman, NMED NOI Attachment 8, p. 79.

B. Ground Water Contamination At Dairy Facilities

There are currently 168 active and inactive dairies in New Mexico. Testimony of Sarah McGrath, NMED NOI Attachment 2, p. 3. It is estimated that New Mexico's 340,000 dairy cows generate 8.7 million tons of waste per year. Testimony of Elanor Starmer, Coalition NOI Attachment 4, p. 2; Hearing Tr. Vol. 2, p. 274. If not stored and handled properly, wastewater effluent and stormwater from dairies pose a substantial threat to ground water quality (testimony of William C. Olson, NMED NOI Attachment 1, p. 17) and in fact, 57 percent of dairies in New Mexico have ground water contamination. Testimony of Sarah McGrath, NMED NOI Attachment 2, p. 3. Where depth to ground water is less than 50 feet, 75 percent of dairies have ground water contamination. Testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1424. Dairy waste contains a number of constituents that can reach ground water and make that water unsuitable for domestic or other use. Testimony of Elanor Starmer, Coalition NOI Attachment 4, p. 1. Ground water contamination at some dairy facilities is extensive, with plumes of contaminated ground water over one mile in length, and has resulted in the loss of use of thousands of acre feet of ground water. Testimony of Bart Faris, NMED NOI Attachment 3, p. 8. It is not uncommon to see nitrate-nitrogen exceedances greater than 20 times the standard in samples from monitoring wells at dairy facilities.

Testimony of Sarah McGrath, NMED NOI Attachment 2, pp. 5-6.

For purposes of developing the dairy rule, dairy facilities were considered to have ground water contamination if nitrate-nitrogen concentrations were in excess of the ground water standard of 10 milligrams per liter and if there was a greater concentration of nitrate-nitrogen in a downgradient monitoring well compared to the upgradient monitoring well. Testimony of Sarah McGrath, NMED NOI Attachment 2, pp. 2-3; Hearing Tr. Vol. 4, p. 735, pp. 742-743. In evaluating the percentage of dairies with ground water contamination, the Department relied on information concerning the location of upgradient and downgradient wells that was provided by the dairies. Testimony of Sarah McGrath, NMED NOI Attachment 2, pg. 2; Hearing Tr. Vol. 4, p. 735; see also testimony of Kathy Martin, Hearing Tr. Vol. 12, p. 2566. Dairy facilities are required by Discharge Permits to have monitoring wells located hydrologically upgradient of the dairy facility and hydrologically downgradient from potential sources of contamination. Testimony of Sarah McGrath, NMED NOI Attachment 2, p. 2. Monitoring wells are required to be installed in accordance with the discharge permit, and ensuring that the monitoring wells are located properly in accordance with the permit is the permittees' responsibility. Testimony of Sarah McGrath, Hearing Tr. Vol. 4, pp. 746-747.

At the public hearing, Dr. Hagevoort, testifying on behalf of DIGCE, questioned the Department's conclusions concerning the sources of ground water contamination at dairies and the number of dairies that are out of compliance with the ground water standards. In support of his testimony, Dr. Hagevoort relied on Coalition Exhibit ("Ex.") C-4, which is a spreadsheet prepared by the Department during the stakeholder process

that contains data concerning ground water contamination at dairies. Testimony of Robert Hagevoort, Hearing Tr. Vol. 11, p. 2228. However, the Department did not rely on this exhibit as a basis for its testimony, as the spreadsheet referred to by Dr. Hagevoort was superseded by current data in the Department's exhibits prepared for hearing. Testimony of William C. Olson, Hearing Tr. Vol. 5, p. 1082. Instead, the Department relied on its exhibit NMED Exhibit SKM-1 as a basis for its testimony, which is based on the most recent data supplied by the dairies. *Id*.

Ground water is a valuable public resource, and its protection is critical in this arid state in which 90 percent of the population relies on ground water as their drinking water source. Testimony of Eleanor Starmer, Coalition NOI Attachment 4, p. 2; Hearing Tr. Vol. 2, p. 276; see also testimony of William C. Olson, NMED NOI Attachment 1, p. 18. Dairy waste contains high concentrations of various contaminants that may be harmful to human health, such as nitrogen. See Testimony of Eleanor Starmer, Coalition NOI Attachment 4, p. 2. Natural attenuation of nitrate requires hundreds to thousands of years to lower nitrate concentrations by just 1 mg/L. DIGCE Ex. 59, p. 36. The high rate of ground water contamination at dairies, including nitrate, total dissolved solids, sulfate, and chloride (testimony of Bart Faris, NMED NOI Attachment 3, p. 2) demonstrates that many past practices at dairies are inadequate to protect ground water quality and that more effective measures are needed. See testimony of William C. Olson, NMED NOI Attachment 1, p. 5.

The high cost of abatement of ground water pollution argues strongly for prevention of contamination. See *Id*. Preventing ground water contamination is more cost effective and efficient than remediating ground water contamination. *Id*. at p. 13.

The abatement process can be time consuming, complex, and costly. Testimony of Bart Faris, NMED NOI Attachment 3, p. 8. Once contamination in excess of standards occur, the dairy must not only employ source control to prevent further contamination, but must assess the nature and extent of the contamination and potentially clean it up. Section 20.6.2.3227. Source control measures that must be implemented once contamination is found can cost as much as the prevention measures would have cost had they been taken initially. Testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1285. DIGCE's own exhibits acknowledge the advantages of preventing pollution: "Groundwater remediation is expensive, slow and impractical across regional-scale aquifers. Therefore, management practices that prevent groundwater contamination are likely to be a more effective way to maintain the availability and sustainability of groundwater…". DIGCE Ex. 59, p. 5.

III. 2009 AMENDMENT TO WATER QUALITY ACT

The 2009 amendment to the Water Quality Act sets forth the requirements for new rules for the dairy industry. Section 74-6-4(D) requires the Commission to "specify in regulations the measures to be taken to prevent water pollution and to monitor water quality." In accordance with the 2009 amendment to the Water Quality Act, the Department's proposed Dairy Rule identifies specific, clear and effective requirements for dairy facilities to prevent water pollution and monitor ground water quality. Testimony of William C. Olson, NMED NOI Attachment 1, p. 5.

IV. PROPOSED DAIRY RULE

A. The Department's Proposed Rule Represents the Best Available Scientific Information, Meets the Requirements of the Water Quality Act, and is Supported by Substantial Evidence in the Record.

The Department's proposed rule represents the best available scientific information and is supported by substantial evidence in the record. The Department's Notice of Intent, direct testimony, rebuttal testimony and evidence presented at hearing have addressed all requirements of the Water Quality Act and the 2009 amendment. The evidence in the record demonstrates that adopting the Department's proposed rule will both protect ground water quality and allow the dairy industry to remain an economically viable industry in New Mexico.

Although the Department, DIGCE and the Coalition agree on some aspects of the proposed rule, the hearing made clear that significant differences exist among the parties on a number of key issues. Each of these issues is addressed below.

1. Synthetic Liners Are the Best Available Scientific Technology for Construction of Dairy Impoundments.

Because they contain high strength wastewater and stormwater, impoundments are a primary source of ground water contamination at dairies. Testimony of William C. Olson, NMED NOI Attachment 8, pp. 29-30; see also NMED Ex. 3225-3; NMED Ex. 3225-A; NMED Ex. 3220-12. Past practices, such as the use of compacted earth/clay-lined impoundments, have resulted in a majority of New Mexico dairies contaminating ground water, with most of that contamination coming from impoundments. See testimony of Sarah McGrath, NMED NOI Attachment 2, p. 4; testimony of William C. Olson, Hearing Tr. Vol. 5, p. 1087. Because of this, the Department has been requiring synthetic liners since 2002 (testimony of Sarah McGrath, NMED NOI Attachment 2, p. 4) and most dairies in New Mexico now have synthetically lined impoundments (testimony of Alva Carter, Hearing Tr. Vol. 11, p. 2279).

The Department's proposed rule requires all new and retrofitted wastewater and

combination wastewater/stormwater impoundments to be lined with a liner that is at least 60-mil HDPE or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance. Section 20.6.2.3217(D)(6)(b).[2] Because there is an even greater potential for impoundments to cause ground water contamination in shallow ground water settings, as evidenced by the fact that 75 percent of the dairy facilities in these areas have ground water contamination (testimony of William C. Olson, NMED NOI Attachment 8, p. 40), where the depth to ground water is less than or equal to 50 feet the proposed rule requires a primary and secondary liner with leak detection. Section 20.6.2.3217(D)(6)(a).

Simply put, synthetic liners are the best available scientific technology for the protection of ground water quality when constructing dairy impoundments. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 41. They are the most reliable and environmentally protective lining material currently available. NMED Ex. 3217-10, pp. 130-154. Synthetic liners are essentially impermeable – in fact, they are about a million times less permeable than clay liners. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 1087-1088, p. 1420. Of the 69 dairies that have contamination from impoundments, only two have contamination associated with synthetically lined impoundments. Testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1419; testimony of Sarah McGrath, Hearing Tr. Vol. 4, p. 906. While it is not known why those liners failed (*Id.*), these failures underscore the importance of requiring double liners in shallow ground water settings.

[2] Unless otherwise noted, all citations to the Department's proposed rule are to the Department's Final Proposed Rule submitted with this document.

Synthetic liners are resistant to ultraviolet light. NMED Ex. 3217-13, p. 9. Compared to a 40-mil liner thickness (as is proposed by DIGCE), 60-mil liners have superior puncture resistance, tear resistance, and tensile strength. Testimony of Charles Thomas, NMED Rebuttal Attachment 3, p. 41; see also testimony of Charles Thomas, Hearing Tr. Vol. 5, p. 1054; NMED Ex. 3217-14; DIGCE Ex. 8, p. 40. 60-mil liners are more resistant to hail damage. Testimony of Norman Mullin, Hearing Tr. Vol. 11, pp. 2278-2279; testimony of Charles Thomas, Hearing Tr. Vol. 5, p. 1066. While a liner thickness of 80-mil offers even greater protection, 60-mil liners are more flexible and easier to work with, in addition to being less costly. Testimony of William C. Olson, Hearing Tr. Vol. 8, p. 1652; Hearing Tr. Vol. 5, p. 1063; NMED Ex. 3217-13. 60-mil liners are readily available and most dairies have been voluntarily installing such liners under their current discharge permits. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 1061-1063. They are the most commonly used liner thickness for wastewater containment. Testimony of Charles Thomas, Hearing Tr. Vol. 5, p. 1054. Even DIGCE acknowledges that synthetic liners provide superior protection as their proposal would require their use where depth to ground water is less than or equal to 100 feet. See DIGCE Ex. 8, pp. 39-40; see also testimony of Norman Mullin, Hearing Tr. Vol. 10, p. 2101 ("There are circumstances that synthetic would be the preferable liner."). DIGCE agrees that there is no material that is equivalent to an HDPE liner in terms of permeability. Testimony of Norman Mullin, Hearing Tr. Vol. 11, p. 2354 ("…bentonite clay will not approach that permeability. And bentonite clay is…one of the least permeable materials").

2. DIGCE Presented No Credible Scientific or Technical Evidence that Earth/Clay Liners are Sufficiently Protective of Ground Water for Use in Dairy Impoundments.

In contrast, even the best designed, best constructed clay liners seep. See DIGCE Exhibits 44, 45, 50, 51, and 52. Earthen/clay liners have resulted in significant contamination of ground water at dairies. See testimony of William C. Olson, Hearing Tr. Vol. 5, p. 1076, p. 1087. Of the 96 dairy facilities that have ground water contamination, 69 of those (71.9 percent) are from impoundments. NMED Ex. SKM-1, p. 3. Of those 69 facilities, only two have synthetically lined impoundments. Testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1419; testimony of Sarah McGrath, Hearing Tr. Vol. 4, p. 906. Within the last ten years, synthetic liners have been more widely used to replace the manure, in-situ compacted earth, and clay liners that have resulted in ground water contamination. Testimony of Sarah McGrath, NMED NOI Attachment 2, p. 3. In reviewing trends at monitoring wells located directly downgradient of impoundments, decreases in concentrations of contaminants correlates to the replacement of nonsynthetic liners with synthetic liners. Testimony of Bart Faris, Hearing Tr. Vol. 7, p. 1420. A return to permitting the use of clay or earthen liners for dairy impoundments would in effect be taking a step backwards in terms of ground water protection. Testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1420.

DIGCE's proposal would permit the use of compacted earth/clay liners where the depth to ground water is greater than 100 feet. See DIGCE Ex. 8, pp. 41-43. However, DIGCE presented no credible scientific or technical evidence that compacted earth/clay liners are sufficiently protective of ground water for use in dairy impoundments even at that depth to ground water. See testimony of William C. Olson, NMED Rebuttal

Attachment 3, p. 47. Although DIGCE provided no credible scientific evidence that concludes that clay liners are just as effective as synthetic liners (see testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1974), DIGCE's proposal would allow the use of earth/clay liners with a hydraulic conductivity of 1×10^{-7} cm/sec. DIGCE Ex. 8, p. 42. This allowable seepage rate would result in the migration of contaminants down through the soil or the vadose zone. Testimony of Bart Faris, Hearing Tr. Vol. 7, p. 1444. This contamination will eventually reach ground water. Testimony of Bill Olson, Hearing Tr. Vol. 7, p. 1454.

DIGCE's witnesses repeatedly testified that they believe the dairy rule should be based on "sound science" and "best available science" (see, e.g., testimony of Alva Carter, Hearing Tr. Vol. 9, p. 2009, Hearing Tr. Vol. 12, p. 2482). However, the scientific information in the majority of the exhibits provided by DIGCE purporting to support the use of clay liners in dairy wastewater impoundments actually support the Department's proposal for the use of synthetic liners. See testimony of William C. Olson, NMED Rebuttal Attachment 3, pp. 44-46; Hearing Tr. Vol. 5, p. 1074. For example, DIGCE Exhibits 44, 45, 50, 51, and 52 all acknowledge that earthen lined lagoons have substantial leakage of contaminants. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 44. DIGCE Exhibit 58, NMED Construction Programs Bureau "Recommended Standards for Wastewater Facilities", 2003 Edition makes an even more compelling case for the use of synthetic liners. This document states that earthen/clay liners are not recommended for specific conditions, including fluctuating wastewater levels and unusually high strength wastewater. DIGCE Exhibit 58; see also testimony of William C. Olson, NMED Rebuttal Attachment 3, pp. 45-46. Dairy

impoundments have fluctuating wastewater levels when wastewater or wastewater/stormwater is removed from impoundments and land applied and during cycles of evaporative disposal. *Id*. at p. 46. In addition, dairy impoundments contain high strength wastewater. *Id*. Therefore, based on DIGCE's own exhibits, earthen/clay liners are not appropriate for dairy impoundments and science supports the need for synthetic liners.

Two DIGCE witnesses, Dr. Sweeten and Mr. Mullin, testified in support of earthen/clay liners. Dr. Sweeten argued that compacted earth or soil liners, if properly constructed, have advantages over synthetic liners. Testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1869. According to Dr. Sweeten, synthetic liners are not one hundred percent reliable because they are susceptible to damage from being broken down by sunlight and tearing along the embankment of the impoundment. Testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1963. Dr. Sweeten further argued that synthetic liners are not one hundred percent reliable because they are susceptible to damage from roots growing up through the seams. *Id*. However, the Department's proposed synthetic liner requirements contain extensive engineering and construction requirements intended to provide long term viability and long term stability of impoundment liners. Testimony of Charles Thomas, NMED NOI Attachment 8, p. 38. The engineering requirements in Section 3217 require slack to accommodate shrinkage due to temperature changes. Section 3217(D)(5)(a). The sub-grade must be compacted to a minimum of 95 percent of standard proctor density to provide support for the liner. Section 3217(D)(4)(c). If the existing material is unsuitable for compaction, a minimum depth of 18 inches of suitable material shall be used as subgrade. *Id*. A liner thickness of 60-mil was selected for

superior puncture and tear resistance. Testimony of Charles Thomas, NMED Rebuttal Attachment 3, p. 41; Hearing Tr. Vol. 5, p. 1054. Section 3217 requires the sub-grade to be free of vegetation and stubble to a depth of at least six inches below the liner. Section 3217(D)(5)(b). Furthermore, the proposed rule would require on-going inspection and maintenance of impoundments and impoundment liners. See Section 3220(P). This section requires an operator to maintain impoundments to prevent conditions which could affect the structural integrity of the impoundments and associated liners. *Id*. Operators must inspect impoundments monthly for erosion damage, animal damage, presence of vegetation, and other conditions that could affect the impoundments and liners. *Id*. All of these requirements are designed to provide long term stability and structural integrity of impoundment liners.

Moreover, earthen/clay liners are not immune to damage. They are very susceptible to damage due to either desiccation or freezing, and even a single cycle of freezing can significantly increase the permeability of a clay liner. NMED Ex. 3217-2, p. 2-7. They can become eroded from wave action, which could also increase permeability. Testimony of Norman Mullin, Hearing Tr. Vol. 11, p. 2278. Permeability can also be affected by the chemical composition of the constituents in the impoundment. *Id*. Although DIGCE testified that clay liners can "heal" themselves (see, e.g., testimony of Alva Carver, Hearing Tr. Vol. 11, p. 2280), DIGCE provided no credible scientific data study documenting this phenomenon. See testimony of Alva Carter, Hearing Tr. Vol. 11, p. 2281.

In presenting his testimony, Dr. Sweeten relied on DIGCE Exhibit 51 in support of DIGCE's contention that "carefully selected, highly compacted, sufficiently thick"

clay liners are adequate to protect ground water. Testimony of John Sweeten, Hearing Tr. Vol. 9, pp. 1896-1897. However, DIGCE Exhibit 51 acknowledges that earthen lined lagoons have substantial leakage of water contaminants (testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 45) and concludes that "seepage losses [from unlined feedlot runoff storage ponds] ranged from 50 to 76% of total liquid losses from the pond." DIGCE Ex. 51, p. 1445. Furthermore, although DIGCE characterizes its proposed liners as "clay" liners, their proposal is actually for soil/earthen liners. Only 50 percent of the material needs to be clay sized (see DIGCE Ex. 8, p. 41; testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1430), and DIGCE's design criteria allows for up to three inch rocks in the liner material. DIGCE Ex. 8, p. 41.

Where depth to ground water is less than 100 feet, DIGCE proposes 40-mil synthetic liners be used. DIGCE Ex. 8, pp. 39-40. By DIGCE's own admission, it offered no scientific justification for its proposed liner thickness of 40-mil. Testimony of Walter Bradley, Hearing Tr. Vol. 11, p. 2396; see also testimony of Alva Carter, Hearing Tr. Vol. 9, p. 2009 ("Why didn't we go with the 80-mil synthetic liners over the 40-mil? We don't know. We flew by the seat of our pants."). In contrast, the Department's proposal for a liner thickness of 60-mil is supported by substantial scientific evidence in the record. The Department's construction requirements are derived from the NMED Construction Programs Bureau "Recommended Standards for Wastewater Facilities", 2003 Edition (NMED Exhibit 3217-10), the USDA National Resource Conservation Service National Engineering Handbook, Part 642 (NMED Exhibit 3217-13) and specifications developed by the Geo-Synthetic Institute (NMED Exhibit 3217-14). Testimony of Charles Thomas, NMED NOI Attachment 8, pp. 38-39; testimony of

Charles Thomas, NMED Rebuttal Attachment 3, p. 41. The physical properties of a 60-mil liner are appropriate for dairy impoundments that contain high strength wastewater to maintain the integrity of the impoundment over time. Testimony of Charles Thomas, NMED Rebuttal Attachment 3, p. 41. Thus, DIGCE's proposal is not based on the best available scientific technology, is not supported by substantial evidence in the record, and should not be adopted.

3. Double Synthetic Liners With Leak Detection Are the Best Available Scientific Technology for Construction of Dairy Impoundments Where Depth to Ground Water is Fifty Feet or Less.

The Department's proposal requires a primary and secondary liner with leak detection where the depth to ground water is less than or equal to 50 feet. Section 20.6.2.3217(D)(6)(a). While the Department has not previously required double-lined systems, at least one dairy has proposed to install, and the Commission has approved, a double synthetic liner for use in a shallow ground water setting. Testimony of William C. Olson, Hearing Tr. Vol. 7 p. 1448. The basis for this requirement is the fact that 75 percent of dairies where depth to ground water is less than 50 feet have ground water contamination from impoundments. Testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1424; NMED Rebuttal Attachment 3, p. 40. A double-lined impoundment system is necessary to provide a higher level of ground water protection commensurate with the high risk that a dairy impoundment may cause ground water contamination in shallow ground water settings. Testimony of William C. Olson, NMED NOI Attachment 8, p. 40. Double-lined systems are the most protective system available. Testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1425. Double-lined impoundments have been employed at other discharge permit facilities and other types of permitted facilities in New Mexico for

years. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 41.

DIGCE's proposal would eliminate double liners altogether. See DIGCE Exhibit 8, pp. 41-43. DIGCE argues that double liners are ineffective because the presence of fluid in a leachate collection system indicates a leak in the primary liner but there is no way to find the leak. Testimony of Norman Mullin, Hearing Tr. Vol. 10, p. 2097. While the Department agrees that the primary liner has the potential to leak, a secondary liner will prevent impacts to ground water because

> the removal of effluent and/leachate minimizes the head on the secondary liner and the possibility of leakage through the secondary liner. This provides a mechanism for continuous evaluation of the effectiveness of the primary liner, and the opportunity for early detection of leaks in the primary liner and expedient repair of the liner.

Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 41; Hearing Tr. Vol. 4, p. 952. Thus, Mr. Mullin's statement that double lined systems are not effective is not supported by the record.

The Department acknowledges that the cost of a double-lined system is significant. See testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1425. However, the costs of remediating contaminated ground water are also significant and can be completely avoided if contamination of ground water is prevented as can the costs associated with the loss of water resources. *Id*; testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 46. Furthermore, DIGCE's cost comparison between synthetic liners and recompacted earthen/clay liners (DIGCE Ex. 31) is misleading because it assumes that suitable materials are located on site. Testimony of Norman Mullin, DIGCE Ex. 7, p. 2; Hearing Tr. Vol. 10, p. 2114, 2117. However, DIGCE did not prepare any kind of analysis of how many dairies in New Mexico actually have suitable

materials on site, nor did it prepare a cost analysis that included the costs of importing suitable material. Testimony of Norman Mullin, Hearing Tr. Vol. 10, p. 2117. In fact, the cost for constructing an earthen/clay liner if materials must be imported would be significantly higher than DIGCE's estimate, depending on the distance the materials must be transported. See testimony of Norman Mullin, Hearing Tr. Vol. 10, p. 2144.

4. DIGCE's Proposal Does Not Meet the Requirements of Section 74-6-4(K) of the Water Quality Act Because it Fails to Specify the Measures to be Taken to Prevent Water Pollution.

While DIGCE's witness speculated at the hearing in great detail regarding how earthen liners could be constructed (see testimony of Norman Mullin, Hearing Tr. Vol. 10, pp. 2113-2117), these details are not contained in their proposal. See, e.g., testimony of Norman Mullin, Hearing Tr. Vol. 10, pp. 2121-2126; see also DIGCE Ex. 8, pp. 36-44. For example, DIGCE's proposal does not specify the procedure for testing whether soils are suitable for use as liner material or how many borings would be taken for such testing. Testimony of Norman Mullin, Hearing Tr. Vol. 10, pp. 2120-2121. While Mr. Mullin suggested that each lift would be tested for moisture density, DIGCE's proposed rule contains no such requirement. *Id*. at 2125-2126. DIGCE's proposal does not specify how many core samples would be taken to test for liner permeability. See DIGCE Ex. 8. Theoretically, one core sample could be taken to test a three-acre impoundment. Testimony of Norman Mullin, Hearing Tr. Vol. 10, p. 2131. While DIGCE's witness agreed that it "would be good" for lifts to be staggered to prevent preferential flow along the interlift boundaries, DIGCE's proposal does not include such a requirement. Testimony of Norman Mullin, Hearing Tr. Vol. 10, pp. 2134-2134. Thus, DIGCE's proposal lacks the specificity required by Section 74-6-4(K) requiring the Commission to

specify in regulations the measures to be taken to prevent water pollution. NMSA 1978, § 74-6-4(K).

In summary, DIGCE's proposal fails to specify the measures to be taken to prevent water pollution pursuant to Section 74-6-4(K) of the Water Quality Act, and DIGCE failed to demonstrate that its proposals for construction of dairy impoundments are supported by substantial scientific or technical evidence in the record. Therefore, DIGCE's proposal should not be adopted.

5. Monitoring Wells are the Best Available Scientific Technology to Monitor Water Quality at Dairy Facilities.

The 2009 amendment to the Water Quality Act requires the Commission to specify in regulations the measures to be taken to monitor water quality. NMSA 1978, § 74-6-4(K). The Department proposes the use of ground water monitoring wells to monitor water quality at dairy facilities. The Department's proposed rule requires at least one ground water monitoring well upgradient of a dairy facility and at least one monitoring well downgradient of each contamination source at a dairy facility. Testimony of George Schuman, Hearing Tr. Vol. 2, p. 240. Monitoring wells located pursuant to the requirements of the dairy rule will allow for detection of an exceedance or a trend towards exceedance of the ground water standards at the earliest possible occurrence, so that source control or abatement may be implemented as soon as possible. Section 3223(A). Monitoring wells already in place that meet the construction and location requirements of the proposed rule would be permitted to be used to meet the requirements of the rule. Testimony of George Schuman, Hearing Tr. Vol. 2, p. 240; testimony of George Schuman, NMED NOI Attachment 8, p. 79.

Ground water monitoring wells are the only technology available to monitor

ground water quality and to directly assess whether the discharge, management, or land application of water contaminants at a dairy facility is causing an exceedance of the ground water quality standards. Testimony of William C. Olson, NMED NOI Attachment 8, p. 72. Monitoring wells allow for the sampling of "receiving waters" to determine if the permitted discharge is causing ground water standards to be exceeded. Testimony of George Schuman, NMED Rebuttal Attachment 3, pp. 84-85. It is therefore appropriate and necessary to require the use of monitoring wells at dairy facilities. *Id*.

DIGCE opposes the Department's proposal requiring the use of monitoring wells as the sole method to monitor ground water quality. See DIGCE Ex. 8, p. 65; testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1899. DIGCE makes several arguments in support of its position. First, DIGCE claims that ground water monitoring can produce a "false positive" or a "false negative" because a monitoring well may "miss the plume". Testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1900. DIGCE offered no credible scientific or technical evidence in support of this claim. In fact, it is unlikely that contaminants could evade detection in a monitoring well because gravity produces downward movement of fluids and it is highly unlikely that fluid would move equally laterally and vertically. Testimony of George Schuman, Hearing Tr. Vol. 8, p. 1778. Development of ground water contour maps and determination of ground water flow direction, which are required by the proposed dairy rule, allow for the appropriate placement of monitoring wells hydrologically downgradient of sources such that that the possibility of failure to detect a plume is minimized. Testimony of George Schuman, NMED NOI Attachment 8, p. 96. Furthermore, the Department's proposed rule contains extensive requirements for ground water sample collection to ensure that samples are

properly collected, handled, and analyzed. See NMED NOI Attachment 8, pp. 89-91. Section 3223(F) identifies the method to be used to determine the depth to ground water prior to purging and collection of a ground water sample. Testimony of William C. Olson, NMED NOI Attachment 8, p. 89. It requires that standing water in a monitoring well be removed prior to sample collection and that a field analysis of pH, specific conductance, and temperature be conducted to evaluate the chemical conditions of ground water that may influence the analytical results of other constituents. *Id*. at 89-91. Flow-through cells must be disconnected or bypassed during collection of samples to minimize the potential for the sample chemistry to be altered to ensure that the sample is representative of aquifer water quality conditions. *Id*. at 91. The Department's proposed rule further includes requirements for preparation, preservation and transportation of samples to allow for reliable results. *Id*. The requirements in Section 3223 are all designed to eliminate or greatly reduce the possibility of incorrect or inaccurate results. See *Id*. Thus, DIGCE's argument that the Department's proposal for ground water monitoring can produce inaccurate results is not supported by evidence in the record.

DIGCE also claims that monitoring wells should not be used because they are a conduit for ground water contamination. See, e.g., testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1909; testimony of Alva Carter, Hearing Tr. Vol. 9, p. 1949. However, absolutely no credible technical or scientific evidence was offered in support of this claim. Testimony of George Schuman, Hearing Tr. Vol. 8, p. 1793. Ground water monitoring wells have been used for many years for ground water contamination investigations. *Id*. at p. 1785. They are commonly used in extensive ground water investigations of hazardous waste sites and Superfund sites. Testimony of William C.

Olson, Hearing Tr. Vol. 8, p. 1786. These investigations typically include determination of the vertical extent of a contaminant plume, which requires that a well be drilled through an area known to be contaminated. Testimony of George Schuman, Hearing Tr. Vol. 8, p. 1785. No other industry, including the mining industry, or any of the hydrologic consultants that the Department has worked with, has ever raised this issue as a concern. Testimony of William C. Olson, Hearing Tr. Vol. 8, p. 1785; testimony of George Schuman, Hearing Tr. Vol. 8, p. 1785. Although Department requirements for construction of monitoring wells have changed over time (see DIGCE Exhibits 83A through 86), a well with an annular space that is sealed in accordance with any of the Department's previous or current guidance and Office of the State Engineer rules on well construction would be effective in preventing wastewater or stormwater from flowing downward through the borehole to water. Testimony of George Schuman, Hearing Tr. Vol. 8, pp. 1709-1711, 1775-1776, 1793.

Although the dairy industry has never presented any evidence to the Department documenting contamination from a monitoring well, the purpose of the Department's proposed monitoring well construction requirements are to provide assurance that a monitoring well is not acting as a conduit for ground water contamination. Testimony of George Schuman, Hearing Tr. Vol. 8, p. 1711. To address any concerns from the dairy industry and prevent any potential contamination, the Department proposes the complete sealing of the annular space with a cement or bentonite product in compliance with Office of State Engineer requirements. Testimony of George Schuman, Hearing Tr. Vol. 8, pp. 1694-1695, p. 1776; NMED NOI Attachment 8, p. 88; see also NMED Ex. 3223-5.

a. DIGCE's proposed alternatives to ground water monitoring do not meet the requirements of the Water Quality Act requiring the Commission to specify in regulations the measures to be taken to monitor water quality.

While DIGCE claims that ground water monitoring is not the only technology available to monitor ground water quality (testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1906), they fail to suggest any other method that would do so. Instead, DIGCE proposes that alternatives to ground water monitoring, such as vadose zone monitoring, electromagnetic conductance, or soil sampling be used in lieu of ground water monitoring. DIGCE Ex. 8, p. 65. However, the alternatives proposed by DIGCE are all fundamentally flawed in that none of them actually monitor ground water quality. See, e.g., testimony of George Schuman, NMED Rebuttal Attachment 3, pp. 85-86.

The purpose of ground water monitoring is to assess compliance with the regulatory requirements for protection of ground water quality. Testimony of George Schuman, Hearing Tr. Vol. 8, p. 1748. Any proposed alternative to the use of monitoring wells must allow for the direct assessment of compliance with the ground water standards. Testimony of George Schuman, NMED Rebuttal Attachment 3, p. 85. However, none of the alternative methods proposed by DIGCE produce results that can be directly compared to ground water standards, therefore, there is no way to know whether ground water standards have been exceeded. See, e.g., testimony of George Schuman, NMED Rebuttal Attachment 3, pp. 85-86. The proposed alternatives are not comparable to ground water monitoring because they monitor different things. Testimony of George Schuman, Hearing Tr. Vol. 8, p. 1748. Ground water monitoring is the only way to collect data and be able to compare the data to the ground water standards. *Id*. Therefore, the alternatives proposed by DIGCE are not appropriate in lieu

of ground water monitoring wells.

i. Vadose zone monitoring does not monitor water quality and therefore is not an appropriate alternative to ground water monitoring.

The vadose zone is the unsaturated soil interval that overlies a saturated water bearing zone or aquifer. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 84. Vadose zone monitoring can be used to detect if there is leakage from impoundments into the soil or seepage from land application areas into subsurface soils. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 84. However, as DIGCE acknowledges, vadose zone monitoring does not monitor ground water quality. Testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1929. Vadose zone monitoring cannot tell you if there is an exceedance of water quality standards. *Id*. at pp. 1928-1929. While it may be useful for detecting leakage of contaminants, vadose zone monitoring does not assess water quality and therefore is not an appropriate alternative to ground water monitoring.

Even if vadose zone monitoring were an acceptable alternative to ground water monitoring, DIGCE's proposal fails to meet the requirements of the Water Quality Act requiring the Commission to *specify in regulations* the measures to be taken to monitor water quality. NMSA 1978, § 74-6-4(K) (emphasis added). DIGCE's proposed language states that "[a]n applicant may propose and the department may approve an alternative monitoring system…" and lists examples of such alternatives. DIGCE Ex. 8, p. 65. DIGCE's proposal contains no information specifying how any of these methods, including vadose zone monitoring, would be conducted. See *Id*. DIGCE's proposed language does not identify the type of vadose zone monitoring systems that would be required, nor does it specify how the systems would be designed, constructed, or

maintained. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 84; see also testimony of John Sweeten, Hearing Tr. Vol. 9, pp. 1955-1959.

In contrast, Section 3223 of the Department's proposed rule contains extensive detailed requirements for construction, placement, and completion of ground water monitoring wells. See NMED NOI Attachment 8, pp. 72-89. The Department's proposal specifies the drilling technique to be used, allowable casing materials and how they are to be joined, how wells are to be capped and protected from physical damage, acceptable well screen materials, the length of the well screen, and how wells and annular space are sealed. *Id*. The Department's proposal specifies the ground water sample collection procedure to be used and reporting requirements that must be followed. *Id*. at pp. 89-93. The Department's proposal is based on the best available science and is supported by numerous scientific and technical exhibits. See NMED Ex. 3223-1 through 3223-4; 3223-7 through 3223-9; 3223-11 through 3223-18; testimony of William C. Olson, NMED NOI Attachment 1, p. 21.

ii. <u>Electromagnetic conductance does not monitor water quality and therefore is not an appropriate alternative to ground water monitoring</u>.

Electromagnetic imaging may be used to detect contaminant plumes in the sub-surface. Testimony of George Schuman, NMED Rebuttal Attachment 3, p. 85. Like vadose zone monitoring, electromagnetic imaging does not tell you if ground water quality standards have been exceeded. Testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1943; see also testimony of George Schuman, NMED Rebuttal Attachment 3, p. 86. Electromagnetic surveys cannot tell you what contaminants are present in soil or in what concentration. Testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1943. While it may be useful for detecting seepage from impoundments, electromagnetic imaging does not

assess water quality and therefore is not an appropriate alternative to ground water monitoring. See Testimony of George Schuman, NMED Rebuttal Attachment 3, p. 86.

As demonstrated by DIGCE's own exhibits, electromagnetic imaging has considerable limitations even for its intended purpose. See testimony of George Schuman, NMED Rebuttal Attachment 3, p. 85. Significantly, electromagnetic imaging is unable to detect seepage directly beneath an impoundment. Testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1932; see DIGCE Ex. 40, p. 197, Figure 1. Electromagnetic imaging is also subject to interference from metallic objects such as pipelines or fences that can alter the true conductivity measures. Testimony of John Sweeten, Hearing Tr. Vol. 9, pp. 1935-1936; DIGCE Exhibit 41, p. 215; testimony of George Schuman, NMED Rebuttal Attachment 3, p. 85. Electromagnetic surveys are unable to survey for the existence of a contaminant plume where the depth to ground water exceeds 60 meters. Testimony of Alva Carter, Hearing Tr. Vol. 9, p. 2002; testimony of George Schuman, NMED Rebuttal Attachment 3, p. 85.

Even if electromagnetic imaging were an acceptable alternative to ground water monitoring, DIGCE's proposal lacks the specificity required by the Water Quality Act. DIGCE's proposal fails to specify how or how often these surveys would be conducted. See, e.g., testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1937. While DIGCE's witness suggested that an "expert" should conduct the surveys (testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1936), DIGCE's proposal does not specify who would conduct the surveys or what qualifications would be required. See DIGCE Ex. 8, p. 65. Electromagnetic imaging may be a useful tool for detecting contaminant plumes and the industry may wish to use this technology in addition to ground water monitoring wells.

Testimony of George Schuman, NMED Rebuttal Attachment 3, p. 86. However, as an alternative to ground water monitoring, DIGCE's proposal for electromagnetic imaging fails to meet the requirement of the Water Quality Act to specify in regulations the measures to be taken to monitor water quality and should not be adopted.

iii. Soil sampling does not monitor water quality and therefore is not an appropriate alternative to ground water monitoring.

DIGCE suggests that soil sampling could be used as an alternative to ground water monitoring in land application areas. DIGCE Ex. 8, p. 72. In addition to not meeting the requirements of the Water Quality Act to monitor water quality, soil sampling has significant limitations for this purpose. See testimony of George Schuman, NMED Rebuttal Attachment 3, p. 86; Hearing Tr. Vol. 8, pp. 1675-1676. Because water does not move uniformly through the unsaturated zone, but moves primarily along "preferential flowpaths", contaminants can move through the unsaturated zone at a much faster rate than would be expected if movement occurred uniformly. *Id*.; see also NMED Rebuttal Ex. 3223-2; NMED Rebuttal Ex. 3223-3; NMED Rebuttal Ex. 3223-4; NMED Rebuttal Ex. 3223-5; NMED Rebuttal Ex. 3223-6. Breakdown of nitrate by denitrification may be limited due to rapid downward movement through preferential flowpaths. *Id*. Due to preferential flowpaths, collection of random soil samples from below the root zone and the use of constituent concentrations from these soil samples is inappropriate to determine if there is a possibility for the migration of contaminants past the root zone into ground water. *Id*. Because of these flaws, soil sampling could produce misleading results and should not be used to assess the potential for contaminant migration to ground water. *Id*. As an alternative to ground water monitoring, DIGCE's proposal for soil sampling fails to meet the requirement of the Water Quality Act to

specify in regulations the measures to be taken to monitor water quality and should not be adopted.

iv. Mass balance technique does not monitor water quality and therefore is not an appropriate alternative to ground water monitoring.

DIGCE suggests that the "mass balance" or "water balance" method can be used to detect seepage from impoundments in lieu of ground water monitoring. Testimony of John Sweeten, Hearing Tr. Vol. 9, pp.1907-1908, p. 1930. DIGCE argues that if mass balance is performed and it indicates there is no seepage from an impoundment, there is no reason to conduct ground water monitoring. See testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1930. While there is nothing in the Department's proposal that would prohibit its use to determine seepage rates (see testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1946), mass balance should not be used in lieu of ground water monitoring because it does not assess water quality. As an alternative to ground water monitoring, DIGCE's proposal for using the mass balance technique fails to meet the requirement of the Water Quality Act to specify in regulations the measures to be taken to monitor water quality and should not be adopted.

DIGCE presented no credible scientific or technical evidence that alternatives to ground water monitoring meet the requirements of the Water Quality Act to "specify in regulations the measures to be taken to monitor water quality". The Department's proposal for ground water monitoring meets the requirements of the Water Quality Act, is based on the best available science, is supported by substantial evidence in the record and should be adopted.

6. Flow Meters, Accompanied by Routine Meter Inspections and Calibrations, Are the Best Available Scientific Technology for Measuring Discharges at Dairy Facilities.

The Department's proposed rule requires the use of flow meters for measuring the volume of wastewater and, in some circumstances, stormwater discharged at dairy facilities. See Section 3220(K); Section 3221(I); Section 3221(J). Flow meter inspections and calibrations are required to be conducted at appropriate intervals to ensure ongoing function and accuracy of the devices. See Sections 3220(P) and 3224(E). In response to concerns raised by DIGCE, Section 3224(C) of the Department's proposal was revised to reduce the frequency of required flow meter readings from daily readings to intervals not to exceed seven days. Testimony of William C. Olson, Hearing Tr. Vol. 5, p. 985. The installation, routine inspection and calibration of flow meters is necessary for the accurate measurement of wastewater discharges generated at dairy facilities and for the accurate measurement of wastewater and stormwater applied to land application areas in accordance with nutrient management plans. Testimony of William C. Olson, NMED NOI Attachment 8, p. 50; testimony of William Pearson, NMED NOI Attachment 8, p. 65.

Accurate flow measurement is necessary for several reasons. Ground water discharge permit fees are based upon discharge volume. See testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1168; see also Paragraph (4) of Subsection F of 20.6.2.3108 NMAC. Accurate discharge volumes are necessary to determine capacity requirements of impoundments. Testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1168; Hearing Tr. Vol. 7, p. 1541. Accurate discharge volumes are integral to the functioning of nutrient management plans. See testimony of William C. Olson, Hearing Tr. Vol. 6, p.

1168; see also testimony of William Pearson, Hearing Tr. Vol. 6, p. 1170; Hearing Tr. Vol. 7, pp. 1543-1544. Without accurate discharge volumes it is difficult to determine the amount of nutrients, land and irrigation water necessary for achieving treatment of wastewater/stormwater through removal of nutrients by crops. Testimony of William Pearson, Hearing Tr. Vol. 6, pp. 1169-1170. The flow meter devices proposed by the Department are widely recognized as the most practical, appropriate and accurate method of measuring discharges of this type. See testimony of William C. Olson, NMED NOI Attachment 8, p. 50; Hearing Tr. Vol. 6, p. 1167.

Under the Department's proposal, velocity sensing totalizing flow meters are required to be used for pressurized closed-pipe situations. See Section 3220(K); testimony of Robert George, NMED NOI Attachment 8, p. 51. Hydraulic structure primary measuring devices with head sensing and totalizing equipment are required to be used for open channel gravity flow situations. *Id*. These devices are widely employed in the domestic wastewater treatment, water supply and irrigated agricultural industries (*Id*.), and they are employed at dairy facilities in other states (see DIGCE exhibit 71). The Department has been requiring the use of flow meters in discharge permit conditions for agricultural dischargers, such as dairies, since at least 2005. Testimony of William Pearson, Hearing Tr. Vol. 6, p. 1158. Agencies such as the U.S. Geological Survey and Bureau of Reclamation rely on flow meters for large hydraulic projects because of their reliability and simplicity. Testimony of Robert George, Hearing Tr. Vol. 7, p. 1401.

DIGCE opposes the use of flow meters to measure discharges into impoundments, arguing that they are inappropriate for use in dairy applications. See, e.g., testimony of Alva Carter, Hearing Tr. Vol. 9, p. 1835, "in my experience…flow meters are difficult to

operate in a dairy environment and are not always accurate…". However, it is difficult to determine the basis for this statement as Mr. Carter admits he has no personal experience with flow meters. Testimony of Alva Carter, Hearing Tr. Vol. 11, p. 2279. DIGCE argues that the higher total solids concentration in dairy wastewater than that found in municipal wastewater treatment renders flow meters inaccurate. Testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1870. However, DIGCE provided no evidence that there is a higher total solids concentration in dairy wastewater than in municipal (domestic) wastewater. Flow meters have long been required to be used in domestic wastewater facilities under ground water discharge permits. Testimony of Robert George, Hearing Tr. Vol. 6, p. 1329. This is despite the fact that domestic wastewater has similar solids concentrations and some domestic waste streams may have even more debris than is present in dairy wastewater. *Id*. Furthermore, there are types of flow meters available that are suitable for use in situations where high total solids concentrations or trash exist in the wastewater being measured. DIGCE Ex. 71, p. 95.

DIGCE claims that a flow meter for measuring flow into an impoundment has no utility because "if your pond hasn't already been calculated for that design, that flow meter is not going to tell you anything." Testimony of Norman Mullin, Hearing Tr. Vol. 11, p. 2337. In fact, understanding the volume discharged into an impoundment is critical to recognizing if an impoundment is undersized or if a permit modification is needed due to a significant increase in the quantity of the discharge. See testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1168.

Furthermore, DIGCE's arguments against the use of flow meters to measure discharges into impoundments is contradicted by DIGCE's position that using flow

meters to measure discharges of wastewater or stormwater applied to a land application area is "the best management practice." Testimony of Norman Mullin, Hearing Tr. Vol. 11, P. 2337. DIGCE offered no explanation as to why the supposed shortcomings associated with flow meters would not interfere with their use for this purpose. DIGCE's contention that the flow measurement devices proposed for use by the Department will not function at dairy facilities is not supported by substantial evidence in the record.

a. <u>The staff gauge flow measurement method proposed by DIGCE is not an appropriate alternative to flow meters.</u>

DIGCE opposes the use of flow meters to measure discharges into impoundments and instead proposes the use of alternatives flow measurement methods, such as the staff gauge. See DIGCE Ex. 8, p. 51. Typically, a staff gauge is used for measuring the depth of water in an impoundment or for determining freeboard. Testimony of Robert George, Hearing Tr. Vol. 6, pp. 1326-1327. Under certain circumstances, a lagoon level (staff) gauge can be used to estimate the rate of discharge from an impoundment. NMED Ex. 3220-5, unnumbered p. 1. However, due to a variety of limitations, staff gauges cannot be used as a practical method for measuring discharge volumes at dairy facilities. *Id*. at unnumbered p. 2. Because dairy lagoons often have varying shapes, accurately calculating the volume pumped from a lagoon can be difficult. *Id*. at unnumbered p. 3. Wastewater that enters the lagoon while wastewater or wastewater/stormwater is being land applied is not accounted for. *Id*. Settled solids occupying a portion of the capacity of the impoundment can introduce error when trying to estimate the amount of wastewater or wastewater/stormwater in the impoundment and the method does not account for liquid gained by precipitation or lost through evaporation. *Id*. Unlike a mechanical totalizing flow meter, no record is created to independently verify the flow

measurements. *Id*; testimony of Robert George, Hearing Tr. Vol. 6, p. 1188; p. 1328.

The most profound flaw in DIGCE's proposed staff gauge flow measurement method is that the accuracy of the measurement cannot be understood and the allowable level of error is a function of the surface area of the impoundment. See testimony of Robert George, Hearing Tr. Vol. 6, pp. 1327-1328. The Department has proposed an allowable error for flow meters of plus or minus 10 percent. See Section 3224(E). DIGCE's proposed staff gauge flow measurement method can at best provide only an estimate of the discharge volume, not a true measurement, because the accuracy cannot be ascertained. See testimony of Robert George, Hearing Tr. Vol. 6, pp. 1327-1328. DIGCE did not provide any exhibits demonstrating that staff gauges provide an accurate way to measure discharges. Testimony of Norman Mullin, Hearing Tr. Vol. 10, p. 2136. In fact, DIGCE's own exhibits support the use of flow meters at dairy facilities and raise concerns regarding the use of DIGCE's proposed staff gauge flow measurement method. DIGCE Ex. 71 concludes that magnetic type flow meters (magmeters) provided the highest accuracy and reliability of the meters evaluated at dairy facilities in California. Testimony of Robert George, NMED Rebuttal Ex. 3206-1. According to this exhibit,

> alternative methods of estimating manure-water flow rates, such as measuring the rate of drop in the manure pond or estimating flow rates from assumed pump discharge, have their drawbacks. Pond drop measurements are complicated by the difficulty in determining the actual surface level of the pond and by inflow potentially occurring at the same time as discharges.

DIGCE Ex. 71, p. 94. This exhibit acknowledges that flow meters are expensive ($3,000 to $4,000) but concludes that the cost savings in commercial fertilizer can quickly justify the expense and "in addition, the environmental benefits in preventing the excessive losses of nutrients could be significant." *Id*. at unnumbered p. 96.

In summary, DIGCE's proposal for alternatives to flow meters, such as the staff gauge flow measurement method, is not supported by substantial evidence in the record. Furthermore, DIGCE's proposal fails to specify the means by which accurate flow measurements will be obtained and determined and therefore fails to meet the requirements of Section 74-6-4(K) of the Water Quality Act and should not be adopted.

7. Air Gaps Are the Best Available Scientific Technology to Protect Ground Water Quality by Preventing Backflow.

The Department's proposed rule requires that all supply wells used within the land application distribution system be protected from contamination by wastewater or stormwater backflow by the use of a total disconnect (physical air gap) or by the installation of a reduced pressure principal backflow prevention assembly ("RP") between the fresh irrigation water supply, and wastewater and stormwater delivery systems. Section 3221(O). This requirement is necessary because the backflow of wastewater and/or stormwater into a supply well poses an immediate impact to ground water quality with a high concentration and volume of contaminants. See testimony of William Pearson, NMED Rebuttal Attachment 3, p. 65; testimony of William C. Olson, NMED NOI Attachment 8, p. 70. The lack of backflow prevention measures installed on irrigation supply wells which are cross-connected with pipelines distributing wastewater or stormwater to land application fields make such wells susceptible to becoming a direct conduit for contaminants in wastewater or stormwater to enter ground water. Testimony of William Pearson, NMED Rebuttal Attachment 3, p. 65. Untreated dairy wastewater and stormwater have a high potential to impact ground water quality and possibly human health, and therefore require the greatest degree of backflow prevention available. *Id.*; see also testimony of William Pearson, NMED NOI Attachment 8, p. 63.

A backflow prevention device must be appropriate to the potential hydraulic conditions and the degree of hazard presented. Testimony of William C. Olson, NMED NOI Attachment 8, p. 70; see also NMED Ex. 3221-20; NMED Ex. 3221-21. A physical air gap provides water supply sources with the greatest degree of protection from back-siphonage or back-pressure conditions, regardless of the degree of hazard. Testimony of William C. Olson, NMED NOI Attachment 8, p. 70. A properly constructed air gap provides a physical separation between the water supply and the opening of the receiving vessel, preventing the possibility of backflow. *Id*. at pp. 70-71. Air gap systems are "the most reliable, trouble-free, and probably the least expensive method of achieving backflow prevention." DIGCE Ex. 32, p. 1; see also DIGCE 34, p. 7 ("the most reliable form of backflow prevention is an air gap…").

In response to concerns raised by DIGCE, the Department amended its proposal in its June 9 version[3] of the rule to allow for the use of a reduced pressure principle backflow prevention assembly as an alternative to an air gap device. Testimony of William C. Olson, Hearing Tr. Vol. 5, p. 984. Like air gap devices, RP devices are recognized by the Uniform Plumbing Code as an appropriate device where there is a high degree of hazard. Testimony of Robert George, Hearing Tr. Vol. 7, p. 1578; see also DIGCE Ex. 36, p. 5. The Department's amended proposal also requires inspection and certification of the RP devices by a properly certified tester and includes requirements for repair or replacement of malfunctioning devices and recordkeeping requirements. Section 3221(P). There are individuals in New Mexico who are certified backflow prevention installers and testers. Testimony of Robert George, Hearing Tr. Vol. 6, p.

[3] After a break in hearings, the Department submitted amendments to its original proposed rule. The document was entitled "Notice of Revised NMED Rebuttal Attachment 2, 6/8/10 version", but was submitted on June 9.

1237.

a. DIGCE presented no credible scientific or technical evidence that chemigation valves provide the level of backflow prevention necessary to adequately protect ground water quality.

DIGCE proposes that the use of unspecified alternative backflow prevention methods be permitted. DIGCE Ex. 8, p. 64. DIGCE argues that the air gap method is "unduly burdensome and costly" even though DIGCE's own exhibit supports the use of air gap systems as "… probably the least expensive method of achieving backflow prevention." DIGCE Ex. 32, p. 1. At the public hearing, DIGCE proposed the use of chemigation valves be permitted as being the "best practice". Testimony of Alva Carter, Hearing Tr. Vol. 10, p. 2064. However, DIGCE presented no credible scientific or technical evidence that chemigation valves are the "best practice" or that they provide the level of backflow prevention necessary to adequately protect ground water quality. In fact, DIGCE's own exhibits support the Department's proposal for the use of an air gap system as the most reliable and cost effective method for backflow prevention. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 71; see DIGCE Ex. 32 through Ex. 35, Ex. 37, through Ex. 39.

Chemigation valves do not provide adequate backflow prevention compared to the degree of hazard that is presented by dairy wastewater. Testimony of Robert George, Hearing Tr. Vol. 7, p. 1579. They are not recognized as providing adequate backflow prevention under the Uniform Plumbing Code. *Id*. Chemigation valves are designed to prevent injected dissolved chemicals from back-siphoning through irrigation piping and reaching an irrigation well. *Id*. Chemigation valves are not designed to handle the back-pressure that can result when pressurized wastewater from a dairy impoundment is

introduced into a piping system that is connected to an irrigation well. *Id*. Chemigation valves are not designed for wastewater and stormwater applications where particulate matter could cause a failure of the valve and allow wastewater and stormwater to backflow directly into ground water through an irrigation well. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 72; see also DIGCE Ex. 33. Therefore, chemigation valves are not an appropriate method for backflow prevention for dairy wastewater and stormwater applications. *Id*.

DIGCE's proposal that the use of unspecified alternative backflow prevention methods be permitted fails to meet the requirements of Section 74-6-4(K) of the Water Quality Act requiring the Commission to specify in regulations the measures to be taken to protect water quality, is not supported by substantial evidence in the record, and should not be adopted.

8. Nutrient Management Plans Are the Best Available Scientific Technology to Protect Ground Water Quality.

The Department's proposed rule requires applicants for a new, modified, or renewed discharge permit that have a land application area to submit a nutrient management plan ("NMP") with the application. Section 3206(R)(2); Section 3207(P)(2). Application of nitrogen from such sources as wastewater and stormwater to the land application area must be done in accordance with the NMP. Section 3221(K). These requirements are necessary because dairies that are proposing to land apply wastewater and/or stormwater are ultimately proposing to use crop production as a "treatment and removal" system. Testimony of William Pearson, NMED NOI Attachment 8, p. 62, p. 66. Land application treats wastewater and/or stormwater by removing nutrients such as nitrogen and phosphorus. *Id*. An NMP provides a way to

demonstrate how such a treatment system is expected to perform and helps to minimize agricultural pollution of surface and ground water. Testimony of William Pearson, NMED NOI Attachment 8, p. 66.

Fifty-eight New Mexico dairies have ground water contamination from land application areas. Testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1207; see also NMED Ex. SKM-1. The purpose of requiring a nutrient management plan is to prevent contamination by managing nutrients, rather than just disposing of nutrients. Testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1207. In the past, some dairies were permitted to simply dispose of their wastewater on unirrigated fields. Testimony of William Pearson, Hearing Tr. Vol. 6, p. 1206. For land application areas to actually function as a treatment system requires the use of irrigation water to produce a viable crop. *Id*. Therefore, the Department is proposing to require documentation of irrigation water rights for fields within a land application area. Section 3221(D).

The proposal for nutrient management plans was developed through negotiations with the dairy industry as an alternative to soil sampling, as nutrient management plans are more efficient and less costly than soil sampling. Testimony of William C. Olson, Hearing Tr. Vol. 6, pp. 1207-1208. A nutrient management plan does not regulate farming practices. Testimony of William Pearson, Hearing Tr. Vol. 7, p. 1459; testimony of William C. Olson, Hearing Tr. Vol. 7, pp. 1460-1461. Instead, the Department's proposal provides flexibility and leaves farming decisions up to the operator. Testimony of William C. Olson, Hearing Tr. Vol. 7, p. 1461.

The Department's proposal requires the NMP to be developed, signed and dated annually by an individual certified by a Certified Crop Advisor or Certified Professional

Agronomist and by an individual certified by the New Mexico office of the USDA-NRCS. Section 3221(K). There are approximately 20-30 certified professional agronomists and certified nutrient management planners in New Mexico. Testimony of William Pearson, Hearing Tr. Vol. 6, p. 1224; Vol. 7, p. 1462. Both certifications can be provided by one person. Testimony of William Pearson, Hearing Tr. Vol. 6, p. 1222.

The Department's proposal for nutrient management plans meets the requirements of the Water Quality Act, is based on the best available scientific technology, is supported by substantial evidence in the record and should be adopted.

9. The Department's Proposal to Prohibit the Introduction of Irrigation Water into Impoundments is the Best Available Scientific Technology to Protect Ground Water Quality.

Section 3221(B) of the Department's proposal prohibits the introduction of irrigation water into any impoundment authorized by a discharge permit for the storage of wastewater or stormwater. DIGCE appears to have taken the position that the addition of irrigation water to an impoundment should be permitted. See testimony of Alva Carter, Hearing Tr. Vol. 10, p. 2059; testimony of Norman Mullin, Hearing Tr. Vol. 12, p. 2449; see also testimony of William Pearson, Hearing Tr. Vol. 8, p. 1653. However, DIGCE provided no scientific or technical evidence or testimony in support of this proposal. Testimony of William Pearson, Hearing Tr. Vol. 8, p. 1653. The Department opposes the introduction of irrigation water to impoundments because it increases the variability and decreases the uniformity of the wastewater and/or stormwater quality within the impoundment. Testimony of William Pearson, NMED NOI Attachment 8, p. 60. This makes it difficult to account for the amount of nutrients applied to a field within a land application area and contributes to uneven application of nutrients. *Id*. at pp. 60-61.

Variability of wastewater and stormwater quality affects the ability to develop and accurately implement a nutrient management plan, and ultimately the treatment and removal system, to minimize the potential impacts to ground water quality. *Id*. at pp. 61-62.

Due to the complex hydraulic behavior of impoundments, natural flow patterns such as stagnant zones and recirculation already exist, creating a non-uniform mix in impoundments. Testimony of William Pearson, NMED NOI Attachment 8, p. 61. Research has shown that aeration and/or mixers arranged at locations and intervals appropriate for the characteristics of the impoundment are necessary to produce more uniform mixing. *Id*.; see also NMED Ex. 3221-4; Ex. 3221-4A; Ex. 3221-2; Ex. 3221-3. It is impracticable to achieve a uniform blend of irrigation water and wastewater or stormwater in an impoundment because mechanical agitation is required to achieve such a blend. Testimony of William Pearson, Hearing Tr. Vol. 6, pp. 1195-1198; NMED NOI Attachment 8, pp. 103-104. The degree of mechanical agitation necessary to achieve a uniform blend would be excessive in a dairy impoundment and since the dairies in New Mexico do not currently have such devices, a costly investment in this equipment would be required to reduce the variability of the nutrient concentrations in wastewater impoundments. *Id*. Simply introducing irrigation water into an impoundment does not create enough energy to create the necessary mixing. Testimony of William Pearson, Hearing Tr. Vol. 6, p.1201; see also NMED Ex. 3221-4 and 3221-4A.

As noted above, addition of irrigation water would increase variability, which would impact the nutrient management plan and could result in over applying or under applying nutrients to crops. Testimony of William Pearson, Hearing Tr. Vol. 6, p. 1199;

Hearing Tr. Vol. 8, p. 1653; see also NMED Ex. 3221.B. The result is that the treatment and removal system is rendered ineffective. Furthermore, the introduction of irrigation water occupies volume within an impoundment which should be reserved to store wastewater or stormwater. Testimony of William Pearson, NMED NOI Attachment 8, p. 61. This is counter to the objective of removing accumulated stormwater from an unlined stormwater impoundment as soon as possible to remove the hydraulic head, thereby minimizing the potential movement of contaminants to ground water. *Id*. For these reasons, the Department's prohibition of introducing irrigation water into an impoundment is supported by the evidence in this proceeding. DIGCE's proposal to allow the addition of irrigation water to an impoundment is not supported by substantial evidence in the record and should not be adopted.

B. Other Issues

In addition to the key issues discussed above, there are several other areas of disagreement between the parties. These issues are addressed below.

1. <u>The Department's proposed requirements for information that must be provided in an application is supported by substantial evidence in the record.</u>

Section 3205(E) requires that an application shall consist of the appropriate application form and required supporting documentation, regardless of previous submissions. DIGCE proposes that this section be modified so that subsequent applications do not require resubmission of information already submitted. DIGCE Ex. 8, p. 10. However, applicants for a discharge permit for a dairy facility have specific information that is necessary to be provided to the Department. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 9. It is necessary to provide an application form

and require its use by every dairy facility so as to provide consistency for the industry, more efficient completion of the forms by the applicant, and more efficient processing of the forms by the Department. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 9. The Department requires a complete application upon renewal or modification because applicants often don't sufficiently identify the previously submitted information to allow for its retrieval. Testimony of William C. Olson, Hearing Tr. Vol. 3, pp. 696, 699. It is incumbent upon the applicant to have a complete application, which allows the Department to process applications in a timely and efficient manner. *Id*. The Department has no way of knowing if changes have occurred at a facility unless that information is provided in an application. Testimony of William C. Olson, Hearing Tr. Vol. 8, pp. 1649-50. It is also necessary to have a complete record for public review. *Id*. at p. 1656. DIGCE's proposal would place the burden of finding previously submitted information upon the Department rather than on the applicant that is seeking a permit. *Id*. Furthermore, modifications are generally done in conjunction with a renewal and are triggered by major changes at a facility, and it is necessary for the Department to have all relevant information available to it. *Id*. at p. 1650. Therefore, the Department's proposal is supported by substantial evidence in the record and should be adopted.

2. <u>The Department's proposed fee schedule is supported by substantial evidence in the record.</u>

Section 3204 of the Department's proposed rule establishes schedules for the payment of the application filing fee and the discharge permit fee for dairy facilities. NMED NOI Attachment 8, p. 4. The Department's proposal does not change the discharge permit fee amounts set forth in 20.6.2.3114. *Id*.; testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1240. This section is necessary to restructure the manner in

which fees are paid to streamline the fee payment process into a regular payment system that makes it simpler and easier for the permittee to make payments and for the Department to track payment. *Id*. Under the Department's proposal, half of the fee is paid with the discharge permit application. *Id*. at p. 5. This provision is necessary so that the Department can receive fee revenue at the same time the Department is investing staff resources to review and process the application. *Id*. This approach is consistent with Subsection B of 20.6.2.3114 NMAC which requires that half of the permit fee be paid even if an application is withdrawn or denied. *Id*. By having the applicant pay half of the permit fee upfront with the application, payment is assured and the administrative process is streamlined because there is no need to later attempt to collect half of the permit fee if the application is withdrawn or denied. *Id*. Although not specifically required by the 2009 amendments to the Water Quality Act, this change is appropriate as part of a rulemaking that addresses all aspects of dairy permitting. Testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1243. The Department's proposed fee schedule is supported by substantial evidence in the record and should be adopted.

3. <u>The Department's proposed public notice requirements are supported by substantial evidence in the record.</u>

Section 3209 of the Department's proposal contains additional public notice requirements for applications for new discharge permits. Subsection (B) requires applicants for a discharge permit to provide written notice of the discharge by mail to owners of record of all properties within a one-mile distance from the boundary of the property where the discharge site is located. DIGCE proposes to delete this entire section. See DIGCE Ex. 8, p. 27.

This section applies only for a new discharge permit for a future dairy facility whose application for a new permit is received by the Department after the effective date of the dairy rule. Testimony of William C. Olson, NMED NOI Attachment 8, p. 21. For these new permit applications, the radial distance for which the applicant would be required to provide notice would be expanded from the current distance of 1/3 of a mile to a distance of one mile. *Id*. This expanded distance is necessary as data available to the Department has shown that ground water contamination at existing dairy facilities can migrate to distances of greater than 1/3 of a mile. *Id*. The potential for ground water impacts at a distance from a dairy facility makes it necessary to have a greater public notice distance so that adjacent landowners that could be potentially impacted have an opportunity to participate in the permitting process. *Id*. Although not specifically required by the 2009 amendments to the Water Quality Act, this section is appropriate as part of a rulemaking that addresses all aspects of dairy permitting. Testimony of William C. Olson, Hearing Tr. Vol. 6, p. 1246. Therefore, the Department's proposed public notice requirements are supported by substantial evidence in the record and should be adopted.

4. <u>The Department's proposal to monitor for sulfate in ground water is supported by substantial evidence in the record.</u>

The Department's proposed rule requires that a permittee shall collect ground water samples quarterly, and that such samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, sulfate and total dissolved solids. Section 3223(G). DIGCE proposes to remove the requirement to monitor for sulfate and allow sulfate to only be added as a constituent of concern if the dairy discharges wastewater treatment reject water. DIGCE Ex. 8, p. 77. However, DIGCE provided no scientific or technical

basis for the deletion of this water quality monitoring parameter. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 87.

While discharge permits have not historically required analysis for sulfate in ground water, sulfate has been added to the proposed rule because the Commission has an established standard for sulfate in 20.6.2.3103 NMAC. Testimony of William C. Olson, NMED NOI Attachment 8, p. 92. Furthermore, recent data and information available to the Department indicates that sulfate has been found to be a constituent of concern in ground water abatement actions conducted at dairy facilities. *Id*. The Department has measured sulfate concentrations above standards in ground water at some dairy monitoring wells. Testimony of Bart Faris, NMED NOI Attachment 8, p. 92. Given these results, an evaluation was required to determine if dairy waste contributed to and/or caused sulfate ground water exceedances. *Id*.; see also NMED Ex. 3223-27. In conducting this evaluation, the Department found that dairy waste contains sulfur. Testimony of Bart Faris, NMED NOI Attachment 8, p. 93. Organic sulfur can be converted to sulfate, and subsurface conditions in New Mexico are amenable to the oxidation of sulfur species to sulfate. *Id*. Sulfate will move through the vadose zone to ground water. *Id*. Dairy specific data has shown sulfate impacts to ground water. *Id*. Therefore, sulfate analysis is necessary to assure that standards are not exceeded. *Id*. The Department's proposal to require monitoring for sulfate is supported by substantial evidence in the record, is the best available science, and should be adopted.

5. <u>The Department's proposal to require a lithology log with a permit application is supported by substantial evidence in the record.</u>

Section 20.6.2.3221(Z)(2)(ii) of the Department's proposed rule requires an applicant to provide lithologic information for the dairy facility site with the application

for a new, renewed or modified discharge permit. This is critical information for determining the potential for water contaminants that are discharged from a dairy facility to cause ground water contamination. Testimony of William C. Olson, NMED NOI Attachment 8, p. 59. Knowledge of these factors is necessary for the Department to evaluate the effectiveness of the proposed discharge methods. *Id*. A lithology log is also valuable in helping the Department and the permittee determine if there is an immediate concern if there is a release or spill at a site. Testimony of William C. Olson, Hearing Tr. Vol. 7, pp. 1527-1528. Furthermore, providing this information is not a burden on an applicant because this information is routinely generated when a monitoring well is drilled. *Id*. The Department's proposal to require submittal of a lithology log with a permit application is supported by substantial evidence in the record and should be adopted.

6. Setback requirements should not be applied to areas where human food crops are being grown.

The Coalition proposes that production area and land application area setbacks be required from any area where human food crops are being grown (Coalition Ex. 2, p. 6, p. 8) and proposes to add a definition of "human consumptive food crops" to Section 3202(B). *Id*. at p. 1. While the Department agrees that a setback to human consumptive crops may be a good concept, it opposes this proposal because a permittee is unable to control what a neighboring farmer may plant in adjacent fields. Testimony of William C. Olson, NMED Rebuttal Attachment 4, p. 1. Therefore, this proposal is unenforceable by the Department and should not be adopted.

V. STATUTORY CRITERIA FOR ADOPTING THE DAIRY RULE

In adopting dairy regulations, the Commission shall give weight it deems

appropriate to all relevant facts and circumstances, including:

> (1) character and degree of injury to or interference with health, welfare, environment and property;
> (2) the public interest, including the social and economic value of the sources of water contaminants;
> (3) technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved;
> (4) successive uses, including but not limited to domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses;
> (5) feasibility of a user or a subsequent user treating the water before a subsequent use;
> (6) property rights and accustomed uses; and
> (7) federal water quality requirements.

NMSA 1978, § 74-6-4(E).

Each of the listed criteria is addressed below.

(1) *character and degree of injury to or interference with health, welfare, environment and property*.

In New Mexico, ground water is public property, and belongs to the state.[4] Dairies pose a high potential risk of ground water contamination if wastewater effluent and stormwater is not stored and handled properly, and due to waste products associated with having many cows in a small area. The Department has numerous documented cases of dairy facilities in New Mexico that have contaminated ground water with nitrates, total dissolved solids, chloride, and sulfate. In fact, a majority of dairies in New Mexico have already contaminated ground water in excess of ground water standards. Contamination in excess of the water quality standards promulgated by the Commission presents a risk to health, welfare, the environment and property.

[4] Unless noted otherwise, evidence cited in Section V is found in the testimony of William C. Olson, NMED NOI Attachment 1, pp. 17-21.

(2) *the public interest, including the social and economic value of the sources of water contaminants*.

The Supreme Court has characterized water as "our greatest natural resource." *State ex.rel. Ericson v. McLean*, 62 N.M. 264, 272, 308 P.2d 983 (1957). Ground water is a public resource and approximately 90 percent of the population of New Mexico depends on ground water as a drinking water source. There is a strong public interest in maintaining clean, uncontaminated ground water in New Mexico.

On the other side of the equation, dairies also have a social and economic value – they provide jobs and a source of income for some New Mexicans. One source has estimated the economic value of dairy production in New Mexico to be approximately $2.7 billion a year.

The dairy rule proposed by the Department is intended to assure that ground water is not contaminated. The alternative to prevention of contamination is to remediate contamination after it occurs. The Department has found that while there is undoubtedly a cost to industry of taking the steps called for in the regulations to prevent and monitor ground water contamination, it is far less than the cost of remediating ground water contamination once it has occurred, which helps preserve the economic viability of the industry. Moreover, good prevention practices assure that costs are borne by the person or business responsible for the contamination, rather than creating the potential that the public or others will bear the cost of remediation for contamination. The Department's proposed dairy rule strikes a fair balance between the interests of the state and public in maintaining uncontaminated ground water, and the economic value of the industrial source of the water contaminants.

A recurrent theme throughout DIGCE's testimony is the claim that the Department's proposed dairy rule will cause the state to lose dairies, jobs, and revenue. See, e.g., testimony of Beverly Fikse, DIGCE Ex. 3, p. 2. However, DIGCE did not provide any evidence supporting these conclusions. DIGCE claims that the proposed rule will result in dairies moving to "where the cost of production is cheaper". Testimony of Beverly Fikse, DIGCE Ex. 3, p. 2. However, data from the USDA's Economic Research Service demonstrates that the cost of dairy production in New Mexico is significantly and consistently lower than in Texas, which is in the same federal milk marketing order area as New Mexico. Testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 9; see NMED Rebuttal Ex. WO-2.

DIGCE failed to provide any substantial evidence that their proposed methods are less costly than those proposed by the Department. DIGCE did not undertake any scientific or technical study of their proposed alternatives that compared them to the cost of implementation of the Department's proposal. Testimony of Robert Hagevoort, Hearing Tr. Vol. 11, pp. 2329-2330. For example, DIGCE did not prepare a cost comparison comparing the cost of vadose zone monitoring with the cost of ground water monitoring. See testimony of John Sweeten, Hearing Tr. Vol. 9, p. 1968. While DIGCE did provide a cost comparison between synthetic liners and recompacted clay liners (DIGCE Ex. 31), that comparison is misleading because it assumes that suitable materials are located on site. Testimony of Norman Mullin, DIGCE Ex. 7, p. 2; Hearing Tr. Vol. 10, pp. 2114, 2117. In fact, the cost for constructing a clay liner if materials must be imported would be significantly higher, depending on the distance the materials must be transported. See testimony of Norman Mullin, Hearing Tr. Vol. 10, p. 2144.

The Department's proposed rule goes to great lengths to allow the continuation of practices that have not affected ground water quality at existing dairies. Testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 6. Dairies that have not contaminated ground water or that are in the process of remediating ground water contamination will not be required to install costly new liners for existing wastewater impoundments. Testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 4. The Department's proposal for synthetic liners only applies to the construction of new wastewater impoundments after the effective date of the dairy rule, or the retrofitting of an existing wastewater impoundment with a failing liner that is actively causing ground water contamination. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 40. Based upon discussions between the Department and the industry, the proposed rule also includes an exception to monitoring well requirements that allows for the use of one monitoring well to monitor more than one contamination source in specific circumstances. Testimony of William C. Olson, NMED NOI Attachment 8, p. 80. The continued use of existing ground water monitoring wells that substantially comply with the requirements of the proposed rule will be allowed. Testimony of George Schuman, NMED NOI Attachment 8, p. 79. Thus, the Department's proposal adequately considers the public interest, including the social and economic value of the dairy industry.

(3) *technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved*.

The ground water contamination prevention measures called for in the Department's proposed dairy rule are technically practical and economically reasonable.

Section 74-6-4(E) states that "[r]egulations may specify a standard of performance for new sources that reflects the greatest reduction in the concentration of water contaminants that the commission determines to be achievable through application of the best available demonstrated control technology, processes, operating methods or other alternatives, including where practicable a standard permitting no discharge of pollutants". Prevention of ground water contamination at dairies is achievable through available control technologies and proper operating methods. None of the prevention and monitoring practices called for in the Department's proposal are novel or technically impractical. While there is a cost associated with the monitoring and prevention measures, the cost is far less than the cost of remediation, which will have to be undertaken if contamination does occur.

(4) *successive uses, including but not limited to domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses*.

The primary concern of the Department's proposed dairy rule is to prevent ground water contamination, and to monitor ground water to assure that it remains uncontaminated. Successive uses for the public ground water potentially include domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses. These potential future uses make preservation of the resource important to the state and its citizens. This is why the Commission's water quality regulations require that contaminated ground water be abated to applicable water quality standards.

(5) *feasibility of a user or a subsequent user treating the water before a subsequent use*.

Should ground water become contaminated by a dairy, it is possible that users or

subsequent users of the ground water could treat the water before use. This is not a preferred alternative to prevention, and the costs likely would be much higher than prevention. In addition, it could shift the costs of the contamination from those who caused the contamination to the public or future generations. The Commission's water quality regulations require abatement of contaminated water by the responsible party, rather than requiring treatment of water by subsequent users.

(6) *property rights and accustomed uses*.

The New Mexico Dairy Industry had a 33 percent growth rate during the period 2001-2006. This indicates that the dairy industry on the scale it is practiced today is not an accustomed use in New Mexico, and was historically much smaller than it currently is. In addressing property rights, it is important to note that a person does not have the right to contaminate ground water in excess of an applicable ground water quality standard. Again, ground water is public property, and is protected as a public resource.

(7) *federal water quality requirements*.

The Department's proposed regulations recognize that stormwater is regulated by the Environmental Protection Agency, because New Mexico is one of five states that does not have primacy over surface water discharges. As a result, the Department's proposed regulations refer to the federal Environmental Protection Agency Concentrated Animal Feeding Operations ("CAFO") rules for stormwater discharges and stormwater impoundment capacities.

In addition to the above statutory criteria, Section 74-6-4(K) requires that the Commission must consider the "best available scientific information." In developing and proposing this rule, the Department has relied upon the best scientific information

available to it. Testimony of William C. Olson, NMED Rebuttal Attachment 1, p. 3. The Department's proposal is scientifically sound and relies on overwhelming data in prescribing the most effective and reliable methods available to prevent ground water pollution and monitor water quality. *Id*. The Department researched each of the measures proposed to prevent ground water pollution and to monitor water quality. *Id*. at pp. 8-9. As evidenced by the Department's exhibits submitted in support of its direct testimony, the Department's proposal is well supported by the best available scientific information. *Id*. In conclusion, the Department's proposal is in compliance with all statutory criteria.

VI. PROPOSED CHANGES TO DEPARTMENT'S FINAL PROPOSED DAIRY RULE

The Department's Final Proposed Dairy Rule includes a number of changes from its June 9, 2010 version. These changes are in response to testimony at the public hearing and are intended to clarify certain provisions and provide internal consistency. The changes are discussed in greater detail in the Department's Proposed Statement of Reasons submitted concurrently with this Closing Argument. They are also summarized below.

1. In 20.6.2.3202(B)(18) in the definition of "Impoundment," the Department proposes to add the sentence, "A wastewater or stormwater transfer sump is not an impoundment." This clarification was added based on concerns expressed by DIGCE. See Testimony of William C. Olson, Hearing Tr. Vol. 4, pp. 872-875. The concern was further addressed by the testimony of Mr. Schuman in response to questions by Commissioner Jones that a sump would not be a structure designed and used for storage

or disposal of wastewater. Testimony of George Schuman, Hearing Tr. Vol. 8, pp. 1643-1646.

2. In 20.6.2.3202(B)(29) in the definition of "Wastewater" the Department proposes to delete the phrase "except overflow from the drinking water system and stormwater" in the first sentence, and add the sentence, "Wastewater does not include overflow from the drinking water system or stormwater unless overflow or stormwater that is collected is comingled with wastewater, or it comes into contact with water contaminants as a result of being directly or indirectly used in facility operations." This language change was made to clarify the Department's intention that stormwater that is re-used and is used in the wastewater stream would be consider wastewater. Testimony of William C. Olson, Hearing Tr. Vol. 3, pp. 554-557.

3. In 20.6.2.3206(C) the Department proposes to add partnerships as an entity that should disclose the ownership interest. This was in response to questions by Commissioner Jones, who pointed out that partnership interests weren't necessarily covered by the existing language, and should be added. Testimony of William C. Olson, Hearing Tr. Vol. 7, pp. 1478-1482.

4. Additionally, in 20.6.2.3206(C) in the Department's initial version of the rule filed on March 8, 2010, the Department included a requirement that the applicant provide the names of the business entity's directors, officers, members or partners. NMED NOI Attachment 8, Section 20.6.2.3206(C)(1)(b). DIGCE opposed this language in its Exhibit 8 comments. Subsequently, the Department removed this requirement in its March 29 rebuttal version of the rule (NMED Rebuttal Attachment 2), because it believed this information would be available at the Public Regulation Commission. However, on

cross-examination by the Coalition, it became clear that the language should remain in the rule, because officers and directors may change without notification to the Public Regulation Commission. Testimony of William C. Olson, Hearing Tr. Vol. 3, pp. 520-522. The language proposed in Subsection C of the Department's Final Proposed Rule relating to providing the names of each entity's directors, officers, members or partners is the same as the language originally proposed in its March 8 version.

5. In 20.6.2.3206(G) the Department proposes to add the phrase, "if applicable, or from the nearest well within a one-mile radius of the dairy facility" to allow an applicant to provide samples from such a well if a sample from a test boring cannot be taken. This language is necessary because the requirement for a test boring was changed in Section 3220(Y) (formerly Z) such that borings are only required to a depth of 75 feet, which may not intersect with ground water. The need for this change was discussed by Mr. Olson in response to questions by Commissioner Jones. Testimony of William C. Olson, Hearing Tr. Vol. 7, pp. 1482-1483. The one-mile radius is consistent with Section 3220(Y)(1). Another proposed change to Section 3206 resulting from the change to Section 3220(Y) is the deletion of the words "measurements from the one site specific test boring" in Subsection L(1).

6. In Subsection N of 20.6.2.3206 the Department proposes to add the words "if applicable" to be consistent with the change to Section 3220.Y. Borings are now only required to a depth of 75 feet as discussed in relation to Subsection G, above.

7. In 20.6.2.3207(C) the Department proposes to add partnerships as an entity that should disclose the ownership interest. This is in response to questions by Commissioner Jones, who pointed out that partnership interests weren't necessarily

covered by the existing language, and should be added. Testimony of William C. Olson, Hearing Tr. Vol. 7, pp. 1478-1482.

8. In 20.6.2.3207(C) the Department proposes to include language relating to providing the names of each entity's directors, officers, members or partners for the reasons in 20.6.2.3206(C) above. Testimony of William C. Olson, Hearing Tr. Vol. 3, pp. 520-522.

9. In 20.6.2.3207(D) the Department proposes to add a requirement for the discharge permit identification number as designated in the most recent permit for the facility. This change is based on a suggestion by Commissioner Jones. Testimony of William C. Olson, Hearing Tr. Vol. 3, p. 594.

10. In 20.6.2.3207(F) the Department proposes to add the phrase "nearest well within a one-mile radius of the dairy facility" and delete "nearby off-site supply well." As with Subsection G of Section 3206, this language is necessary because the requirement for a test boring was changed in Section 3220(Y) (formerly Z) so that borings are only required to a depth of 75 feet. The one-mile radius is consistent with Section 3220(Y)(1). The need for this change was discussed by Mr. Olson in response to questions by Commissioner Jones. Testimony of William C. Olson, Hearing Tr. Vol. 7, pp. 1482-1483.

11. In 20.6.2.3207(J) the Department proposes a change to make this subsection consistent with the change to Section 3220(Y). The phrase, "measurements from the one site-specific test boring" is deleted because the test-boring measurements may not be available.

12. In 20.6.2.3207(L) the Department proposes to add the terms “if available” and “if applicable” to conform this paragraph to the change to Section 3220(Y) so that test borings are only required to a depth of 75 feet.

13. In 20.6.2.3216 the Department proposes language changes to clarify the intent of the section that if the facility meets all the setback distances at the time of its initial application, then the facility does not become out of compliance if a neighbor puts in a domestic well within the setback distance at a later time. On cross-examination, Mr. Olson testified that this is the intent. Testimony of William C. Olson, Hearing Tr. Vol. 3, p. 511.

14. In 20.6.2.3217(D)(2)(a) the Department proposes to add the word “wastewater” to clarify that this Paragraph applies to volumes and capacities for wastewater and combination wastewater/stormwater impoundments, but not impoundments only used for stormwater. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

15. In 20.6.2.3217(D)(2)(a)(i) the Department proposes to delete the phrase “or wastewater/stormwater” because this item relates only to wastewater impoundments, and to make this consistent with the Department’s position that it will not be regulating the capacity of stormwater impoundments. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

16. In 20.6.2.3217(D)(2)(a)(ii) the Department proposes to replace the term “wastewater impoundment” with the term “combination wastewater/stormwater” impoundment because this item relates only to wastewater impoundments, and will make this consistent with the Department’s position that it will not be regulating the capacity of

stormwater impoundments. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

17. In 20.6.2.3217(D)(2)(b(i) the Department proposes to add the phrase "or combination wastewater/stormwater" because this subparagraph relates to wastewater and combination wastewater/stormwater impoundments. This change will make this consistent with the Department's position that it will not be regulating the capacity of stormwater impoundments. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

18. In 20.6.2.3220(C) the Department proposes to delete the term "stormwater" from this subsection to be consistent with the Department's changes to Section 3217 making clear that the Department does not regulate stormwater impoundment capacities. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

19. The Department proposes to delete 20.6.2.3220(E)(1)(c) to be consistent with the Department's changes to clarify that the rule does not govern the capacity requirements of stormwater impoundments. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

20. In 20.6.2.3220(I) the Department proposes to delete the phrase, "and to restore the free capacity required by Subsection D or 20.6.2.3217 NMAC" to be consistent with the Department's changes to Section 3217 that made clear that the Department will not be regulating stormwater impoundment capacity under CAFO laws and regulations. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

21. 20.6.2.3220(J) of the Department's initial rule proposal as well as its June 9 version required the dairy to transfer stormwater from its stormwater impoundments after each storm event so as to maintain the free liquid capacity of the stormwater impoundment. The Department proposes to delete this entire subsection to be consistent with the Department's changes to Section 3217 that made clear that the Department will not be regulating stormwater impoundment capacity under CAFO laws and regulations. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

22. In 20.6.2.3220(O) the Department proposes to change the requirement for a daily inspection to a weekly inspection to be consistent with a change to Section 3224(C). See Testimony of William C. Olson, Hearing Tr. Vol. 5, p. 985.

23. In 20.6.2.3220(X) the Department proposes to add the words "that may be legally disposed of" to the rule, to make clear that the permittee has the obligation to make sure that any mortalities that may not be legally buried at the facility due to infectious diseases or other reasons are not buried there. Hearing Tr. Vol. 7, p. 1523.

24. In 20.6.2.3221(A) the Department proposes to delete the term "free-liquid" from the last sentence. This change is to make the sentence consistent with Subsection D of Section 3217 and the clarification changes to that subsection that made clear that the Department is not regulating stormwater impoundment capacity under federal CAFO laws. Testimony of William C. Olson, Hearing Tr. Vol. 5, pp. 981-982.

25. In 20.6.2.3221(H) the Department proposes to add a statement that the documentation must consist of a narrative statement and photographic documentation that confirm the new land application system, to be consistent with the requirement for existing infrastructure in Subsection G. This was added based on Mr. Olson's testimony

at hearing regarding the documentation of infrastructure. Testimony of William C. Olson, Hearing Tr. Vol. 6, pp. 1214-1215.

26. In 20.6.2.3221(K) the Department proposes language to clarify that the templates are adopted by the New Mexico office of the USDA NRCS. This is based on comments by Commissioner Vigil. Testimony of William Pearson, Hearing Tr. Vol. 7, p. 1462.

27. In 20.6.2.3221(L) the Department proposes to correct a typographical error to add the word "of" to the phrase, "Annual updates to the NMP shall include updates to the grazing plan as well as report <u>of</u> actual weight gains...".

28. In 20.6.2.3223(A) the Department proposes to modify the language in subparagraph (a) of Paragraph (2), subparagraphs (a) and (b) of Paragraph (4), and subparagraph (a) of Paragraph 5 to require to require a monitoring well for a new dairy *prior to placement of livestock* at the dairy. These changes are proposed in response to an inconsistency in language noted by Commissioner Jones between subparagraph (a) of Paragraph (1) and subparagraph (a) of the other paragraphs in this Subsection. See Testimony of George Schuman, Hearing Tr. Vol. 8, pp. 1764-1772. The timing for when a new dairy must install a monitoring well under different circumstances needed correction. These changes are made because an impoundment collecting stormwater, and a field to which stormwater can be applied, may begin receiving contaminated water when livestock are introduced to the facility. In comparison, a wastewater impoundment will only begin receiving contaminated water when the dairy is actually discharging from the milking parlor. The proposed changes will correct the timing requirements and resolve the inconsistency.

29. In 20.6.2.3223(A)(7)(c) the Department proposes to a change to accommodate the Department's change to Section 3220(Y), which removes the requirement for a test boring well deeper than 75 feet. The change allows an alternative method for determining depth to ground water.

30. In 20.6.2.3223(H) the Department proposes a change that requires that the initial ground water samples collected from newly installed monitoring wells at new dairy facilities be collected prior to placing livestock at the facility. The Department's June 9 version required collection of ground water samples prior to discharge, but as discussed in regard to Paragraphs (1) and (2) of Subsection A of this section, Commissioner Jones noted an inconsistency that this change resolves. See Testimony of George Schuman, Hearing Tr. Vol. 8, pp. 1764-1772.

31. In 20.6.2.3223(I) the Department proposes a change that requires that newly installed monitoring wells at new dairy facilities be surveyed prior to placement of livestock at the facility. The Department's June 9 version this required collection prior to discharge, but as discussed in regard to Paragraphs (1) and (2) of Subsection A of this section, Commissioner Jones noted an inconsistency that this change resolves. See Hearing Tr. Vol. 8, pp. 1764-1772.

32. In 20.6.2.3223(J) the Department proposes a change that requires the submittal of a monitoring well completion report after the installation of monitoring wells at a dairy facility to provide all of the pertinent information related to monitoring well installation. The language of this subsection requires that the report be submitted prior to placement of livestock at the facility. The Department's June 9 version required submittal of the report prior to discharge, but as discussed in regard to Paragraphs (1) and

(2) of Subsection A of this section, Commissioner Jones noted an inconsistency that this change resolves. See Testimony of George Schuman, Hearing Tr. Vol. 8, pp. 1764-1772.

33. In 20.6.2.3224(C) the Department proposes to require a permittee to measure the volume of all wastewater discharged to wastewater impoundments using a flow meter, and to record the meter readings at intervals not to exceed seven days. The Department originally proposed a frequency of daily readings (NMED NOI Attachment 3) but modified this in its June 9 version and in its Final Proposed Rule based on concerns raised by DIGCE. Testimony of William C. Olson, Hearing Tr. Vol. 6, pp. 1304-1308. Because this requirement applies to wastewater and combination wastewater/stormwater impoundments, the Department proposes to modify the language in its Final Proposed Rule to make clear that it applies to both.

34. In 20.6.2.3227(A) the Department proposes to add a provision that will "reset" the contingencies in this subsection once the requirements of the subsection have been complied with and ground water monitoring shows no exceedances for 8 consecutive quarters. This change is based on a discussion at hearing between DIGCE and Mr. Schuman, suggesting that such a provision is needed. Testimony of George Schuman, Hearing Tr. Vol. 8, p. 1723. In addition, in its Final Proposed Rule, the Department proposes to change the time periods for approval of corrective action plans and submission of revised corrective action plans from 30 days to 60 days. The proposed rule also changes the requirement that repairs to liners be completed within 180 days to within 240 days. These proposed changes were requested by the Department and agreed to by DIGCE in a post-hearing telephone call between counsel. The Coalition neither supports nor opposes these proposed changes.

35. In 20.6.2.3227(B) the Department proposes to add a provision that will "reset" the contingencies in this subsection once the requirements of the subsection have been complied with and ground water monitoring shows no exceedances for 8 consecutive quarters. This change is based on a discussion at hearing between DIGCE and Mr. Schuman, suggesting that such a provision is needed. Testimony of George Schuman, Hearing Tr. Vol. 8, p. 1723.

36. In 20.6.2.3227(C) the Department proposes to correct a typographical error to add the word "to" to the phrase "…contamination source it is intended <u>to</u> monitor…".

37. In 20.6.2.3227(H) the Department proposes to add language to address concerns raised by Commissioners at the hearing. The Department proposes to require that corrective action plans be submitted within 30 days of the date of discovery that the leakage rate detected in a leak detecting system is increasing or that the pump is unable to keep the interstitial space free of fluids. The corrective action plan must address how the leak will be assessed, how the liner will be repaired or replaced, and how wastewater or stormwater will be managed during the corrective action. See Testimony of William C. Olson, Hearing Tr. Vol. 7, pp. 1544-1556.

38. The Department proposes to change to cross-references throughout the rule to reflect changed subsection lettering in the Department's Final Proposed Rule.

The proposed changes to the dairy rule as summarized above are reasonable, are based on evidence in the record, and should be adopted.

VII. CONCLUSION

In summary, the Department's proposed dairy rule meets the rulemaking requirements and statutory criteria of the Water Quality Act, is based upon the best available scientific information, and is supported by substantial evidence in the hearing record. The Department's proposed dairy rule identifies specific, clear and effective requirements for dairy facilities to prevent water pollution and monitor ground water quality. Finally, the evidence in the record demonstrates that adopting the Department's proposed rule will both protect ground water quality and allow the dairy industry to remain an economically viable industry in New Mexico.

In contrast, the evidence in the record does not support DIGCE's positions. While DIGCE opposes many of the Department's proposed requirements, it presented no credible scientific or technical evidence to support its positions. DIGCE Exhibit 8 provided general comments and proposed changes to many sections of the Department's proposed rule, however, many of the comments and changes were not supported by any additional testimony, exhibit, or other evidence. DIGCE also provided no rebuttal testimony to the Department's direct testimony regarding the Department's scientific and technical rationale for its proposed rule. DIGCE only provided general surrebuttal testimony in objection to limited portions of the Department's proposed Dairy Rule. To the extent that changes proposed by DIGCE are not supported by the record, DIGCE has provided no legally justifiable basis for adoption of its proposals, and they should not be adopted.

It is the Department's position that the Department's Notice of Intent to Present Technical Testimony, Notice of Intent to Present Rebuttal Testimony, attached exhibits,

and evidence presented at the hearing provide adequate basis for adoption of the proposed rule. The Department recommends for the reasons contained herein that the Commission adopt the Department's Final Proposed Dairy Rule as proposed and amended by the Department.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that on August 23, 2010, I served this **Closing Argument, Proposed Statement of Reasons,** and the **Department's Final Proposed Rule** via electronic mail to:

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20.6.2.3200 SUPPLEMENTAL PERMITTING REQUIREMENTS FOR DAIRY FACILITIES
[20.6.2.3200 NMAC – N, effective date]

20.6.2.3201 PURPOSE: The purpose of Sections 20.6.2.3200 through 20.6.2.3235 NMAC is to supplement the general permitting requirements of Sections 20.6.2.3000 through 20.6.2.3114 NMAC to control discharges specific to dairy facilities and their operations.

20.6.2.3202 DEFINITIONS:

A. Terms defined in the Water Quality Act and Section 20.6.2.7 NMAC shall have the meanings as given in such.

B. As used in Sections 20.6.2.3200 through 20.6.2.3235 NMAC, but not in other sections of this Part, a term defined in this section shall have the following meaning.

(1) "Adjacent" means lying near, but lacking actual contact along a boundary or at a point.

(2) "Applicant" means the person applying for a new, renewed or modified discharge permit.

(3) "Construction quality assurance" or "CQA" means a planned system of activities necessary to ensure that standards and procedures are adhered to and that construction and installation meet design criteria, plans and specifications. A CQA includes inspections, verifications, audits, evaluations of material and workmanship necessary to determine and document the quality of the constructed impoundment or structure, and corrective actions when necessary.

(4) "Construction quality control" or "CQC" means a planned system of operational techniques and activities used to preserve the quality of materials and ensure construction to specifications. Elements of a CQC include inspections, testing, data collection, data analysis and appropriate corrective actions.

(5) "Contiguous" means being in actual contact along a boundary or at a point.

(6) "CQA/CQC Report" means a report that summarizes all inspection, testing, data collection, data analysis and any corrective actions completed as part of CQA or CQC for a project.

(7) "Dairy facility" means the production area and the land application area, where the discharge and associated activities will or do take place.

(8) "Dairy rule" means Sections 20.6.2.3200 through 20.6.2.3235 NMAC, as amended.

(9) "Date of postal notice" means the date when the United States Postal Service (USPS) first makes notice to the applicant or permittee of its possession of certified mail addressed to the applicant or permittee.

(10) "Discharge volume" means the measured daily volume of wastewater actually discharged within the production area. This definition does not include the volume of wastewater discharged to the land application area.

(11) "EPA" means the United States Environmental Protection Agency.

(12) "Existing dairy facility" means a dairy facility that is currently discharging, or has previously discharged and has not been issued a notice from the department verifying that closure and post-closure monitoring activities have been completed.

(13)….."Existing impoundment" means an impoundment that is currently receiving or has ever received wastewater or collected stormwater and that has not been closed pursuant to a discharge permit.

(14) "Expiration" means the date upon which the term of a discharge permit ends.

(15) "Field" means a unit of irrigated cropland within the land application area cultivated in the same manner to grow a specific crop for the uptake and removal of nutrients.

(16) "Flow meter" means a device used to measure the volume of water, wastewater or stormwater that passes a particular reference section in a unit of time.

(17) "Freeboard" means the vertical distance between the elevation at the lowest point of the top inside edge of the impoundment and the design high water elevation of the water level in the impoundment.

(18). "Impoundment" means any structure designed and used for storage or disposal by evaporation of wastewater, stormwater, or a combination of both wastewater and stormwater, or used for solids settling. A multiple-cell impoundment system having at least one shared berm or barrier whose smallest cells have a cumulative constructed capacity of 10 percent or less of the constructed capacity of the largest cell shall be considered a single impoundment for the purposes of these dairy rules. A wastewater or stormwater transfer sump is not an impoundment.

(19) "Land application area" means irrigated and cultivated fields collectively authorized by a discharge permit to receive wastewater or stormwater applications as a source of nutrients managed for crop production.

(20) "Land application data sheet" means a form used to report all nitrogen inputs applied to each field within the land application area, including the cropping status of the field at the time of application (i.e., fallow, corn, wheat, etc.).

(21) "Manure" means an agricultural waste composed of excreta of animals, and residual bedding materials, waste feed or other materials that have contacted excreta from such animals.

(22) "Maximum daily discharge volume" means the total daily volume of wastewater (expressed in gallons per day) authorized for discharge by a discharge permit. This definition does not include the volume of wastewater discharged to the land application area.

(23) "New dairy facility" means a dairy facility that has never before discharged wastewater.

(24) "Permittee" means a person who is issued or receives by transfer a discharge permit for a dairy facility or, in the absence of a discharge permit, a person who makes or controls a discharge at a dairy facility.

(25) "Production area" means that part of the animal feeding operation that includes the following: the animal confinement areas; the manure, residual solids and compost storage areas; the raw materials storage areas; and the wastewater and stormwater containment areas. The animal confinement areas include but are not limited to open lots, housed lots, feedlots, confinement barns, stall barns, free stall barns, milkrooms, milk centers, cowyards, barnyards, hospital pens and barns, and animal walkways. The manure, residual solids and compost storage areas include, but are not limited to, storage sheds, stockpiles, static piles, and composting piles. The raw materials storage areas include, but are not limited, to feed silos, silage storage areas, feed storage barns, and liquid feed tanks. The wastewater and stormwater containment areas include, but are not limited to, settling separators, impoundments, sumps, runoff drainage channels, and areas within berms and diversions which prohibit uncontaminated stormwater from coming into contact with contaminants.

(26) "Spillway" means a structure used for controlled releases from an impoundment designed to receive stormwater, in a manner that protects the structural integrity of the impoundment.

(27) "Stormwater" means direct precipitation and runoff that comes into contact with water contaminants within the production area of a dairy facility.

(28) "Unauthorized discharge" means a release of wastewater, stormwater or other substances containing water contaminants not approved by a discharge permit.

(29) "Wastewater" means water, that has come into contact with water contaminants as a result of being directly or indirectly used in the operations of a dairy facility including, but not limited to, the following: washing, cleaning, or flushing barns or other roof-covered production areas; washing of animals; spray-cooling of animals (except in open lots); and cooling or cleaning of feed mills and equipment. Wastewater does not include overflow from the drinking water system or stormwater unless overflow or stormwater that is collected is comingled with wastewater, or it comes into contact with water contaminants as a result of being directly or indirectly used in dairy facility operations.

20.6.2.3203 REQUIREMENTS FOR DISCHARGING FROM DAIRY FACILITIES:

A. No person shall discharge from a dairy facility without a discharge permit. A person intending to discharge from a dairy facility shall submit an application for a discharge permit pursuant to Section 20.6.2.3205 NMAC and remit fees pursuant to 20.6.2.3204 NMAC.

B. Permittees, owners of record of a dairy facility and holders of an expired permit are responsible for complying with the dairy rules.

C. Unless otherwise noted in Sections 20.6.2.3200 through 20.6.2.3235 NMAC, the requirements of Sections 20.6.2.3101 through 20.6.2.3114 NMAC apply to a dairy facility.

D. Complying with the requirements of Sections 20.6.2.3200 through 20.6.2.3235 NMAC does not relieve a dairy facility's owner, operator or permittee from complying with the requirements of other applicable local, state and federal regulations or laws.

20.6.2.3204 FEES: In lieu of paying fees under the requirements of 20.6.2.3114 NMAC, an applicant or permittee shall pay fees to the department pursuant to this section.

A. An applicant for a discharge permit or a discharge permit renewal for a dairy facility shall remit with the application to the department a filing fee in the amount of one hundred dollars ($100) and one-half of the applicable permit fee from Table 1 of 20.6.2.3114 NMAC. The filing fee and the permit fee payment remitted with the application are not refundable and may not be applied toward future discharge permit applications. If the department issues a discharge permit, the permittee shall remit a permit fee payment equal to one-tenth of the applicable permit fee from Table 1 of 20.6.2.3114 NMAC on the first occurrence of August 1 after the effective date of the discharge permit, and annually thereafter until the expiration or termination of the discharge permit.

B. An applicant for a discharge permit modification separate from a discharge permit renewal shall remit a filing fee of one hundred dollars ($100) and a permit modification fee with the application. The permit modification fee shall be equal to one-half of the applicable permit fee from Table 1 of 20.6.2.3114 NMAC. The filing fee and the permit modification fee payment remitted with the application are not refundable and may not be applied toward future discharge permit applications. Payment of the permit modification fee shall not relieve a permittee from remitting the permit fee payments required by Subsection A of this section. If the discharge permit modification is required by the secretary outside the context of an enforcement action, a permit modification fee is not required.

C. A permittee requesting temporary permission to discharge pursuant to Subsection B of 20.6.2.3106 NMAC shall pay the fee specified in 20.6.2.3114 NMAC.

20.6.2.3205 GENERAL APPLICATION REQUIREMENTS FOR ALL DAIRY FACILITIES: This section specifies the general requirements for discharge permit applications for all types of dairy facilities.

A. In lieu of Subsection F of 20.6.2.3106 NMAC, a permittee shall submit an application for renewal of a discharge permit for a dairy facility to the department at least one year before the discharge permit expiration date, unless closure of the facility is approved by the department before that date. At least 180 days before the due date for an application for renewal, a permittee may request a pre-application meeting with the department. The pre-application meeting shall be held in Santa Fe, unless otherwise agreed by the department. Requests shall be made in writing and submitted to the department by certified mail. If a permittee requests a pre-application meeting, the department shall contact the permittee to discuss and schedule a date for the pre-application meeting. The department shall respond to the

permittee's request in writing by certified mail to confirm the pre-application meeting date. The pre-application meeting shall occur no less than 60 days before the application due date. If the permittee or his representative fails to participate in the scheduled pre-application meeting, the permittee forfeits the opportunity for a pre-application meeting.

B. For a dairy facility that has not been constructed or operated, a permittee shall submit to the department at least one year before the discharge permit expiration date an application for renewal pursuant to Subsection A of this section or a statement certifying that the dairy facility has not been and will not be constructed or operated and that no discharges have occurred or will occur. Upon the department's verification of the certification, the department shall terminate the discharge permit, if necessary, and retire the discharge permit number from use.

C. Instead of the information required by Subsection C of 20.6.2.3106 NMAC, an applicant:

(1) for a new discharge permit, shall provide the information and supporting technical documentation pursuant to this section and Section 20.6.2.3206 NMAC;

(2) for a renewed or modified discharge permit, shall provide the information and supporting technical documentation pursuant to this section and Section 20.6.2.3207 NMAC; or

(3) for a renewed discharge permit for closure, shall provide the information and supporting technical documentation pursuant to this section and Section 20.6.2.3208 NMAC.

D. The department shall create a discharge permit application form for dairy facilities applying for a new discharge permit, for dairy facilities applying for a renewed, modified or renewed and modified discharge permit, and for dairy facilities applying for a discharge permit for closure to collect the information required by this section. The information requested on the form(s) shall be limited to the information required by this section. An applicant shall use the department's form to provide the information required by this section. An application shall consist of the appropriate form and required supporting documentation, regardless of previous submissions. The applicant shall attest to the truth of the information and supporting documentation in the application, and sign the form. The form shall be signed in the presence of a notary and notarized. The applicant shall provide to the department a hard copy (paper format) of the original signed and notarized completed application form and all supporting documentation. The applicant shall also provide an electronic copy of the original signed and notarized application and all supporting documentation in portable document format (PDF) on a compact disc (CD) or digital versatile disc (DVD).

E. If an applicant filing an application for a new discharge permit does not certify that the dairy facility complies with the setback requirements of Section 20.6.2.3216 NMAC, as required by Subsection D of 20.6.2.3206 NMAC, the department shall reject the application. The department shall provide notice of the rejection to the applicant by certified mail.

F. Within 60 days of the department's receipt of proof of notice pursuant to Subsection D of 20.6.2.3108 NMAC, the department shall review the application for technical completeness. If proof of

notice is not submitted to the department pursuant to Subsection D of 20.6.2.3108 NMAC, the department shall notify the applicant by certified mail of the violation and provide 15 days from the date of postal notice for the applicant to submit the proof pursuant to Subsection D of 20.6.2.3108 NMAC. If proof of notice is not submitted to the department following the issuance of a notice of violation, the department may deny the application.

G. For an application to be deemed technically complete, an application shall include the information required by Subsection C of this section. Submittals or supporting documentation that require the certification of persons specified in the dairy rule are deemed technically complete if the documentation is prepared in accordance with the dairy rule and is certified by persons specified in the dairy rule. If the department determines that an application is not technically complete, the department shall provide notice of technical deficiency to the applicant by certified mail within 60 days of receipt of the applicant's proof of notice. The applicant shall have 60 days from the date of postal notice of the technical deficiency correspondence to provide the information required by this section.

(1) If an application is technically complete, the department shall make available a proposed approval of a discharge permit (i.e., draft discharge permit) or denial of a discharge permit application, pursuant to Subsection H of 20.6.2.3108 NMAC.

(2) If an applicant filing an application for a new discharge permit does not provide all information required by this section to the department within 60 days of the date of postal notice of the technical deficiency correspondence, the department shall deny the application. The department shall provide notice of denial to the applicant by certified mail.

(3) If an applicant for a renewed or modified discharge permit does not provide all information required by this section to the department within 60 days of the date of postal notice of the technical deficiency correspondence, the department may deny the application or may propose a discharge permit for approval consistent with the requirements of these regulations. If the department denies the application, the department shall provide notice of denial to the applicant by certified mail.

H. The department may impose additional conditions on a discharge permit in accordance with Section 74-6-5 NMSA 1978. If the department proposes an additional condition in a discharge permit that is not included in the dairy rules, the department shall include a written explanation of the reason for the additional condition with the copy of the proposed approval sent to the applicant pursuant to Subsection H of 20.6.2.3108 NMAC. Written comments about the additional condition may be submitted to the department during the 30-day comment period provided by Subsection K of 20.6.2.3108 NMAC. A hearing may be requested about the additional condition as provided by Section 20.6.2.3215 NMAC.

I. The secretary shall approve a discharge permit provided that:

(1) the requirements of the dairy rule are met;

(2) the provisions of 20.6.2.3109 NMAC are met, with the exception of Subsection C of 20.6.2.3109 NMAC; and

(3) denial of an application for a discharge permit is not required pursuant to Subsection E of Section 74-6-5 NMSA 1978.

20.6.2.3206 APPLICATION REQUIREMENTS FOR NEW DISCHARGE PERMITS:

A. An application for a new discharge permit shall include the information in this section.

B. Contact Information: An application shall include the:

(1) applicant's name, title and affiliation with the dairy facility, mailing address, and phone number;

(2) dairy facility manager's or operator's name, title and affiliation with the dairy facility, mailing address and phone number;

(3) application preparer's name, title and affiliation with the dairy facility, mailing address, phone number and signature; and

(4) mailing address and phone number of any consultants authorized to assist the dairy facility with compliance with the Water Quality Act and 20.6.2 NMAC.

C. Ownership and Real Property Agreements:

(1) An application shall include the dairy facility owner's name, title, mailing address and phone number.

(a) If more than one person has an ownership interest in the dairy facility or a partnership exists, then the applicant shall list all persons having an ownership interest in the dairy facility, including their names, titles, mailing addresses and phone numbers.

(b) If any corporate entity, including but not limited to a corporation or a limited liability company, holds an ownership interest in the dairy facility, then the applicant shall also list the name(s), as filed with the New Mexico Public Regulation Commission, of the corporate entity, and the corporate entity's registered agent's name and address, and the names of each of the corporate entity's directors, officers, members, or partners.

(2) If the applicant is not the owner of record of the real property upon which the dairy facility is or will be situated, or upon which dairy operations and land application will occur, then the applicant shall submit a copy of any lease agreement or other agreement which authorizes the use of the real property for the duration of the term of the requested permit. Lease prices or other price terms may be redacted.

D. Setbacks: The applicant shall certify that the setback requirements of Section 20.6.2.3216 NMAC are met. An application shall include a scaled map of the dairy facility layout demonstrating that the proposed layout of the dairy facility meets the setback requirements of Section 20.6.2.3216 NMAC.

E. Dairy Facility Information and Location: An application shall include:

(1) the dairy facility name, physical address and county; and

(2) the Township, Range and Section for the entire dairy facility, which includes the production area and fields within the land application area.

F. Public Notice Preparation: An application shall include the name of a newspaper of general circulation in the location of the dairy facility for the future display ad publication, the proposed public location(s) for posting of the 2-foot by 3-foot sign, and the proposed off-site public location for posting of the 8.5-inch by 11-inch flyer, as required by Section 20.6.2.3108 NMAC.

G. Pre-Discharge Total Dissolved Solids Concentration in Ground Water: Pursuant to Paragraph (3) of Subsection C of 20.6.2.3106 NMAC, an application shall include the pre-discharge total dissolved solids concentration from analytical results of ground water obtained from the on-site test boring pursuant to Subsection Y of 20.6.2.3220 NMAC, if applicable, or from the nearest well within a one-mile radius of the dairy facility. A copy of the laboratory analysis stating the pre-discharge total dissolved solids concentration shall be submitted with the application.

H. Determination of Maximum Daily Discharge Volume: An application shall include:

(1) the proposed maximum daily discharge volume, and a description of the methods and calculations used to determine that volume;

(2) the identification of all sources of wastewater which may include, but are not limited to, hospital barns, maternity barns, bottle-washing operations and parlor/equipment washdown;

(3) the animal washing method(s) employed and the estimated daily wastewater volume generated by the method(s); and

(4) information regarding other wastewater discharges (i.e., domestic or industrial) at the dairy facility not generated by dairy operations. Permit identification numbers shall be submitted for those discharges that are already permitted.

I. Wastewater Quality: An application shall include estimated concentrations of wastewater quality for total dissolved solids, chloride, total sulfur, nitrate as nitrogen, total Kjeldahl nitrogen and other constituents of concern related to the standards of 20.6.2.3103 NMAC that may be contained in the wastewater at the dairy facility based on data collected at other dairy facilities with similar discharge(s) volumes and wastewater management systems.

J. Identification and Physical Description of the Dairy Facility: An application shall include:

(1) a scaled map of the entire dairy facility pursuant to Subsection V of 20.6.2.3220 NMAC;

(2) the identification of each proposed impoundment, including information about its location, purpose (i.e., to store wastewater or stormwater, or dispose of it by evaporation), liner material and storage or evaporative disposal capacity;

(3) the identification of each field within the proposed land application area, including information about its location, acreage, proposed method of wastewater and stormwater application and proposed method of irrigation water application;

(4) the identification of proposed additional wastewater and stormwater system components such as, but not limited to, sumps and mix tanks, including information for each component regarding its location, purpose, construction material, dimensions and capacity; and

(5) a description of the proposed location of all manure, silage and compost storage areas at the dairy facility, including a description of the proposed method(s) employed to protect each area from stormwater runoff and run-on, and to minimize leachate.

K. Flow Metering: An application shall describe a dairy facility's flow metering system pursuant to Subsections J, K, L, M, N and O of 20.6.2.3220 NMAC and Subsections I and J of 20.6.2.3221 NMAC, including:

(1) the identification of the method(s) (i.e., pumped versus gravity flow) of wastewater discharge, stormwater transfer and wastewater and stormwater land application;

(2) the proposed flow measurement devices for each flow method; and

(3) the identification of flow meter locations.

L. Depth-to-Most-Shallow Ground Water and Ground Water Flow Direction: An application shall include:

(1) the depth-to-most-shallow ground water pursuant to Subsection Y of 20.6.2.3220 NMAC; and

(2) the ground water flow direction of the most-shallow ground water beneath the dairy facility based on the most recent regional water level data or published hydrogeologic information. Survey data from nearby monitoring wells and a ground water elevation contour map indicating the direction of ground water flow may be included. The sources of all information used to determine ground water flow direction shall be provided with the application.

M. Monitoring Wells: An application shall include the proposed monitoring well locations pursuant to Subsections A and B of 20.6.2.3223 NMAC.

N. Surface Soil Survey and Vadose Zone Geology: An application shall include:

(1) the most recent regional soil survey map and associated descriptions identifying surface soil type(s); and

(2) if applicable, the lithologic log obtained from the on-site test boring pursuant to Subsection Y of 20.6.2.3220 NMAC to identify the geological profile of the vadose zone.

O. Location Map: An application shall include a location map with topographic surface contours identifying all of the following features located within a one-mile radius of the dairy facility:

(1) watercourses, lakebeds, sinkholes, playa lakes and springs (springs used to provide water for human consumption shall be so denoted);

(2) wells supplying water for a public water system and private domestic water wells;

(3) irrigation supply wells; and

(4) ditch irrigations systems, acequias, irrigation canals and drains.

P. Flood Zone Map: An application shall include the most recent 100-year flood zone map developed by the Federal Emergency Management Administration, FEMA, documenting flood potential for the dairy facility, and a description of any engineered measures used for flood protection.

Q. Engineering and Surveying: Pursuant to Section 20.6.2.3217 NMAC an application shall include:

(1) plans and specifications for impoundments and associated liners;

(2) plans and specifications for a manure solids separator(s); and

(3) a grading and drainage report and plan.

R. Land Application Area: For a dairy facility with a land application area, an application shall include:

(1) documentation of irrigation water rights pursuant to Subsection D of 20.6.2.3221 NMAC;

(2) a nutrient management plan (NMP) pursuant to Subsections K and L of 20.6.2.3221 NMAC; and

(3) a written description of the wastewater sampling location(s) between the manure solids separator(s) and wastewater impoundment(s) pursuant to Subsection C of 20.6.2.3225 NMAC.

20.6.2.3207 APPLICATION REQUIREMENTS FOR DISCHARGE PERMIT RENEWAL OR MODIFICATION:

A. An application for a renewed or modified discharge permit shall include the information in this section.

B. Contact Information: An application shall include the:

(1) applicant's name, title and affiliation with the dairy facility, mailing address, and phone number;

(2) dairy facility manager's or operator's name, title and affiliation with the dairy facility, mailing address and phone number;

(3) application preparer's name, title and affiliation with the dairy facility, mailing address, phone number and signature; and

(4) mailing address and phone number of any consultants authorized to assist the dairy facility with compliance with the Water Quality Act and 20.6.2 NMAC.

C. Ownership and Real Property Agreements:

(1) An application shall include the dairy facility owner's name, title, mailing address and phone number.

(a) If more than one person has an ownership interest in the dairy facility or a partnership exists, then the applicant shall list all persons having an ownership interest in the dairy facility, including their names, titles, mailing addresses and phone numbers.

(b) If any corporate entity, including but not limited to a corporation or a limited liability company, holds an ownership interest in the dairy facility, then the applicant shall also list the name(s), as filed with the New Mexico Public Regulation Commission, of the corporate entity and the corporate entity's registered agent's name and address, and the names of each of the corporate entity's directors, officers, members, or partners.

(2) If the applicant is not the owner of record of the real property upon which the dairy facility is or will be situated, or upon which dairy operations and land application will occur, then the applicant shall submit a copy of any lease agreement or other agreement which authorizes the use of the real property for the duration of the term of the requested permit. Lease prices or other price terms may be redacted.

D. Dairy Facility Information and Location: An application shall include:

(1) the dairy facility name, physical address and county;

(2) the discharge permit identification number as designated on the most recent discharge permit for the dairy facility. (3) the Township, Range and Section for the entire dairy facility, which includes the production area and fields within the land application area; and

(4) the date of initial discharge at the dairy facility.

E. Public Notice Preparation:

(1) An application for a modified or renewed and modified discharge permit shall include the name of a newspaper of general circulation in the location of the dairy facility for the future display ad publication, the proposed public location(s) for posting of the 2-foot by 3-foot sign, and the proposed off-site public location for posting of the 8.5-inch by 11-inch flyer, as required by Subsection B of 20.6.2.3108 NMAC.

(2) An application for a renewed discharge permit without modification shall include the name of a newspaper of general circulation in the location of the dairy facility for the future display ad publication as required by Subsection C of 20.6.2.3108 NMAC.

F. Pre-Discharge Total Dissolved Solids Concentration in Ground Water: Pursuant to Paragraph (3) of Subsection C of 20.6.2.3106 NMAC, an application shall include the pre-discharge total dissolved solids concentration in ground water, sample source (e.g., upgradient monitoring well, on-site supply well, nearest well within a one-mile radius of the dairy facility) and a copy of the laboratory analysis.

G. Determination of Maximum Daily Discharge Volume: An application shall include:

(1) the proposed maximum daily discharge volume, and a description of the methods and calculations used to determine that volume;

(2) the identification of all sources of wastewater which may include, but are not limited to, hospital barns, maternity barns, bottle-washing operations and parlor/equipment washdown;

(3) the animal washing method(s) employed and the estimated daily wastewater volume generated by the method(s); and

(4) information regarding other wastewater discharges (i.e., domestic or industrial) at the dairy facility not generated by dairy operations. Permit identification numbers shall be submitted for those discharges that are already permitted.

H. Identification and Physical Description of Dairy Facility: An application shall include:

(1) a scaled map of the entire dairy facility pursuant to Subsection V of 20.6.2.3220 NMAC;

(2) the identification of each proposed, existing and closed impoundment, including information for each impoundment regarding its location, purpose (i.e., to store wastewater or stormwater, or dispose of it by evaporation), date of original construction, past and existing liner material, date of current liner installation and storage or evaporative disposal capacity;

(3) the identification of each existing, proposed, and previously used field within the land application area, including information for each field about its location, date of initial application of wastewater or stormwater, acreage, status with regard to having received wastewater or stormwater (i.e. never, inactive, active), current method of backflow prevention employed, current method of wastewater and stormwater application and current method of irrigation water application;

(4) the identification of additional wastewater and stormwater system components such as, but not limited to, sumps and mix tanks, including information for each component regarding its location, purpose, date of original construction, construction material, dimensions and capacity;

(5) the settled solids thickness measurements for each existing wastewater and combination impoundment pursuant to Subsection D of 20.6.2.3220 NMAC;

(6) a description of proposed and existing method(s) of solids separation pursuant to Paragraph (5) of Subsection C of 20.6.2.3217 NMAC and Subsection F of 20.6.2.3220 NMAC; and

(7) a description of the location of all manure, silage and compost storage areas at the dairy facility; and a description of the method(s) employed to protect each area from stormwater runoff and run-on, and to minimize leachate.

I. Flow Metering: An application shall describe a dairy facility's flow metering system pursuant to Subsections J, K, L, M, N and O of 20.6.2.3220 NMAC and Subsections I and J of 20.6.2.3221 NMAC including:

(1) the identification of the method(s) (i.e. pumped versus gravity flow) of wastewater discharge, stormwater transfer and wastewater and stormwater land application;

(2) a description of the existing and proposed flow measurement devices for each flow method; and

(3) the identification of flow meter locations.

J. Depth-to-Most-Shallow Ground Water and Ground Water Flow Direction:

(1) An application for renewal or modification shall provide the depth-to-most-shallow ground water and indicate ground water flow direction beneath the dairy facility on a ground water elevation contour map. The ground water elevation contour map shall be developed based upon the most recent ground water levels obtained with a water level measuring device and survey data from on-site monitoring wells obtained from a survey, pursuant to Section 20.6.2.3223 NMAC.

(2) If a dairy facility does not have a monitoring well intersecting most-shallow ground water, an applicant shall provide:

(a) the depth-to-most-shallow ground water pursuant to Subsection Y of 20.6.2.3220 NMAC; and

(b) the ground water flow direction of the most-shallow ground water beneath the dairy facility based upon the most recent regional water level data or published hydrogeologic information. Survey data from nearby monitoring wells and a ground water elevation contour map indicating the direction of ground water flow may be included. The sources of all information used to determine ground water flow direction shall be provided with the application.

K. Monitoring Wells: An application shall include:

(1) the construction logs for all existing, on-site monitoring wells, which indicate the date of installation and well driller; and

(2) the identification of monitoring well locations, proposed and existing, pursuant to Subsections A and B of 20.6.2.3223 NMAC.

L. Surface Soil Survey and Vadose Zone Geology: An application shall include:

(1) the most recent regional soil survey map and associated descriptions identifying surface soil type(s);

(2) the lithologic logs from all existing, on-site monitoring wells, if available; and

(3) if applicable, where a dairy facility does not have a monitoring well intersecting most-shallow ground water, the application shall include the lithologic log obtained from the on-site test boring pursuant to Subsection Y of 20.6.2.3220 NMAC to identify the geological profile of the vadose zone.

M. Location Map: An application shall include a location map with topographic surface contours identifying all of the following features located within a one-mile radius of the dairy facility:

(1) watercourses, lakebeds, sinkholes, playa lakes and springs (springs used to provide water for human consumption shall be so denoted);

(2) wells supplying water for a public water system and private domestic water wells;

(3) irrigation supply wells; and

(4) ditch irrigations systems, acequias, irrigation canals and drains.

N. Flood Zone Map: An application shall include the most recent 100-year flood zone map developed by the Federal Emergency Management Administration, FEMA, documenting flood potential for the dairy facility, and a description of any engineered measures used for flood protection.

O. Engineering and Surveying: An application shall include:

(1) plans and specifications for new or improved structures and associated liners proposed by the applicant pursuant to Section 20.6.2.3217 NMAC;

(2) record drawings and final specifications for existing structures and associated liners. For existing impoundments where record drawings and final specifications do not exist, survey data and capacity calculations shall be submitted pursuant to Subsection C of 20.6.2.3220 NMAC; and

(3) a grading and drainage report and plan pursuant to Paragraph (6) of Subsection C of 20.6.2.3217 NMAC.

P. Land Application Area: For a dairy facility with a land application area, an application shall include:

(1) documentation of irrigation water rights pursuant to Subsection D of 20.6.2.3221 NMAC;

(2) documentation confirming the existence of infrastructure necessary to distribute and apply wastewater and stormwater to the land application area pursuant to Subsection G of 20.6.2.3221 NMAC;

(3) a nutrient management plan (NMP) pursuant to Subsections K and L of 20.6.2.3221 NMAC; and

(4) a written description of the wastewater sampling location(s) between the manure solids separator(s) and wastewater impoundment(s) pursuant to Subsection C of 20.6.2.3225 NMAC.

20.6.2.3208 APPLICATION REQUIREMENTS FOR A DISCHARGE PERMIT FOR CLOSURE: An application for a discharge permit for closure shall include the information required by the Subsections B, C, D, E, F, J, K, L, M and N of 20.6.2.3207 NMAC and Paragraphs (1), (2), (3) and (4) of Subsection H of 20.6.2.3207 NMAC. For dairy facilities with or previously having a land application area, the application shall also include Paragraph (2) of Subsection P of 20.6.2.3207 NMAC, specifically pertaining to the past method(s) of wastewater discharge and stormwater application to the land application area.

20.6.2.3209 ADDITIONAL PUBLIC NOTICE REQUIREMENTS FOR APPLICATIONS FOR NEW DISCHARGE PERMITS:

A. The requirements of this section shall apply to dairy facilities whose application for a new discharge permit is received by the department after the effective date of the dairy rules.

B. Instead of the requirement for public notice specified in Paragraph (2) of Subsection B of 20.6.2.3108 NMAC, the applicant shall provide written notice of the discharge by mail to owners of record of all properties within a one-mile distance from the boundary of the property where the discharge site is located. If there are no properties other than properties owned by the discharger within a one-mile distance

of the boundary of the property where the dairy facility is located, the applicant shall provide notice to owners of record of the next nearest properties not owned by the discharger.

C. Proof of notice required by Subsection D of 20.6.2.3108 NMAC shall include an affidavit of mailing(s) and a list of property owner(s) notified pursuant to Subsection B of this section.

20.6.2.3210 – 20.6.2.3214: [RESERVED]

20.6.2.3215 PROCEDURES FOR REQUESTING PUBLIC HEARINGS ON PERMITTING ACTIONS FOR DAIRY FACILITIES:

A. Requests for a hearing from any person, including the applicant for a discharge permit, on the proposed approval of a discharge permit (i.e., a draft discharge permit) or denial of a discharge permit application shall be postmarked on or before the end of the comment period, and submitted to the department pursuant to Subsection K of 20.6.2.3108 NMAC. The secretary shall deny requests that do not meet the requirements of Subsection K of 20.6.2.3108 NMAC and this section. The secretary shall provide notice of hearing denial by certified mail to the person(s) requesting a hearing.

B. The secretary shall deny a request for a hearing on the proposed approval of a discharge permit for a dairy facility (i.e., a draft discharge permit) disputing conditions contained in the dairy rules. Requests for a hearing on the proposed approval of a discharge permit for a dairy facility shall identify the specific additional discharge permit conditions being disputed or requested and the reasons such additional discharge permit conditions are being disputed or requested. Hearings held upon the secretary's approval shall be limited in scope to the disputed or requested additional discharge permit conditions identified in the request for hearing. The secretary shall deny requests for a hearing that fail to identify disputed or requested additional discharge permit conditions and the reasons why the additional discharge permit conditions are disputed or requested. The secretary shall provide notice of hearing denial by certified mail to the person(s) requesting a hearing.

20.6.2.3216 SETBACK REQUIREMENTS FOR DAIRY FACILITIES APPLYING FOR NEW DISCHARGE PERMITS:

A. The setback requirements of this section apply to a dairy facility whose application for a new discharge permit is received by the department after the effective date of the dairy rules.

B. The setback requirements shall be measured as horizontal map distances

C. The required setback distances shall be met as certified by the applicant as of the receipt date of the application.

D. If the setback requirements apply to a dairy facility, a permittee shall not propose or construct structures that violate the setback as determined as of the receipt date of the application for a new discharge permit by the department.

E. Production Area Setback Requirements:

(1) The production area, excluding feed storage silos, feed storage barns and liquid feed tanks, shall be located:

(a) greater than 200 feet from the 100-year flood zone of any watercourse, or from the ordinary high-water mark of any watercourse for which no 100-year flood zone has been established. This setback distance shall not apply to ditch irrigations systems, acequias, irrigation canals and drains;

(b) greater than 200 feet (measured from the ordinary high-water mark) from a lakebed, sinkhole or playa lake;

(c) greater than 200 feet from any spring identified on a US Geological Survey (USGS) topographic map and not identified as a supply of water for human consumption;

(d) greater than 350 feet from a private domestic water well or spring that supplies water for human consumption; and

(e) greater than 1000 feet from any water well or spring that supplies water for a public water system as defined by Part 20.7.10 NMAC, unless a wellhead protection program established by the public water system requires a greater distance.

(2) The requirements of Subparagraph (d) of Paragraph (1) of this subsection shall not apply to wells or springs that supply water to the dairy facility for human consumption and are located on the dairy facility.

(3) Setback distances for impoundments shall be measured from the top inside edge of the impoundment; distances for all other features shall be measured from the outer extent of the feature.

F. Land Application Area Setback Requirements:

(1) Any field within a land application area shall be located:

(a) greater than 100 feet from the 100-year flood zone of any watercourse, or from the ordinary high-water mark of any watercourse for which no 100-year flood zone has been established. This setback distance shall not apply to ditch irrigations systems, acequias, irrigation canals and drains;

(b) greater than 100 feet (measured from the ordinary high-water mark) from any lakebed, sinkhole or playa lake;

(c) greater than 100 feet from a private domestic water well or spring that supplies water for human consumption; and

(d) greater than 200 feet from any water well or spring that supplies water for a public water system as defined by Part 20.7.10 NMAC, unless a wellhead protection program established by the public water system requires a greater distance.

(2) The requirements of Subparagraph (c) of Paragraph (1) of this subsection shall not apply to wells or springs that supply water for human consumption to the dairy facility and are located on the dairy facility.

(3) Setback distances for fields shall be measured from the outer edge of the field.

20.6.2.3217 ENGINEERING AND SURVEYING REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Practice of Engineering: All plans and specifications, supporting design calculations, record drawings, final specifications, final capacity calculations, grading and drainage reports and plans, and other work products requiring the practice of engineering shall bear the seal and signature of a licensed New Mexico professional engineer pursuant to the New Mexico Engineering and Surveying Practice Act, Sections 61-23-1 through 61-23-32 NMSA 1978, and the rules promulgated under that authority.

B. Practice of Surveying: All surveys of wastewater, stormwater, and combination wastewater/stormwater impoundments, monitoring well locations and casing elevations, and other work products requiring the practice of surveying shall bear the seal and signature of a licensed New Mexico professional surveyor pursuant to the New Mexico Engineering and Surveying Practice, Sections 61-23-1 through 61-23-32 NMSA 1978, and the rules promulgated under that authority.

C. Engineering Plans and Specifications Requirements:

(1) **Impoundment Plans and Specifications:** An applicant or permittee proposing or required to construct a new impoundment or to improve an existing impoundment, including relining of an existing impoundment, shall submit detailed and complete construction plans and specifications and supporting design calculations developed pursuant to this section and Section 20.6.2.3220 NMAC. The applicant or permittee proposing or required to construct an impoundment shall document compliance with the requirements of the Dam Safety Bureau of the State Engineer pursuant to Section 72-5-32 NMSA 1978, and rules promulgated under that authority, unless exempt by law from such requirements. The construction plans and specifications for an improvement(s) to an existing impoundment shall address the management of wastewater or stormwater during preparation and construction of the improvements.

(a) Construction plans and specifications proposed by the applicant or permittee shall be submitted to the department with the application for a new, renewed or modified discharge permit.

(b) Construction plans and specifications not proposed by the applicant or permittee but required to achieve compliance with the dairy rules shall be submitted to the department within 90 days of the effective date of the discharge permit.

(2) **Impoundment CQA/CQC:** Construction of a new impoundment or improvement to an existing impoundment shall be done in accordance with a Construction Quality Assurance/Construction Quality Control (CQA/CQC) Plan. A CQA/CQC Plan shall be included as part of the design plans and specifications. The CQA/CQC Plan shall outline the observations and tests to be used to ensure that construction of the impoundment meets, at a minimum, all design criteria, plans and specifications. All testing and evaluation reports shall be signed and sealed by a licensed New Mexico professional engineer experienced in lagoon construction and liner installation. The CQA/CQC Plan shall include, at a minimum, the following elements.

(a) The identity of persons responsible for overseeing the CQA/CQC program. The person responsible for overseeing with the CQA/CQC plan shall be a licensed New Mexico professional engineer experienced in lagoon construction and liner installation.

(b) A discussion of how inspections will be performed.

(c) The location, availability, applicability and calibration of testing equipment and facilities, both field and laboratory.

(d) The procedures for observing and testing the liner material.

(e) The procedures for reviewing inspection test results and laboratory and field sampling test results.

(f) The actions to be taken to replace or repair liner material should deficiencies be identified.

(g) The procedures for seaming synthetic liners.

(h) The reporting procedures for all inspections and test data.

(3) **Impoundment Improvement - Wastewater/Stormwater Management:** An applicant or permittee proposing or required to improve an existing impoundment, including relining of an existing impoundment, shall submit a plan for managing wastewater or stormwater during the improvement as part of the design plans and specifications. The plan for wastewater or stormwater management shall include the following minimum elements and be implemented upon department approval:

(a) a description of how on-going wastewater discharges or stormwater collection will be handled and disposed of during improvement to the impoundment;

(b) a description of how solids and wastewater or stormwater within the impoundment will be removed and disposed of prior to beginning improvement to the impoundment;

(c) a schedule for implementation through completion of the project; and

(d) if the plan proposes temporary use of a location for the discharge of wastewater not authorized by the effective discharge permit, the applicant or permittee shall request temporary permission to discharge from the department.

(4) **Manure Solids Separation Plans and Specifications - New Wastewater System:** An applicant or permittee proposing or required to construct a new manure solids separator as a component of a newly designed wastewater storage or disposal system shall submit construction plans and specifications and supporting design calculations that include the separator, pursuant to this section.

(a) Construction plans and specifications proposed by the applicant or permittee shall be submitted to the department with the application for a new, renewed or modified discharge permit.

(b) Construction plans and specifications not proposed by the applicant or permittee but required to achieve compliance with the dairy rules shall be submitted to the department within 90 days of the effective date of the discharge permit.

(5) **Manure Solids Separation Plans and Specifications - Existing Wastewater System:** An applicant or permittee proposing or required to construct a new manure solids separator as a component of an existing wastewater storage or disposal system shall submit a scaled design schematic and supporting documentation, including design calculations. The separator shall be designed to accommodate, at a minimum, the maximum daily discharge volume authorized by the discharge permit, and the volume of manure solids associated with the wastewater discharge. Components of the separator that collect, contain or store manure solids prior to removal or land application shall be designed with an impervious material(s) to minimize generation and infiltration of leachate.

(a) A scaled design schematic and supporting documentation for a proposed separator shall be submitted to the department with the application for a new, renewed or modified discharge permit.

(b) A scaled design schematic and supporting documentation for a separator not proposed by the applicant or permittee but required to achieve compliance with the dairy rules shall be submitted to the department within 90 days of the effective date of the discharge permit.

(6) **Grading and Drainage Report and Plan:** An applicant or permittee shall submit with the application for a new, renewed or modified discharge permit, a grading and drainage report and a grading and drainage plan, including supplemental information associated with the plan. The submittal shall include, at a minimum, the following information:

(a) A scaled map showing:

(i) The dairy facility and the property boundaries of the dairy facility;

(ii) All existing and proposed structures at the dairy facility, with the associated finished floor elevations;

(iii) Existing and proposed ground surface contours at two foot vertical intervals;

(iv) All existing and proposed stormwater management structures at the dairy facility including construction materials, size, type, slope, capacity and inlet and invert elevation of the structures, as applicable.

(b) A copy of the relevant FEMA Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map with the dairy facility clearly identified along with all Flood Zones;

(c) A description of existing drainage conditions at the dairy facility;

(d) A description of the proposed post-development drainage conditions;

(e) Supplemental information supporting the grading and drainage plan shall be submitted to the department with the plan and shall include, at a minimum, the following information:

(i) All hydrologic and hydraulic calculations for design storm events used;

(ii) Hydraulic calculations demonstrating capacity or adequacy of existing and proposed stormwater impoundments;

(iii) Hydraulic calculations demonstrating capacity of existing and proposed conveyance channels to contain and transport runoff to the stormwater impoundment(s); and

(iv) A description of computer software, documents, circulars, manuals, etc. used to develop the hydrologic and hydraulic calculations.

(7) **Flow Metering Plans and Specifications:** An applicant or permittee proposing or required to install a flow meter(s) shall submit documentation to support the selection of the proposed device along with construction plans and specifications detailing the installation or construction of each device.

(a) Construction plans and specifications proposed by the applicant or permittee shall be submitted to the department with the application for a new, renewed or modified discharge permit.

(b) Construction plans and specifications not proposed by the applicant or permittee but required to achieve compliance with the dairy rules shall be submitted to the department within 90 days of the effective date of the discharge permit.

D. Engineering Design Requirements:

(1) **Impoundment Capacity Requirements:** Impoundments designed to store wastewater prior to discharging to a land application area or to dispose of wastewater by evaporation shall meet the capacity requirements specified in the dairy rule. The dairy rule does not specify capacity requirements for the containment of stormwater. However, the dairy rule does not exempt a dairy facility from other applicable local, state and federal regulations or laws, including the EPA regulatory requirements for Concentrated Animal Feeding Operations pursuant to 40 Code of Federal Regulations, Parts 122 and 412, as amended.

(2) **Impoundment Capacities – Wastewater or Wastewater/Stormwater Combination:**

(a) Capacity requirements for dairy facilities discharging wastewater to a land application area:

(i) The wastewater impoundments intended to store wastewater prior to discharging to a land application area shall be designed to contain the maximum daily discharge volume authorized by the discharge permit for a minimum period of 60 days to accommodate periods when land application is not feasible, while preserving two feet of freeboard. This capacity requirement may be satisfied by a single wastewater impoundment or by the collective capacity of multiple impoundments intended to store wastewater.

(ii) The combination wastewater/stormwater impoundments intended to contain both wastewater and stormwater runoff for storage prior to discharging to a land application area shall be designed to contain the sum of the maximum daily discharge volume authorized by the discharge permit for a minimum period of 60 days to accommodate periods when land application is not feasible and the additional volume intended for the containment of stormwater runoff and direct precipitation, while preserving two feet of freeboard. This capacity requirement may be satisfied by a single combination

wastewater/stormwater impoundment or by the collective capacity of multiple impoundments intended to store wastewater or wastewater/stormwater.

(b) Capacity requirements for dairy facilities discharging to an evaporative wastewater or combination wastewater/stormwater disposal system:

(i) The wastewater impoundments intended to dispose of wastewater by evaporation shall be designed to contain the maximum daily discharge volume authorized by the discharge permit for disposal by evaporation, while preserving two feet of freeboard. This capacity requirement may be satisfied by a single wastewater impoundment or by the collective capacity of multiple impoundments intended to dispose of wastewater by evaporation.

(ii) The combination wastewater/stormwater impoundments intended to dispose of both wastewater and stormwater runoff by evaporation shall be designed for disposal by evaporation, the sum of the maximum daily discharge volume authorized by the discharge permit and the additional volume intended for the containment of stormwater runoff and direct precipitation while preserving two feet of freeboard. This capacity requirement may be satisfied by a single combination wastewater/stormwater impoundment or by the collective capacity of multiple impoundments intended to dispose of wastewater or wastewater/stormwater by evaporation.

(c) An impoundment designed and used for solids settling shall not be used to satisfy the impoundment capacity requirements of this subsection.

(3) **Stormwater Conveyance Channels:** Stormwater conveyance channels shall be designed in accordance with the grading and drainage report and plan required by this section.

(4) **Impoundment Design and Construction - General:** Impoundments required to be synthetically lined shall meet the following design and construction requirements:

(a) The inside slopes of an impoundment shall be a maximum of three (horizontal) to one (vertical), and a minimum of four (horizontal) to one (vertical);

(b) The outside slopes of an impoundment shall be a maximum of three (horizontal) to one (vertical);

(c) The sub-grade of an impoundment shall be compacted to a minimum of 95 percent of standard proctor density. If the existing material is unsuitable for compaction, a minimum depth of 18 inches of suitable material shall be used as subgrade;

(d) The subgrade of an impoundment shall provide a firm, unyielding surface with no sharp changes or abrupt breaks in grade; and

(e) The minimum dike width of an impoundment shall be 12 feet to allow vehicle traffic for maintenance.

(5) **Impoundment Design and Construction - Liner:** Synthetic impoundment liners shall meet the following additional design and construction requirements.

(a) The liner shall be installed with sufficient slack in the liner material to accommodate shrinkage due to temperature changes. Folds in the liner material shall not be present in the completed liner.

(b) The sub-grade shall be free of sharp rocks, vegetation and stubble to a depth of at least six inches below the liner. The surface in contact with the liner shall be smooth to allow for good contact between liner and sub-grade. The surface shall be dry during liner installation. The liner installer shall provide the owner with a subgrade acceptance certificate prior to installing the liner indicating acceptance of the earthwork.

(c) The liner shall be anchored in an anchor trench. The trench shall be a minimum of 12 inches wide, 12 inches deep and shall be set back at least 24 inches from the top inside edge of the impoundment.

(d) The liner panels shall be oriented such that all sidewall seams are vertical.

(e) If practicable, decomposing organic materials shall be removed from areas over which a liner will be installed. If such materials remain, a liner vent system shall be installed.

(f) Any opening in the liner through which a pipe or other fixture protrudes shall be sealed in accordance with the liner manufacturer's requirements. Liner penetrations shall be detailed in the construction plans and record drawings.

(g) The liner shall be installed by, or the installation supervised by, an individual that has the necessary training and experience as required by the liner manufacturer.

(h) Manufacturer's installation and field seaming guidelines shall be followed.

(i) Liner seams shall be field tested by the installer and verification of the adequacy of the seams shall be submitted to department along with the record drawings.

(j) Concrete slabs installed on top of a liner for operational purposes shall be completed in accordance with manufacturer and installer recommendations to ensure liner integrity.

(6) **Impoundment Liner – Wastewater or Wastewater/Stormwater Combination:** An applicant or permittee proposing or required to construct a new or to improve an existing wastewater or combination wastewater/stormwater impoundment, shall, at a minimum, utilize a liner meeting the following requirements.

(a) Where the vertical distance between the seasonal high ground water level and the finished grade of the floor of the impoundment is less than or equal to 50 feet as documented through the most recent ground water data obtained from an on-site test boring(s) or monitoring well(s), the impoundment shall, at a minimum, utilize an upper (primary) and lower (secondary) liner. The upper liner material shall be a minimum of 60-mil high density polyethylene (HDPE) or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance. The lower liner material shall be a minimum of 40-mil HDPE or other material having

equivalent characteristics with regard to permeability, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance. A leak detection system shall be constructed between the upper and lower liners and shall consist of a drainage layer, filter layer, fluid collection pipes, fluid collection sumps, and fluid removal system.

(i) A drainage layer shall be constructed of granular soil materials or geosynthetic drainage net (geonet). The drainage material shall have a hydraulic conductivity of 1×10^{-2} centimeters/second or greater. The drainage layer shall be constructed with a slope of at least two percent.

(ii) A filter layer shall be constructed above the drainage layer and below the upper liner. The filter layer shall provide for adequate flow of fluid through the filter while providing adequate retention of fine particles.

(iii) Perforated fluid collection pipes shall be installed to transmit fluid from the drainage layer to a fluid collection sump(s). Collection pipe material, diameter, wall thickness, and slot size and distribution shall be sufficient to prevent deflection, buckling, collapse or other failure. Collection pipes shall be installed with slopes equivalent to the slope of the drainage layer. Collection pipe systems shall be designed to allow for cleaning of all collection pipes with standard pipe cleaning equipment.

(iv) A fluid removal system shall be installed to remove fluid from the leak detection system. The fluid removal system shall consist of a sump(s), a dedicated pump(s), an automated pump activation system that activates the pump(s) when a specific fluid level is reached in a sump(s), a totalizing flow meter to measure to measure the volume of leachate pumped from the system, and an automated alarm system that provides warning of pump failure.

(b) Where the vertical distance from the seasonal high ground water level and the finished grade of the floor of the impoundment is greater than 50 feet as documented through the most recent ground water data obtained from an on-site test boring(s) or monitoring well(s), the impoundment shall, at a minimum, utilize a single liner that is at least 60-mil HDPE or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance.

(7) **Impoundment Liner - Stormwater:** Any applicant or permittee required to improve an existing stormwater impoundment pursuant to Subsection B of 20.6.2.3227 NMAC shall, at a minimum, utilize a liner that is at least 60-mil HDPE or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance.

(8) **Separation Between Impoundments and Ground Water:** Impoundments shall not be constructed in a location where the vertical distance between the seasonal high ground water level and the finished grade of the floor of the impoundment is less than or equal to four feet as documented through the most recent ground water data obtained from an on-site test boring(s) or monitoring well(s).

(9) **Impoundment Spillways:** Impoundments intended to contain only wastewater shall not be designed with a spillway.

20.6.2.3218 ADDITIONAL ENGINEERING DESIGN REQUIREMENTS FOR DAIRY FACILITIES WITH A LAND APPLICATION AREA: [RESERVED]

20.6.2.3219 ADDITIONAL ENGINEERING DESIGN REQUIREMENTS FOR DAIRY FACILITIES DISCHARGING TO AN EVAPORATIVE WASTEWATER DISPOSAL SYSTEM: [RESERVED]

20.6.2.3220 OPERATIONAL REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Notice of Presence of Livestock and Wastewater Discharge: A permittee shall provide written notice to the department of the commencement, cessation, or recommencement of wastewater discharge or the placement, removal, or reintroduction of livestock as follows.

(1) **For new dairy facilities.**

(a) **Placement of Livestock.** A permittee shall provide written notice to the department a minimum of 30 days before the placement of any livestock at the dairy facility. A permittee shall provide written verification to the department of the actual date of placement of any livestock within 30 days of placement.

(b) **Commencement of Wastewater Discharge:** A minimum of 30 days prior to the estimated initial wastewater discharge date a permittee shall provide written notice to the department indicating the date discharge is proposed to commence. A permittee shall provide written verification to the department of the actual date of discharge commencement within 30 days of commencement.

(2) **For existing dairy facilities:**

(a) **Removal or Reintroduction of Livestock:** A permittee shall provide written notice to the department indicating the date of removal of all livestock from the dairy facility or the date of reintroduction of any livestock at the dairy facility, if all livestock were previously removed, within 30 days of livestock removal or reintroduction.

(b) **Cessation of Wastewater Discharge:** A permittee shall provide written notice to the department indicating the date wastewater discharge ceased at the dairy facility within 30 days of the cessation of discharge.

(c) **Recommencement of Wastewater Discharge:** Written notification shall be submitted to the department a minimum of 30 days prior to the date wastewater discharge is expected to recommence. A permittee shall provide written notice to the department of the actual date of discharge recommencement within 30 days of recommencement.

B. Authorized Use of New and Existing Impoundments: Impoundments shall meet the liner, design, and construction requirements of Subsection D of 20.6.2.3217 NMAC; except an impoundment in existence on the effective date of these regulations that does not meet the requirements of Paragraphs (4) through (9) of Subsection D of 20.6.2.3217 NMAC may continue to receive wastewater or stormwater provided the requirements of Paragraphs (1) or (2) of this subsection are met. If the requirements of Paragraph (1) and Paragraph (2) of this subsection are not met, such an impoundment may continue to receive wastewater or stormwater provided the requirements of Subsection B of 20.6.2.3227 NMAC are met.

(1) The water contaminant concentration in a ground water sample and in any subsequent ground water sample collected from a monitoring well(s) intended to monitor the impoundment does not exceed any ground water standard of Section 20.6.2.3103 NMAC.

(2) The water contaminant concentration in a ground water sample and in any subsequent ground water sample collected from a monitoring well(s) intended to monitor the impoundment does not exceed the water contaminant concentration in a ground water sample collected from the upgradient monitoring well, if the water contaminant concentration associated with the upgradient monitoring well exceeds the ground water standard(s) of Section 20.6.2.3103 NMAC. For the purpose of this subsection, ground water samples obtained from the impoundment monitoring well and the upgradient monitoring well that are used for comparison of water contaminant concentrations shall be collected within two days of each other. In the event ground water quality data for the upgradient monitoring well are not submitted by the permittee, the ground water standard(s) of Section 20.6.2.3103 shall be the applicable standard(s) used to assess compliance with the requirements of this subsection.

C. Constructed Capacity of Existing Impoundment – Determination: If record drawings are unavailable or have not been completed for an impoundment constructed before the effective date of the dairy rules to indicate the impoundment capacity of each existing wastewater or combination wastewater/stormwater impoundment, the permittee shall complete an up-to-date survey and capacity calculation for each impoundment. The permittee shall submit the survey data and capacity calculations to the department with the application for a renewed or modified discharge permit.

D. Free-Liquid Capacity of Existing Impoundment – Determination: An applicant or permittee shall measure the thickness of settled solids in each existing wastewater and combination wastewater/stormwater impoundment during the twelve-month period prior to the submission of an application for a renewed or modified discharge permit and in accordance with the following procedure.

(1) The total surface area of the impoundment shall be divided into nine equal sub-areas.

(2) A settled solids measurement device shall be utilized to obtain one settled solids thickness measurement (to the nearest half-foot) per sub-area. The nine settled solids measurements shall be taken on the same day and the date shall be recorded and submitted to the department with the measurements.

(3) The nine settled solids measurements shall be averaged.

(4) The total volume of settled solids in the impoundment shall be estimated by multiplying the average thickness of the solids layer by the area of the top of the settled solids layer. The area shall be calculated using the impoundment dimensions corresponding to the estimated surface of the settled solids layer.

(5) The estimated volume of settled solids shall be subtracted from the design capacity of the impoundment (less two feet of freeboard) to estimate the actual free-liquid capacity.

(6) The settled solids measurements, calculations, estimation of total settled solids volume and volume of the actual free-liquid capacity for each impoundment shall be submitted to the department with the application for a renewed or modified discharge permit.

E. Impoundment Construction or Improvement: Construction of a new impoundment or improvements to an existing impoundment, including relining of an existing impoundment, shall be performed in accordance with the construction plans and specifications and supporting design calculations submitted with the application for a new, renewed or modified discharge permit, or those submitted after issuance of a discharge permit to achieve compliance with the dairy rules. An applicant or permittee shall notify the department at least five working days before starting construction or improvement of an impoundment to allow for an inspection by department personnel. An applicant or permittee shall submit to the department a Construction Certification Report bearing the seal and signature of a licensed New Mexico professional engineer verifying that installation and construction was completed pursuant to Subsection C of 20.6.2.3217 NMAC. The Construction Certification Report shall include: record drawings, final specifications, final capacity calculations and the CQA/CQC report.

(1) For new dairy facilities, impoundment construction shall be completed as follows:

(a) wastewater impoundment construction shall be completed and the Construction Certification Report shall be submitted to the department before discharging wastewater at the dairy facility;

(b) combination wastewater/stormwater impoundment construction shall be completed and the Construction Certification Report shall be submitted to the department before placing any livestock at the dairy facility; and

(2) For existing dairy facilities, impoundment construction shall be completed:

(a) within one year of the effective date of the discharge permit, if construction of a new impoundment or improvement of an existing impoundment is required to achieve compliance with the dairy rules, or pursuant to the contingency timeframe specified in Subsection B of 20.6.2.3227 NMAC when invoked after the effective date of a discharge permit issued pursuant to the dairy rules; and

(b) the Construction Certification Report shall be submitted to the department within 90 days of completion of impoundment construction.

F. Manure Solids Separator Installation: A permittee shall employ manure solids separation. All wastewater discharges to an impoundment shall be made through a manure solid separator.

(1) A permittee installing a new wastewater storage or disposal system shall, before discharging to the new system, construct a manure solids separator(s) in accordance with the construction plans and specifications submitted with the application for a new, renewed or modified discharge permit, or those submitted after issuance of a discharge permit to achieve compliance with the dairy rules. Before discharging to the new system, the permittee shall submit to the department confirmation of solids separator construction, including separator type(s) and location(s).

(2) If an existing dairy facility does not employ manure solids separation, the permittee shall construct a manure solids separator(s) within 150 days of the effective date of the discharge permit. The permittee shall submit confirmation of solids separator construction, including separator type(s) and location(s), to the department within 180 days of the effective date of the discharge permit.

G. Grading and Drainage Report and Plan – Submittal and Implementation: An applicant or permittee shall complete a new, or improve an existing grading and drainage system, in accordance with the Grading and Drainage Report and Plan required by Subsection C of 20.6.2.3217 NMAC and submitted with the application for a new, renewed, or modified discharge permit. An applicant or permittee shall submit a post-development drainage report, including record drawings, bearing the seal and signature of a licensed New Mexico professional engineer.

(1) For new dairy facilities, the grading and drainage system shall be completed and the post-development drainage report shall be submitted to the department before placing any livestock at the dairy facility.

(2) For existing dairy facilities, the improvements to the grading and drainage system shall be completed within one year of the effective date of the discharge permit. The post-development drainage report shall be submitted to the department within 90 days of completion of improvements.

H. Stormwater Conveyance: A permittee shall divert stormwater from the corrals and other applicable areas at the dairy facility (i.e., calf pens, alleys, feed storage and mixing, etc.) in accordance with the grading and drainage plan required by Subsection C of 20.6.2.3217 NMAC. Stormwater shall be conveyed in a manner that minimizes ponding and infiltration of stormwater.

I. Stormwater Management – Unlined Impoundment: A permittee shall transfer stormwater collected in an unlined impoundment(s) to the wastewater impoundment(s) or the distribution system for the land application area after a storm event to minimize the potential for movement to ground water. Operational pumps shall be available at the dairy facility at all times for the transfer of stormwater from stormwater impoundment(s) to the wastewater impoundment(s) or the distribution system for the land application area, as authorized by a discharge permit.

J. Flow Meter Installation: A permittee shall employ a flow metering system that utilizes flow measurement devices (flow meters) to measure the volume of wastewater discharged at the dairy facility. Flow meters shall be installed in accordance with the plans and specifications submitted with the application for a new, renewed or modified discharge permit, or those submitted after issuance of a discharge permit to achieve compliance with the dairy rules, pursuant to this section, Subsection C of 20.6.2.3217 NMAC, and Subsections I and J of 20.6.2.3221 NMAC. Flow meters shall be physically and permanently labeled with the discharge permit number, meter identification nomenclature as specified in a discharge permit, and the month and year of meter installation. Confirmation of installation shall include a description of the device type, manufacturer, meter identification, location, record drawings, and the results of the initial field calibration completed pursuant to Subsection E of 20.6.2.3224 NMAC.

(1) An applicant or permittee for a new dairy facility shall install flow meters and submit confirmation of flow meter installation to the department before discharging at the dairy facility.

(2) An applicant or permittee for an existing dairy facility shall install flow meters within 150 days of the effective date of the discharge permit and submit confirmation of flow meter installation to the department within 180 days of the effective date of the discharge permit.

K. Flow Metering Methods: Flow metering shall be accomplished by the following methods.

(1) For pumped flow discharge or transfer situations, an applicant or permittee shall install a closed-pipe velocity sensing totalizing flow meter(s) on the pressurized discharge or transfer line(s).

(2) For gravity flow discharge or transfer situations, an applicant or permittee shall install an open-channel primary flow measuring device(s) (flume or weir), equipped with head sensing and totalizing mechanisms, on the discharge or transfer line(s).

L. Flow Meter Locations: An applicant or permittee shall identify flow meter locations in the application for a new, renewed or modified discharge permit. All flow meters shall be located pursuant to this section and Subsections I and J of 20.6.2.3221 NMAC, and indicated on the scaled map required by Subsection V of this section.

M. Authorized Use of Existing Flow Meters: An applicant or permittee proposing to use an existing flow meter(s) shall submit documentation demonstrating that the existing flow meter(s) is installed consistent with this section, and Subsections I and J of 20.6.2.3221 NMAC, as appropriate. The proposal shall be submitted with an application for a new, renewed and modified discharge permit and shall include the following documentation:

(1) the location of each existing flow meter indicated on the scaled map required by Subsection V of this section and the identification of the wastewater discharge, or wastewater or stormwater application it is intended to measure;

(2) a copy of the record drawings or manufacturer plans and technical specifications specific to each existing flow meter; and

(3) a field calibration report for each existing flow meter, completed pursuant to Subsection E of 20.6.2.3224 NMAC.

N. Flow Metering - Wastewater to Impoundment: A permittee shall install flow meters to measure the volume of wastewater discharged from all wastewater sources to the wastewater or combination wastewater/stormwater impoundment(s). The flow meter(s) shall be installed on the discharge line(s) from all wastewater sources to the wastewater impoundment(s). Meter installation and confirmation of meter installation shall be performed pursuant to this section.

O. Flow Meter Inspection and Maintenance: A permittee shall visually inspect flow meters on a weekly basis for evidence of malfunction. If a visual inspection indicates a flow meter is not functioning to measure flow, the permittee shall repair or replace the meter within 30 days of discovery. The repaired or replaced flow meter shall be installed and calibrated pursuant to the dairy rules.

(1) For repaired meters, the permittee shall submit a report to the department with the next quarterly monitoring report following the repair that includes a description of the malfunction; a statement verifying the repair; and a flow meter field calibration report completed pursuant to Subsection E of 20.6.2.3224 NMAC.

(2) For replacement meters, the permittee shall submit a report to the department with the next quarterly monitoring report following the replacement that includes plans and specifications for the device pursuant to Subsection C of 20.6.2.3217 NMAC, and a flow meter field calibration report completed pursuant to Subsection E of 20.6.2.3224 NMAC.

P. Impoundment Inspection and Maintenance: A permittee shall maintain impoundments to prevent conditions which could affect the structural integrity of the impoundments and associated liners. Such conditions include, but are not limited to, erosion damage; animal burrows or other animal damage; the presence of vegetation including aquatic plants, weeds, woody shrubs or trees growing within five feet of the top inside edge of a sub-grade impoundment, within five feet of the toe of the outside berm of an above-grade impoundment, or within the impoundment itself; evidence of seepage; evidence of berm subsidence; and the presence of large debris or large quantities of debris in the impoundments. A permittee shall inspect impoundments and surrounding berms on a monthly basis to ensure proper condition and control vegetation growing around the impoundments in a manner that is protective of the liners. Within 24 hours of discovery, a permittee shall report to the department any evidence of damage that threatens the structural integrity of a berm or liner of an impoundment or that may result in an unauthorized discharge. A permittee is not required to report routine berm maintenance to the department.

Q. Leak Detection System Inspection and Maintenance: A permittee shall inspect and maintain impoundments utilizing primary and secondary liners and equipped with leak detection systems as follows:

(1) leachate accumulation within the leak detection system shall be returned to the respective impoundment utilizing an automatically activated pump to minimize hydraulic head on the secondary liner; and

(2) the permittee shall inspect the sump(s), dedicated pump(s), automated pump activation system, automated alarm system and totalizing flow meter associated with the leak detection system on a monthly basis for evidence of malfunction. If an inspection indicates malfunction of any of these components, the permittee shall repair the component(s) within 30 days of discovery. The permittee shall notify the department of component malfunctions and repairs made to components within 60 days of discovery.

R. Pipe and Fixture Inspection and Maintenance: A permittee shall maintain pipes and fixtures utilized for the conveyance or distribution of wastewater or stormwater at the dairy facility to prevent the unauthorized release of wastewater or stormwater. The permittee shall visually inspect pipes and fixtures on a weekly basis for evidence of leaks or failure, and shall maintain written records at the dairy facility of all such inspections including repairs to the pipes and fixtures. Where pipes and fixtures cannot be visually inspected because they are buried, the permittee shall inspect the area directly surrounding the features for evidence of leaks or failure (e.g., saturated surface soil, surfacing wastewater, etc.). If there is evidence an unauthorized discharge has resulted from damaged or faulty pipe(s) or fixture(s), the permittee shall repair or replace the pipe(s) or fixture(s) within 72 hours of discovery. The permittee shall report the unauthorized discharge to the department pursuant to Section 20.6.2.1203 NMAC.

S. Leachate Management - Manure Solids Separation System: A permittee shall manage the solids captured by and removed from the manure solids separation system(s) and stored at the dairy facility before removal or land application to minimize generation and infiltration of leachate. The manure solids removed from the manure solids separation system and leachate generated from those solids shall be collected and contained on an impervious surface before disposal.

T. Leachate Management – Manure and Compost Storage: Unless land application of manure solids and composted materials is authorized by a discharge permit, a permittee shall remove manure solids and composted material from the dairy facility. A permittee shall minimize the generation and infiltration of leachate from stockpiled manure solids and composted material before removal from the dairy facility by diverting stormwater run-on and run-off, and preventing ponding within areas used for manure and compost stockpiling.

U. Leachate Management – Silage Storage: A permittee shall minimize the generation and infiltration of leachate from silage storage areas and prevent ponding within silage storage areas. Leachate generated from the silage storage areas shall be collected and contained on an impervious surface before disposal.

V. Scaled Map of Dairy Facility: An applicant or permittee shall submit a scaled map of the dairy facility to the department with an application for a new, renewed or modified discharge permit. The map shall be clear and legible, and drawn to a scale such that all necessary information is plainly shown and identified. The map shall show the scale in feet or metric measure, a graphical scale, a north arrow, and the effective date of the map. Documentation identifying the means used to locate the mapped objects (i.e., global positioning system (GPS), land survey, digital map interpolation, etc.) and the relative accuracy of the data (i.e., within a specified distance expressed in feet or meters) shall be included with the map. Any object that cannot be directly shown due to its location inside of existing structures, or because it is buried without surface identification, shall be identified on the map in a schematic format and identified as such. The map shall include the following objects:

(1) the overall dairy facility layout (barns, feed storage areas, pens, etc.);
(2) the location of all sumps;
(3) the location of all manure solids separators;
(4) the location of all wastewater, stormwater, and combination impoundments;
(5) the location of all mix tanks;
(6) the location and acreage of each field within the land application area;
(7) the location of all monitoring wells;
(8) the location of all irrigation wells;
(9) the location of all meters measuring wastewater discharges to and from impoundments;
(10) the location of all meters measuring stormwater applied to the land application area;
(11) the location of all fixed pumps for discharge and transfer of wastewater or stormwater;
(12) the location of all wastewater and stormwater distribution pipelines;
(13) the location of each ditch irrigation system, acequia, irrigation canal and drain;
(14) the location of all backflow prevention methods or devices;
(15) all wastewater sampling locations, with the exception of impoundments for disposal by evaporation; and
(16) location of all septic tanks and leachfields.

W. Scaled Map of Dairy Facility - Updates: Following completion of additions or changes to the dairy facility layout which affects items required by Subsection V of this section, a permittee shall update and resubmit to the department the dairy facility map required by this section within 90 days of any additions or changes to the dairy facility layout which affects items required by Subsection V of this section.

X. Animal Mortality Management: All animal mortalities that may legally be disposed of (buried or composted) on a dairy facility shall be managed in accordance with the following requirements:

(1) only mortalities originating at the dairy facility may be disposed of at the dairy facility;

(2) mortalities shall not be stored or buried within 200 feet (measured as horizontal map distance) from private or public wells, or any watercourse;

(3) mortalities shall not be stored or buried within 100 feet (measured as horizontal map distance) from the 100-year flood zone of any watercourse, as defined by the most recent Federal Emergency Management Administration, FEMA, map;

(4) stormwater run-on to disposal areas shall be prevented by use of berms or other physical barriers; and

(5) mortalities disposed of by burial shall be placed in a pit(s) where the vertical distance between the seasonal high ground water level and the floor of the pit(s) is greater than 30 feet as documented through the most recent ground water data obtained from an on-site test boring(s) or monitoring well(s).

Y. Determination of Ground Water Conditions: An applicant or permittee for a dairy facility without a monitoring well from which depth-to-most-shallow ground water can be measured in accordance with the procedure required by Paragraph (1) of Subsection F of 20.6.2.3223 NMAC shall evaluate ground water conditions by the following methods.

(1) The applicant or permittee shall obtain records from the Office of the State Engineer for all wells on file with the Office of the State Engineer located within one mile of the boundary of the dairy facility. The applicant or permittee shall submit to the department in tabular format the following information obtained from Office of the State Engineer records: the well identification information; location of each well by latitude/longitude and township, range, and section; use of each well; depth to ground water in each well; and total depth of each well.

(2) If any well record information submitted pursuant to Paragraph (1) of this subsection indicates that depth to ground water is less than 100 feet, or in lieu of the requirement of Paragraph (1) of this subsection, the applicant or permittee shall conduct the following activities.

(i) The applicant or permittee shall drill one site-specific test boring to the depth of most-shallow ground water or a depth of 75 feet (measured from the ground surface), whichever is encountered first. The test boring shall be drilled in an area of low elevation within the production area outside of an existing or proposed impoundment.

(ii) The applicant or permittee shall describe the lithology from the ground surface to the completed borehole depth and document the depth of most-shallow ground water or the absence of ground water within 75 feet of the ground surface. If ground water is encountered within 75 feet of the ground surface, the depth of most-shallow ground water shall be measured immediately upon ceasing drilling of the boring and again 24 hours following ceasing drilling. Lithology shall be characterized pursuant to American Society of Testing and Materials (ASTM) Test Method D 2487 or D 2488 or characterized using standard visual geologic or soils descriptions that shall include lithology, grain size, color (Munsell Soil Color Charts may be used), texture, sorting, percent gravel and degree of induration.

The lithologic log and most-shallow ground water information shall be submitted to the department with the application for a new, renewed or modified discharge permit.

(iii) Upon completion of ground water measurements, unless the borehole is completed as a monitoring or production well, the borehole shall be immediately abandoned by emplacing neat cement grout, bentonite based plugging material, or other sealing material approved by the state engineer in accordance with Part 19.27.4 NMAC in the borehole from the bottom of the borehole to the ground surface. A written record of borehole abandonment shall be submitted to the department with the application for a new, renewed or modified discharge permit and shall describe the type of grout used and the depth interval sealed with grout. If a monitoring well is constructed in the borehole, the monitoring well shall be constructed in accordance with Subsection D of 20.6.2.3223 NMAC, and a construction log including well record information specified by Part 19.27.4 NMAC shall be submitted to the department with the application for a new, renewed or modified discharge permit.

Z. Domestic Wastewater: Domestic wastewater shall not be commingled with wastewater or stormwater generated at a dairy facility. Domestic wastewater shall be treated or disposed of pursuant to Part 20.7.3 NMAC or a discharge permit issued solely for the discharge of domestic wastewater, as appropriate.

20.6.2.3221 ADDITIONAL OPERATIONAL REQUIREMENTS FOR DAIRY FACILITIES WITH A LAND APPLICATION AREA:

A. Impoundment Storage Capacity Management – Wastewater and Wastewater/Stormwater Combination: A permittee shall operate and maintain a wastewater or combination wastewater/stormwater impoundment(s) for the purpose of storing wastewater prior to discharging to the land application area. A permittee shall manage wastewater or combination wastewater/stormwater impoundments to maintain the capacity and two feet of freeboard required by Subsection D of 20.6.2.3217 NMAC.

B. Prohibition of Irrigation Water Storage in Permitted Impoundments: A permittee shall not introduce irrigation water into any impoundment authorized by a discharge permit for the storage of wastewater or stormwater.

C. Authorized Land Application of Wastewater and Stormwater: A permittee shall apply wastewater and stormwater to fields within the land application area, up to the maximum acreage of irrigated cropland specifically authorized by a discharge permit. Wastewater and stormwater shall be distributed uniformly over the field at the planned rate consistent with the nutrient management plan (NMP); ponding shall be minimized.

D. Irrigation Water Rights – Documentation: An applicant or permittee shall submit documentation of irrigation water rights from the Office of the State Engineer for all fields within the land application area to the department with the application for a new, renewed or modified discharge permit.

Land application shall not be authorized unless the documentation demonstrates adequate water rights are held for irrigation to produce and harvest the crops necessary for the removal of nitrogen while the permit is in effect as required in this section.

E. Land Application Area – Fresh Irrigation Water Required: Wastewater shall only be applied to fields within the land application area receiving fresh irrigation water. Fresh irrigation water shall be used as the primary source to meet the water consumptive needs of the crop to support crop production and nutrient removal. Wastewater and stormwater are intended as sources of crop nutrients and shall not be used as a primary source to meet the water consumptive needs of the crop.

F. Wastewater/Irrigation Water Blending: A permittee shall not combine wastewater with irrigation water in an impoundment. Wastewater may be blended in-line (i.e., fresh irrigation water supply lines) when fresh water irrigation lines are equipped with a reduced pressure principle backflow prevention assembly (RP). Wastewater may also be blended in a mix-tank(s), applied alternately in the same irrigation line which has been physically disconnected from supply wells, or applied in a separate line, as authorized by a discharge permit.

G. Land Application Area – Existing Infrastructure: An applicant or permittee shall submit documentation for the existing infrastructure necessary to transfer, distribute and apply wastewater or stormwater to fields within the land application area that will receive wastewater or stormwater to the department with the application for a new, renewed or modified discharge permit. The documentation shall consist of a narrative statement and photographic documentation that confirm the existing land application distribution system including the type(s) and location(s) of the systems, and the method(s) of backflow prevention employed.

H. Land Application Area – New Infrastructure: Before the initial application of wastewater or stormwater to any field within the land application area that has not previously received wastewater or stormwater, an applicant or permittee shall install a land application distribution system to distribute wastewater and stormwater to those fields. The land application distribution system shall be utilized to distribute and apply wastewater and stormwater to fields within the land application area to meet the requirements of this section. Before the initial application of wastewater or stormwater to any field within the land application area, an applicant or permittee shall submit documentation confirming installation of the land application distribution system. The documentation shall consist of a narrative statement and photographic documentation that confirms the new land application system including the type(s) and location(s) of the system(s), and the method(s) employed for backflow prevention.

I. Flow Metering - Wastewater to Land Application Area: A permittee shall install flow meters to measure the volume of wastewater discharged from the wastewater or combination wastewater/stormwater impoundments to the land application area. The flow meter(s) shall be installed on the discharge line(s) from the wastewater impoundment(s) to the distribution system for the land application area. Meter installation and confirmation of meter installation shall be performed pursuant to

Subsection J, K, and M of 20.6.2.3220 NMAC.

J. Flow Metering - Stormwater to Land Application Area: For a dairy facility transferring stormwater from a stormwater impoundment directly to a distribution system for the land application area, a permittee shall install flow meters to measure the volume of stormwater applied directly to the land application area. The flow meter(s) shall be installed on the transfer line(s) from the stormwater impoundment(s) to the distribution system for the land application area. Meter installation and confirmation of meter installation shall be performed pursuant to Subsection J, K, and M of 20.6.2.3220 NMAC.

K. Nutrient Management Plan: Nutrients and other constituents present in wastewater and stormwater shall be applied to irrigated cropland under cultivation in accordance with the requirements of a nutrient management plan (NMP) submitted to the department with the application for a new, renewed, or modified discharge permit. The amount of nitrogen from all combined nitrogen sources, including but not limited to wastewater, stormwater, manure solids, composted material, irrigation water and other additional fertilizer(s), along with residual soil nitrogen and nitrogen credits from leguminous crops, shall be applied to each field within the land application area in accordance with the NMP. The NMP shall be developed through utilization of the U.S. department of agriculture natural resources conservation service (USDA-NRCS) national comprehensive nutrient management plan development templates as adopted by the New Mexico office of the USDA-NRCS and in accordance with the USDA-NRCS conservation practice standard for New Mexico, nutrient management - code 590. The NMP shall be developed, signed and dated annually by an individual certified by the American Society of Agronomy as a Certified Crop Advisor (CCA) or Certified Professional Agronomist (CPAg) and by an individual certified by the New Mexico office of the USDA-NRCS as a Nutrient Management Planner. Plant material and soil sampling protocols in the NMP shall be, at a minimum, equivalent to the requirements of Subsections I, K, and L of 20.6.2.3225 NMAC. The NMP shall identify the method of crop removal to be employed. The NMP shall be developed for the term of the discharge permit, updated annually, and implemented pursuant to the dairy rules. The permittee shall submit annual updates to the NMP to the department in the monitoring report due by May 1 of each year.

L. Crop Removal – Mechanical or Grazing: A permittee shall remove crops from fields within the land application area by mechanical harvest unless an alternative proposal for the use of grazing is submitted with the application for a new, renewed, or modified discharge permit. If grazing is the method proposed for crop removal, the nutrient management plan (NMP) prepared pursuant to Subsection K of this section shall include a proposal for the use of grazing for crop removal by means of an actively managed rotational grazing system which promotes uniform grazing and waste distribution throughout the field(s) (and pastures within the field). Proposals shall quantify the degree of nitrogen removal expected to be achieved by grazing, and shall provide scientific documentation supporting the estimated nitrogen removal and justification for the selection of input parameters used in calculations or computer modeling.

The NMP proposing grazing for crop removal shall be implemented in its entirety. Annual updates to the NMP shall include updates to the grazing plan as well as a report of actual weight gains, actual nitrogen uptake of the crop, and estimated crop and nutrient removal from the previous season. An NMP which proposes grazing for crop removal shall also include, at a minimum, the following elements:

(1) the length of the grazing season;

(2) the size and number of animals to be grazed;

(3) the estimated weight gain of animals to be grazed, or estimated intake for maintenance or milk production;

(4) the calculations to determine stocking rates, total acreage needed and residency period;

(5) the plant species used to establish pastures and the pasture renovation practices to be employed;

(6) the yield of plant species grown in each pasture and the forage supplied on a monthly basis; and

(7) the grazing management system employed and a map indicating key features of the system including water tanks, fencing, and pasture layout with numbering system and acreage of each pasture.

M. Crop Removal - Changes to Method(s): If a permittee proposes to change the method(s) (i.e., mechanical versus grazing) of crop removal on any field within the land application area authorized by the discharge permit, the permittee shall apply to modify the discharge permit. The permittee shall submit an application which includes the proposed change(s) pursuant to Subsection K and L of this section. The permittee shall not implement the changes unless the department issues a modified permit approving the changes.

N. Irrigation Ditches – Inspection and Maintenance: Irrigation ditches used to land apply wastewater or stormwater at a dairy facility shall be concrete-lined with sealed expansion joints. The permittee shall visually inspect the ditch system on a monthly basis to ensure proper maintenance. Any damage to a lined ditch shall be repaired immediately. A log shall be kept on-site documenting the inspection findings and repairs made, and the log shall be made available to the department upon request.

O. Backflow Prevention: A permittee shall protect all water wells used within the land application distribution system from contamination by wastewater or stormwater backflow by installing and maintaining backflow prevention methods or devices. Backflow prevention shall be achieved by a total disconnect (physical air gap separation of at least two times the pipe diameter or complete piping separation when wastewater is being pumped) or by the installation of a reduced pressure principal backflow prevention assembly (RP) between the fresh irrigation water supply and wastewater and stormwater delivery systems.

(1) A permittee for a new dairy facility shall install backflow prevention methods or devices and submit written confirmation of installation to the department before discharging at the dairy facility.

(2) A permittee for an existing dairy facility that lacks backflow protection as required by this subsection shall install backflow prevention methods or devices within 90 days of the effective date of the discharge permit. The permittee shall submit written confirmation of installation to the department within 180 days of the effective date of the discharge permit.

P. Backflow Prevention By Reduced Pressure Principle Backflow Prevention Assembly – Inspection and Maintenance: A permittee shall have each reduced pressure principle backflow prevention assembly (RP) inspected and tested by a certified backflow prevention assembly tester at the time of installation, repair, or relocation, and at least on an annual schedule thereafter. The backflow prevention assembly tester shall have successfully completed a 40-hour backflow prevention course based on the University of Southern California's backflow prevention standards and test procedures, and obtained certification demonstrating completion. A malfunctioning RP device shall be repaired or replaced within 30 days of discovery, and use of all supply lines associated with the RP device shall cease until repair or replacement has been completed. Copies of the inspection and maintenance records and test results for each RP device associated with the backflow prevention program shall be submitted to the department annually in the monitoring reports due by May 1.

Q. Supply Well Protection: With the exception of monitoring wells, all wells located within the land application area of a dairy facility shall have a surface pad constructed in accordance with the recommendations of Subsection G of 19.27.4.29 NMAC and a permanent well cap or cover pursuant to Subsection I of 19.27.4.29 NMAC.

20.6.2.3222 ADDITIONAL OPERATIONAL REQUIREMENTS FOR DAIRY FACILITIES DISCHARGING TO AN EVAPORATIVE WASTEWATER DISPOSAL SYSTEM: Impoundment Evaporative Capacity – Wastewater and Wastewater/Stormwater Combination: A wastewater or combination wastewater/stormwater impoundment shall be operated and maintained for the purpose of disposing of wastewater or both wastewater and stormwater by evaporation. A permittee shall manage wastewater or combination wastewater/stormwater impoundments to maintain the capacity and two feet of freeboard as required by Subsection D of 20.6.2.3217 NMAC.

20.6.2.3223 GROUND WATER MONITORING REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Monitoring Wells – Required Locations: A permittee shall monitor ground water quality hydrologically downgradient of each source of ground water contamination, including but not limited to wastewater, stormwater, and combination wastewater/stormwater impoundments, and fields within the land application area. Monitoring wells shall be located pursuant to this section to detect an exceedance(s) or a trend towards exceedance(s) of the ground water standards at the earliest possible occurrence, so that source control or abatement may be implemented as soon as possible.

(1) **Ground Water Monitoring – Wastewater Impoundments:** A minimum of one monitoring well shall be located hydrologically downgradient and within 75 feet (measured as horizontal map distance) of the top inside edge of each wastewater impoundment. For existing dairy facilities, this ground water monitoring requirement additionally applies to wastewater impoundments that received wastewater as authorized by the most recent discharge permit issued prior to the effective date of these dairy rules but are not proposed for use under the first discharge permit renewal following the effective date of these dairy rules.

(a) For a new dairy facility, monitoring wells shall be installed before discharging at the dairy facility.

(b) For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit.

(c) A permittee constructing a new impoundment at an existing dairy facility shall install the monitoring well(s) required to monitor ground water hydrologically downgradient of the impoundment s before discharging wastewater to the impoundment or within 120 days of the completion of the impoundment, whichever occurs first.

(2) **Ground Water Monitoring – Combination Wastewater/Stormwater Impoundments:** A minimum of one monitoring well shall be located hydrologically downgradient and within 75 feet (measured as horizontal map distance) of the top inside edge of each combination wastewater/stormwater impoundment. For existing dairy facilities, this ground water monitoring requirement additionally applies to combination wastewater/stormwater impoundments that received wastewater or stormwater as authorized by the most recent discharge permit issued prior to the effective date of these dairy rules but are not proposed for use under the first discharge permit renewal following the effective date of these dairy rules.

(a) For a new dairy facility, monitoring wells shall be installed before placing any livestock at the dairy facility.

(b) For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit.

(c) A permittee constructing a new impoundment at an existing dairy facility shall install the monitoring well(s) required to monitor ground water hydrologically downgradient of the impoundment before discharging wastewater to the impoundment, before collecting stormwater in the impoundment or within 120 days of the completion of the impoundment, whichever occurs first.

(3) **Ground Water Monitoring – Stormwater Impoundments:** A minimum of one monitoring well shall be located hydrologically downgradient and within 75 feet (measured as horizontal map distance) of the top inside edge of each stormwater impoundment. For existing dairy facilities, this ground water monitoring requirement additionally applies to stormwater impoundments that received stormwater as authorized by the most recent discharge permit issued prior to the effective date of these

dairy rules but are not proposed for use under the first discharge permit renewal following the effective date of these dairy rules.

(a) For a new dairy facility, monitoring wells shall be installed before placing any livestock at the dairy facility.

(b) For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit.

(c) A permittee constructing a new impoundment at an existing dairy facility shall install the monitoring well(s) required to monitor ground water hydrologically downgradient of the impoundment before collecting stormwater in the impoundment(s) or within 120 days of the completion of the impoundment, whichever occurs first.

(4) **Ground Water Monitoring – Land Application Area:** Monitoring wells intended to monitor ground water hydrologically downgradient of fields within the land application area shall be installed as follows.

(a) **Flood Irrigation:** Ground water monitoring shall be performed hydrologically downgradient of each flood irrigated field or grouping of contiguous flood irrigated fields. For every 40 acres or less of a single flood irrigated field or a single grouping of contiguous flood irrigated fields, a minimum of one monitoring well shall be located hydrologically downgradient and within 50 feet (measured as horizontal map distance) of the downgradient boundary of the single field or single grouping of contiguous fields. Flood irrigated fields separated by ditch irrigation systems, acequias and drains shall be considered contiguous for the purpose of this subsection. For existing dairy facilities, this ground water monitoring requirement additionally applies to single fields or single groupings of contiguous flood irrigated fields that received wastewater or stormwater as authorized by the most recent discharge permit issued prior to the effective date of these dairy rules but are not proposed for use under the first discharge permit renewal following the effective date of these dairy rules.

(i) For a new dairy facility, monitoring wells shall be installed before placing livestock at the dairy facility.

(ii) For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit.

(iii) A permittee activating a new flood irrigated field at an existing dairy facility shall install the monitoring well(s) required to monitor ground water hydrologically downgradient of the field before applying wastewater or stormwater to the field.

(b) **Sprinkler or Drip Irrigation:** Ground water monitoring shall be performed hydrologically downgradient of each sprinkler or drip irrigated field, or grouping of contiguous sprinkler or drip irrigated fields. For every 160 acres or less of a single sprinkler or drip irrigated field, or a single grouping of 160 contiguous acres of sprinkler or drip irrigated fields, a minimum of one monitoring well shall be located hydrologically downgradient and within 50 feet (measured as horizontal map distance) of

the downgradient boundary of the single field or single grouping of contiguous fields. Sprinkler or drip irrigated fields separated by ditch irrigation systems, acequias and drains shall be considered contiguous for the purpose of this subsection. For existing dairy facilities, this ground water monitoring requirement additionally applies to single fields or single groupings of contiguous sprinkler or drip irrigated fields that received wastewater or stormwater as authorized under the most recent discharge permit issued prior to the effective date of these dairy rules but are not proposed for use under the first discharge permit renewal following the effective date of these dairy rules.

(i) For a new dairy facility, monitoring wells shall be installed before placing livestock at the dairy facility.

(ii) For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit.

(iii) A permittee activating a new sprinkler or drip irrigated field at an existing dairy facility shall install the monitoring well(s) required to monitor ground water hydrologically downgradient of the field before applying wastewater or stormwater to the field.

(c) **Crop Harvest by Grazing:** Notwithstanding the requirements of Subparagraphs (a) and (b) of this paragraph, a minimum of one monitoring well(s) shall be located hydrologically downgradient and within 50 feet (measured as horizontal map distance) of the downgradient boundary of each field where grazing is proposed in an nutrient management plan (NMP) as an alternative to, or in conjunction with, crop removal by mechanical harvest.

(5) **Ground Water Monitoring – Upgradient:** A minimum of one monitoring well shall be located hydrologically upgradient of all ground water contamination sources at a dairy facility in order to establish ground water quality conditions at a location not likely to be affected by contamination sources at the dairy facility.

(a) For a new dairy facility, monitoring wells shall be installed before placing livestock at the dairy facility.

(b) For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit.

(6) **Use of Existing Monitoring Wells:** A monitoring well in existence before the effective date of the dairy rules shall be approved for ground water monitoring at a dairy facility provided all of the following requirements are met.

(a) The monitoring well is located at the location previously approved by the department.

(b) The monitoring well:

(i) if intended to monitor ground water quality near a contamination source, is located downgradient of the source based on current hydrologic conditions and is located no more than 100

feet hydrologically downgradient (measured as a horizontal map distance) from the contamination source; or

(ii) if intended to monitor ground water quality at a location not likely to be affected by contamination sources, is located hydrologically upgradient of sources at the dairy facility.

(c) The monitoring well is constructed with a screen length consistent with the construction requirements of this section or an alternative screen length previously approved by the department, and the screened interval intersects with the most-shallow ground water, and

(i) the alternative screen length is no greater than 30 feet; or

(ii) the monitoring well has a water column within the screened interval of no more than 25 feet in length based upon the most recent ground water level obtained with a water level measuring device pursuant to Section 20.6.2.3223 NMAC.

(d) The monitoring well construction log, the scaled dairy facility map and the ground water elevation contour map, and a copy of the department's written approval of an alternate screen length or recent ground water level data, as appropriate, is submitted with the application for a renewed or renewed and modified discharge permit verifying that the requirements of Subparagraphs (a), (b), and (c) of this paragraph are met.

(7) **Exceptions to Monitoring Well Requirements:** When appropriate, based on the documented ground water flow direction, one monitoring well may be authorized by a discharge permit to monitor ground water hydrologically downgradient of more than one contamination source under any of the following circumstances.

(a) Contiguous impoundments are oriented along a line that is parallel or approximately parallel to the direction of ground water flow beneath the impoundments.

(b) Adjacent impoundments are oriented along a line that is parallel or approximately parallel to the direction of ground water flow beneath the impoundments and separated by a distance of 50 feet or less as measured from the top inside edge of one impoundment to the nearest top inside edge of the adjacent impoundment.

(c) Adjacent or adjacent groupings of contiguous sprinkler or drip irrigated fields are oriented along a line that is parallel or approximately parallel to the direction of ground water flow beneath the fields and the average depth-to-most-shallow ground water measured in on-site monitoring wells pursuant to Subsection F of this section is 300 feet or greater. Where monitoring wells do not exist, depth-to-most-shallow ground water shall be determined pursuant to Subsection Y of 20.6.2.3220 NMAC. A monitoring well(s) installed hydrologically downgradient of a sprinkler or drip irrigated field or a grouping of sprinkler or drip irrigated fields pursuant to Paragraph (4) of this subsection may be authorized by a discharge permit to monitor ground water hydrologically downgradient of not more than two adjacent sprinkler or drip irrigated fields or adjacent groupings of sprinkler or drip irrigated fields.

(8) **Requirement for Third Monitoring Well:** If fewer than three monitoring wells are needed to satisfy the ground water monitoring requirements of Paragraphs (1) through (7) of this subsection, a third monitoring well shall be installed within 75 feet of the contamination source and in a location alternate to the downgradient monitoring well required by this subsection. The third monitoring well shall be installed in an alternative location that allows for the determination of ground water flow direction pursuant to this section.

B. Monitoring Wells – Location Proposals: An applicant or permittee shall identify monitoring well locations in the application for a new, renewed or modified discharge permit pursuant to Subsection A of this section, and shall include the following information:

(1) the location of each monitoring well relative to the contamination source it is intended to monitor shall be indicated on the scaled map required by Subsection V of 20.6.2.3220 NMAC;

(2) a written description of the specific location for each monitoring well including the horizontal map distance (in feet) and compass bearing of each monitoring well from the top inside edge of the impoundment berm or edge of the field it is intended to monitor; and

(3) the ground water flow direction beneath the dairy facility used to determine the monitoring well location(s), including supporting documentation used to determine ground water flow direction.

C. Monitoring Wells – Identification Tags: A permittee shall identify all monitoring wells required by the dairy rules with a well identification tag. For above-grade wells, the tag shall be affixed to the exterior of the steel well shroud using rivets, bolts or a steel band. For wells finished below-grade, the tag shall be placed inside the well vault next to the well riser. The tag shall be:

(1) made of aluminum;

(2) at least two inches by four inches in size;

(3) for monitoring wells installed after the effective date of the dairy rules, the tag shall be engraved with:

(i) the discharge permit number;

(ii) the well identification nomenclature specified in a discharge permit;

(iii) the name and New Mexico well driller license number of the well driller who drilled the well; and

(iv) the month and year of well installation; and

(4) for monitoring wells installed before the effective date of the dairy rules and satisfying the requirements of Paragraph (6) of Subsection A of this section, the tag shall be engraved with:

(i) the discharge permit number;

(ii) the well identification nomenclature specified in a discharge permit; and

(iii) if available, the name and New Mexico well driller license number of the well driller who drilled the well, and the month and year of well installation.

D. Monitoring Wells – Construction and Completion: A permittee shall construct monitoring wells pursuant to Part 19.27.4 NMAC and the following requirements.

(1) All well drilling activities shall be performed by an individual with a current and valid well driller license issued by the State of New Mexico pursuant to Part 19.27.4 NMAC.

(2) The well driller shall employ drilling methods that allow for accurate determinations of water table locations. All drill bits, drill rods, and down-hole tools shall be thoroughly cleaned immediately before drilling. The bore hole diameter shall allow a minimum annular space of two inches between the outer circumference of the well materials (casing or screen) and the bore hole wall to allow for the emplacement of sand and sealant.

(3) After completion, the well shall be allowed to stabilize for a minimum of 12 hours before development is initiated.

(4) The well shall be developed so that formation water flows freely through the screen and is not turbid, and all sediment and drilling disturbances are removed from the well.

(5) Schedule 40 (or heavier) polyvinyl chloride (PVC) pipe, stainless steel pipe, or carbon steel pipe shall be used as casing. The casing shall have an inside diameter not less than two inches. The casing material selected for use shall be compatible with the anticipated chemistry of the ground water and appropriate for the contaminants of interest at the dairy facility. The casing material and thickness selected for use shall have sufficient collapse strength to withstand the pressure exerted by grouts used as annular seals and thermal properties sufficient to withstand the heat generated by the hydration of cement-based grouts.

(6) Casing sections shall be joined using welded, threaded, or mechanically locking joints; the method selected shall provide sufficient joint strength for the specific well installation.

(7) The casing shall extend from the top of the screen to at least one foot above ground surface. The top of the casing shall be fitted with a removable cap, and the exposed casing shall be protected by a locking steel well shroud. The shroud shall be large enough in diameter to allow easy access for removal of the cap. Alternatively, monitoring wells may be completed below grade. In this case, the casing shall extend from the top of the screen to six to twelve inches below the ground surface; the monitoring wells shall be sealed with locking, expandable well plugs; a flush-mount, watertight well vault that is rated to withstand traffic loads shall be emplaced around the wellhead; and the cover shall be secured with at least one bolt. The vault cover shall indicate that the wellhead of a monitoring well is contained within the vault.

(8) A 20-foot section (maximum) of continuous well screen shall be installed across the water table. Screen shall consist of continuous-slot, machine slotted, or other manufactured Schedule 40 (or heavier) PVC or stainless steel. Screens created by cutting slots into solid casing with saws or other tools shall not be used. The screen material selected for use shall be compatible with the anticipated

chemistry of the ground water and appropriate for the contaminants of interest at the dairy facility. The screen slot size shall be selected to retain 90 percent of the filter pack.

(a) Requests for a 30-foot section of continuous well screen may be authorized by a discharge permit when the most recent two years of ground water level data demonstrates a declining water level trend of at least two feet per year. Data supporting ground water levels shall be specific to monitoring wells located at the dairy facility and obtained with a water level measuring device as required by Subsection F of this section.

(b) Requests for a 30-foot section of continuous well screen shall be submitted to the department in the application for a new, renewed or modified discharge permit.

(9) Screen sections shall be joined using welded, threaded, or mechanically locking joints. The method selected shall provide sufficient joint strength for the specific well installation and shall not introduce constituents that may reasonably be considered contaminants of interest at the dairy facility. A cap shall be attached to the bottom of the well screen. Sumps (i.e., casing attached to the bottom of a well screen) shall not be installed.

(10) The bottom of the screen shall be installed no more than 15 feet below the water table, or no more than 25 feet below the water table when additional screen length is authorized by a discharge permit. The top of the well screen shall be positioned not less than five feet above the water table. The well screen slots shall be appropriately sized for the formation materials.

(11) Casing and well screen shall be centered in the borehole by installing centralizers near the top and bottom of the well screen.

(12) A filter pack shall be installed around the screen by filling the annular space from the bottom of the screen to two feet above the top of the screen with clean silica sand. The filter pack shall be properly sized to exclude the entrance of fine sand, silt, and clay from the formation into the monitoring well. For wells deeper than 30 feet, the sand shall be emplaced by a tremmie pipe. The well shall be surged or bailed to settle the filter pack and additional sand added, if necessary, before the bentonite seal is emplaced.

(13) A bentonite seal shall be constructed immediately above the filter pack by emplacing bentonite chips or pellets (three-eighths inch in size or smaller) in a manner that prevents bridging of the chips/pellets in the annular space. The bentonite seal shall be three feet in thickness and hydrated with clean water. Adequate time shall be allowed for expansion of the bentonite seal before installation of the annular space seal.

(14) The annular space above the bentonite seal shall be sealed with cement grout or bentonite-based sealing material acceptable to the state engineer in accordance with Part 19.27.4 NMAC. A tremmie pipe shall be used to emplace the annular space seal (flow by gravity or pumping through the pipe) if the total depth of the well is greater than 20 feet from the land surface. Annular space seals shall

extend from the top of the bentonite seal to the ground surface (for wells completed above grade) or to a level three to six inches below the top of casing (for wells completed below grade).

(15) A concrete pad (two-foot minimum radius, four-inch minimum thickness) shall be poured around the shroud or well vault and wellhead. The concrete and surrounding soil shall be sloped to direct rainfall and runoff away from the wellhead.

E. Monitoring Wells – OSE Requirements: Should a well permit for a monitoring well be required by the Office of the State Engineer, the permittee shall obtain the permit prior to well drilling.

F. Ground Water Sample Collection Procedure: A permittee shall perform all ground water sample collection, preservation, transport and analysis according to the following procedure.

(1) Depth-to-most-shallow ground water shall be measured from the top of well casing at point of survey to the nearest 0.01 feet using an electronic water level indicator consisting of dual conductor wire encased in a cable or tape graduated to 0.01 feet, a probe attached to the end of the conductor wire, and a visual or audible indicator.

(2) Monitoring wells shall be purged before sample collection by one of the following methods:

(a) three well volumes of water shall be purged from the well before sample collection; or

(b) the monitoring well shall be purged until measurements of indicator parameters (pH, specific conductance, and temperature) have stabilized. Indicator parameters shall be measured periodically during purging. A parameter stabilization log shall be kept during each sampling event for each monitoring well and include: date; water quality indicator parameter measurements; time for all measurements; and the purge volume extracted. Indicator parameters are considered stable when three consecutive readings made no more than five minutes apart fall within the following ranges: temperature plus or minus10 percent; pH plus or minus 0.5 units; specific conductance plus or minus 10 percent.

(3) Following purging and immediately before sample collection the following field parameters shall be measured and recorded: pH, specific conductance, and temperature.

(4) In-line flow-through cells shall be disconnected or by-passed during sample collection, if used during purging.

(5) Samples from the well shall be obtained, prepared, preserved and transported to an analytical laboratory for analysis pursuant to the methods authorized by Subsection B of 20.6.2.3224 NMAC.

G. Ground Water Sampling and Reporting - Routine: A permittee shall collect ground water samples quarterly from all monitoring wells required by Subsection A of this section and Subsection C of 20.6.2.3227 NMAC. Samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, sulfate and total dissolved solids pursuant to Subsection B of 20.6.2.3224 NMAC. A permittee shall submit to the department in the quarterly monitoring reports the depth-to-most-shallow ground water,

the field parameter measurements, the parameter stabilization log (if applicable), the analytical results (including the laboratory quality assurance and quality control summary report) and a map showing the location and number of each well in relation to the contamination source it is intended to monitor.

H. Ground Water Sampling – New Monitoring Wells: A permittee shall collect ground water samples from all newly installed monitoring wells. Samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, sulfate and total dissolved solids pursuant to Subsection B of 20.6.2.3224 NMAC.

(1) Samples shall be collected from the newly installed monitoring wells at new dairy facilities before placing livestock at the dairy facility.

(2) Samples shall be collected from the newly installed monitoring wells at existing dairy facilities within 150 days of the effective date of the discharge permit.

(3) For dairy facilities installing a new monitoring well during the term of a discharge permit, during construction of a new impoundment, or as a result of required corrective actions, samples shall be collected from the newly installed monitoring wells within 30 days of well completion.

I. Monitoring Well Survey and Ground Water Flow Determination: A permittee shall survey monitoring wells to a U.S. Geological Survey (USGS) benchmark. Survey data shall include northing, easting and elevation to the nearest hundredth of a foot or shall be in accordance with the "Minimum Standards for Surveying in New Mexico", Part 12.8.2 NMAC. A survey elevation shall be established at the top-of-casing, with a permanent marking indicating the point of survey. The survey shall be completed and bear the seal and signature of a licensed New Mexico professional surveyor. Depth-to-most-shallow ground water shall be measured from the point of survey to the nearest hundredth of a foot in all surveyed wells pursuant to Subsection F of this section, and the data shall be used to develop a map showing the location of all monitoring wells and the direction and gradient of ground water flow at the dairy facility.

(1) For a new dairy facility, monitoring wells shall be surveyed before placing livestock at the dairy facility.

(2) For an existing dairy facility, monitoring wells not previously surveyed in a manner consistent with the requirements of this subsection and Subsection B of 20.6.2.3217 NMAC shall be surveyed within 150 days of the effective date of the discharge permit.

J. Monitoring Well Completion Report: A permittee shall submit to the department a monitoring well completion report pertaining to all monitoring wells. For a new dairy facility, the report shall be submitted before placing livestock at the dairy facility. For an existing dairy facility, the report shall be submitted within 180 days after the effective date of the discharge permit or within 60 days of completion as specified in a discharge permit. The report shall contain the following information:

(1) construction and lithologic logs for the new monitoring wells including well record information specified by Part 19.27.4 NMAC;

(2) depth-to-most-shallow ground water measured in each new and existing monitoring well;

(3) survey data and a survey map showing the locations of each new and existing monitoring well and a ground water elevation contour map developed pursuant to Subsection L of this section; and

(4) analytical results of ground water samples collected from the new monitoring wells, including laboratory quality assurance and quality control summary reports, and field parameter measurements.

K. Monitoring Well Survey Report – Existing Monitoring Wells: For a dairy facility required to survey existing monitoring wells pursuant to this section a permittee shall submit the monitoring well survey report to the department within 180 days of the effective date of the discharge permit. The report shall contain the depth-to-most-shallow ground water measured in each monitoring well, a surveyed map showing the locations of the monitoring wells, and the direction and gradient of ground water flow at the dairy facility.

L. Ground Water Elevation Contour Maps: A permittee shall develop ground water elevation contour maps on a quarterly basis using data associated with all monitoring wells used for ground water monitoring at the dairy facility. Top of casing elevation data, obtained from monitoring well surveys completed pursuant to this section and quarterly depth-to-most-shallow ground water measurements in monitoring wells, shall be used to calculate ground water elevations at monitoring well locations. Ground water elevations between monitoring well locations shall be estimated using common interpolation methods. Ground water elevations shall be expressed in feet. A contour interval appropriate to the data shall be used, but in no case shall the interval be greater than two feet. Ground water elevation contour maps shall depict the ground water flow direction, using arrows, based on the orientation of the ground water elevation contours, and the location and identification of each monitoring well, impoundment, and field within the land application area. A permittee shall submit ground water elevation contour maps to the department in the quarterly monitoring reports.

M. Monitoring Well Inspection: The department may perform downhole inspections of all monitoring wells. At least 60 days before the inspection, the department shall provide written notice to the permittee by certified mail stating the inspection date and identifying the monitoring wells to be inspected; the 60 day notification period shall start upon the date of postal notice. At least 48 hours before the department’s inspection, the permittee shall remove all existing dedicated pumps to allow adequate settling time of sediment agitated from pump removal. If a permittee decides to install a dedicated pump in a monitoring well, the permittee shall notify the department so that the department may have the opportunity to perform a downhole well inspection before pump installation. Alternatively, a permittee may employ a third party to perform downhole monitoring well inspections, provided the department is given at least 60 days written notice by certified mail so that a department representative may be on-site to observe the inspection.

(1) The third party shall make a video recording of the monitoring well inspection using a downhole camera and perform the inspection in accordance with the following requirements.

(a) Depth-to-most-shallow ground water shall be obtained from the well using an electronic water level indicator pursuant to Subsection F of 20.6.2.3223 NMAC, prior to inspection with a downhole camera. Care shall be taken when obtaining this measurement so as to not disturb sediments in the well.

(b) If ground water sample collection is planned during the inspection event, the downhole camera shall be used to inspect a monitoring well prior to sampling the well.

(c) Prior to well inspection with a downhole camera, at the top of the well casing, the totalizing reading on the downhole camera shall be zeroed, or a value other than zero shall be recorded as an initial reading.

(d) All measurements and totalizing readings (with the exception of depth-to-most-shallow ground water obtained pursuant to Subsection F of 20.6.2.3223 NMAC) shall be obtained to the nearest 0.1 feet. Downhole cameras that utilize a measurement system other than 0.1-foot increments are authorized for use; however the permittee shall report the direct measurement/reading obtained and the calculated conversion in 0.1 feet on the written log.

(e) All measurements and totalizing readings shall be obtained at the top of the well casing.

(f) The downhole camera shall be lowered into the monitoring well at a consistent speed that allows for clear video capture and does not disturb sediments in the well.

(g) Lowering of the downhole camera shall be paused long enough to clearly identify totalizing readings at the following points: depth-to-most-shallow ground water; depth of the top of the screened interval; depth of the bottom of screened interval; and the bottom of the well.

(2) The permittee shall submit written and video monitoring well camera logs for every monitoring well viewed with a downhole camera, along with a copy of an up-to-date facility map showing the location and identification of each monitoring well. The permittee shall submit the logs to the department within 60 days following the date of the well inspection.

(a) The written monitoring well camera log shall include the following general information: name of the dairy facility; discharge permit number; permittee’s name; monitoring well identification; date and time of the monitoring well camera inspection; location of the monitoring well relative to a source or facility landmark; camera manufacturer and model; names of camera operator and any technical assistants; diameter of the casing (in inches); and a description of the physical condition of the well’s concrete pad, shroud, casing and screened interval. The written log shall include measurements of distance from top of the well casing to the surface of the concrete pad; height from ground surface to the top of the concrete pad; and depth-to-most-shallow ground water measured using an electronic water level indicator pursuant to Subsection F of 20.6.2.3223 NMAC. The written log shall also include totalizing

readings obtained from the downhole camera including the initial reading at the top of the well casing; depth-to-most-shallow ground water using the borehole camera; depth of the top of the screened interval; depth of the bottom of screened interval; and the bottom of the well (total depth). The length of the screened interval shall be calculated by subtracting the depth of the top of the screened interval from the depth of the bottom of screened interval and recorded on the log.

(b) The video monitoring well camera log shall display the name of the dairy facility; discharge permit number; permittee's name; monitoring well identification; date and time of the monitoring well camera inspection; and the totalizing readings required by Subparagraph (g) of Paragraph (1) of this subsection. The permittee shall submit the video to the department in MPEG (Motion Picture Experts Group) video format on a compact disc (CD) or digital versatile disc (DVD).

20.6.2.3224 MONITORING REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Monitoring Reports – Schedule of Submittal: A permittee shall submit monitoring reports to the department on a quarterly schedule and shall contain monitoring data and information collected pursuant to the dairy rules. Quarterly monitoring reports shall be submitted according to the following schedule:

(1) January 1 through March 31 (first quarter) – report due by May 1;
(2) April 1 through June 30 (second quarter) – report due by August 1;
(3) July 1 through September 30 (third quarter) – report due by November 1; and
(4) October 1 through December 31 (fourth quarter) – report due by February 1.

B. Sampling and Analysis Methods: A permittee shall sample and analyze water pursuant to Subsection B of 20.6.2.3107 NMAC. Analysis of water for total sulfur shall be accomplished pursuant to environmental protection agency method 200.7 or equivalent. Sampling and analysis of soil shall be conducted in accordance with "*methods of soil analysis: part 1. physical and mineralogical methods,*" 1986 edition; "*methods of soil analysis: part 2. microbiological and biochemical properties,*" 1994 edition; and "*methods of soil analysis: part 3. chemical methods,*" 1996 edition, published by the American society of agronomy.

C. Wastewater Volume Measurement and Reporting: A permittee shall measure the volume of all wastewater discharged to the wastewater or combination wastewater/stormwater impoundment(s) using flow meters. Meter readings shall be recorded at intervals not to exceed seven days. The average daily discharge volume for each recording interval shall be calculated by dividing the difference between the meter readings by the number of days between meter readings. The permittee shall provide the meter readings including the date, time and units of each measurement, and calculations for the average daily volumes of wastewater discharged to the impoundments, reported in gallons per day, in the quarterly monitoring reports submitted to the department.

D. Stormwater Sampling and Reporting: A permittee shall collect stormwater samples on a quarterly basis from each stormwater impoundment. The samples shall be collected as soon as possible after a storm event and before transferring the stormwater to a wastewater impoundment(s) or a land application area. The samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, total sulfur and total dissolved solids pursuant to this section. The permittee shall include analytical results, or a statement that stormwater runoff did not occur, in the quarterly monitoring reports submitted to the department.

E. Flow Meter Field Calibration: All flow meters shall be capable of having their accuracy ascertained under actual working (field) conditions. A field calibration method shall be developed for each flow meter and that method shall be utilized to check the accuracy of each respective meter. Field calibrations shall be performed upon installation and, at a minimum, annually thereafter. Flow meters shall be calibrated to within plus or minus 10 percent of actual flow, as measured under field conditions. Field calibrations shall be performed by an individual knowledgeable in flow measurement and in the installation/operation of the particular device in use. The permittee shall submit the results of annual field calibrations to the department annually in the monitoring reports due by May 1. The flow meter calibration report shall include the following:

(1) the location and meter identification nomenclature identified by the department through a discharge permit;

(2) the method of flow meter field calibration employed;

(3) the measured accuracy of each flow meter prior to adjustment indicating the positive or negative offset as a percentage of actual flow as determined by an in-field calibration check;

(4) the measured accuracy of each flow meter following adjustment, if necessary, indicating the positive or negative offset as a percentage of actual flow of the meter; and

(5) any flow meter repairs made during the previous year or during field calibration.

F. Primary Liner Leakage Measurement, Analysis and Reporting: A permittee shall monitor impoundments utilizing primary and secondary liners and equipped with leak detection systems in the following manner.

(1) The monthly volume of leachate pumped from the leak detection system(s) back into the respective impoundment(s) shall be measured using a totalizing flow meter(s). The permittee shall submit monthly meter readings including units of measurement, and monthly volumes to the department in the quarterly monitoring reports.

(2) Monthly meter volumes of leachate shall be used to determine the average daily leakage rate for the respective impoundment. The average daily leakage rate shall be compared to the pump rate to assure that the automated pump system is capable of removing leachate at a rate sufficient to ensure leachate accumulation in the drainage layer is minimized. The permittee shall submit a report documenting that the pump system is operating effectively to the department in the quarterly monitoring reports.

(3) Upon initial discovery of leachate in the leak detection system(s), a leachate sample shall be collected from the system and analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, total sulfur and total dissolved solids pursuant to this section. The permittee shall submit the analytical results to the department in the next quarterly monitoring report. Should leachate continue to accumulate in the leak detection system such that it is routinely pumped, the permittee shall collect a leachate sample on a quarterly basis, analyze the sample as described above and submit the results to the department in the quarterly monitoring reports.

20.6.2.3225 ADDITIONAL MONITORING REQUIREMENTS FOR DAIRY FACILITIES WITH A LAND APPLICATION AREA:

A. Volume of Wastewater and Wastewater/Stormwater Land Applied – Measurement and Reporting: A permittee shall measure all wastewater discharges from a wastewater or combination wastewater/stormwater impoundment to each field within the land application area using flow meters. A permittee shall maintain a log recording the date and location of each discharge, flow meter readings immediately prior to and after each discharge, and the calculated total volume of each discharge reported in gallons and acre-feet. A permittee shall submit a copy of the log entries including units of measurement to the department in the quarterly monitoring reports.

B. Volume of Stormwater Land Applied – Measurement and Reporting: A permittee shall measure all stormwater applications from a stormwater impoundment to each field within the land application area using flow meters. A permittee shall maintain a log recording the date and location of each application, flow meter readings immediately prior to and after each application, and the calculated total volume of each application reported in gallons and acre-feet. A permittee shall submit a copy of the log entries including units of measurement to the department in the quarterly monitoring reports.

C. Wastewater to be Land Applied – Sampling and Reporting: A permittee shall collect and analyze wastewater samples on a quarterly basis for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, total sulfur and total dissolved solids pursuant to Subsection B of 20.6.2.3224 NMAC. Samples shall be collected during active milking from a location between the manure solids separator(s) and wastewater impoundment(s) for each separator associated with an individual parlor. Wastewater samples shall be collected from the sampling location(s) proposed in the application for a new, renewed and modified discharge permit, and specified in the discharge permit. A permittee shall submit the analytical results to the department in the quarterly monitoring reports.

D. Manure Solids – Nitrogen Content: The nitrogen content of the manure solids applied to each field within the land application area shall be estimated at 25 pounds of nitrogen per ton. Should a permittee choose to use actual nitrogen content values of on-site manure solids, the permittee shall collect a composite sample on an annual basis. The composite sample shall consist of a minimum of 30 sub-samples collected on the same day and thoroughly mixed. Manure samples shall be analyzed for total Kjeldahl

nitrogen and moisture content. The permittee shall submit the analytical results to the department in the quarterly monitoring reports.

E. Irrigation Water – Sampling, Volume Applied, and Reporting: A permittee shall monitor irrigation wells used to supply fresh water to the fields within the land application area to account for additional potential nitrogen supplied to the land application area in the following manner.

(1) Each irrigation well shall be identified in association with the field(s) to which it supplies fresh water.

(2) An annual sample of irrigation water supplied from each well shall be collected and analyzed for nitrate as nitrogen and total Kjeldahl nitrogen, pursuant to Subsection B of 20.6.2.3224 NMAC.

(3) The annual volume of irrigation water applied to each field within the land application area shall be estimated for each well.

(4) The permittee shall submit the analytical results and the estimated annual volume of irrigation water applied from each well to each field within the land application area to the department in the monitoring reports due by May 1.

F. Fertilizer Application Reporting: A permittee shall maintain a log of all additional fertilizer(s) applied to each field of the land application area. The log shall contain the date of fertilizer application, the type and form of fertilizer, fertilizer analysis, the amount of fertilizer applied in pounds per acre to each field, and the amount of nutrients applied in pounds per acre to each field. The permittee shall submit a copy of the log entries to the department in the quarterly monitoring reports.

G. Land Application Data Sheets: A permittee shall complete land application data sheets for each field within the land application area to document the crop grown and amount of total nitrogen applied from wastewater, stormwater, manure solids, composted material, irrigation water and other additional fertilizer(s), and the residual soil nitrogen and nitrogen credits from leguminous crops. The permittee shall submit a land application data sheet or a statement that land application did not occur to the department in the quarterly monitoring reports. The land application data sheet shall include the following elements.

(1) The information required by Paragraphs (2) through (8) of this subsection from the previous six quarters.

(2) The total monthly volume, reported in acre-feet, of wastewater and stormwater applied to each field of the land application area. Total monthly volumes shall be obtained from flow meter readings of each application pursuant to Subsections A and B of this section.

(3) The total nitrogen concentration of wastewater and stormwater obtained from the corresponding quarterly analyses collected pursuant to Subsection C of this section and Subsection D of 20.6.2.3224 NMAC.

(4) The total monthly volume, reported in tons per acre, of manure solids applied to each

field within the land application area.

(5) The total nitrogen content of the manure solids estimated at 25 pounds of nitrogen per ton or determined from analysis of manure solids samples collected pursuant to Subsection D of this section.

(6) The total nitrogen concentration within the irrigation water and the amount of irrigation water applied pursuant to Subsection E of this section.

(7) The amount of nitrogen reported in pounds per acre from additional fertilizer(s) applied pursuant to Subsection F of this section.

(8) The amount of residual soil nitrogen and nitrogen from leguminous crops credited to each field within the land application area pursuant to Subsections K and L of this section.

H. Crop Yield Documentation: A permittee shall submit crop yield documentation and plant and harvest dates of each crop grown to the department in the quarterly monitoring reports. Crop yield documentation shall consist of copies of scale-weight tickets or harvest summaries based on scale-weights.

I. Nitrogen Concentration of Harvested Crop: A permittee shall determine the total nitrogen concentration of each harvested crop. A composite sample consisting of 15 sub-samples of plant material shall be taken from each field during the final harvest of each crop grown per year. Samples shall be analyzed for percent total nitrogen and percent dry matter. A permittee shall submit the analytical reports to the department in the quarterly monitoring reports.

J. Nitrogen Removal Summary of Harvested Crop: A permittee shall develop a nitrogen removal summary to determine total nitrogen removed by each crop grown on each field within the land application area. Nitrogen removal shall be determined utilizing crop yield and total nitrogen concentration information collected pursuant to Subsections H and I of this section. A permittee shall submit the summary to the department in the quarterly monitoring reports.

K. Soil Sampling – Initial Event in a Discharge Permit Term: A permittee shall collect composite soil samples from each field within the land application area for the first soil sampling event during the first year following the effective date of the discharge permit. Composite soil samples shall be collected in the five-month period between September 1 and January 31 for all fields regardless of whether the field is cropped, remains fallow, or has received wastewater or stormwater. One surface composite soil sample (first-foot) and two sub-surface composite soil samples (second-foot and third-foot) shall be collected from each field. Composite soil samples shall be collected and analyzed according to the following procedure.

(1) Each surface and sub-surface soil sample shall consist of a single composite of 15 soil cores collected randomly throughout each field. Should a field consist of different soil textures (i.e., sandy and silty clay), a composite soil sample shall be collected from each soil texture within each field.

(2) Surface soil samples (first-foot) shall be collected from a depth of 0 to 12 inches.

(3) Each second-foot sub-surface soil sample shall be collected from a depth of 12 to 24 inches.

(4) Each third-foot sub-surface soil sample shall be collected from a depth of 24 to 36 inches.

(5) Each surface and sub-surface composite sample shall be analyzed for pH, electrical conductivity, total Kjeldahl nitrogen, nitrate as nitrogen, chloride, organic matter, potassium, phosphorus, sodium, calcium, magnesium, sulfate, soil texture, and sodium adsorption ratio.

(6) pH, electrical conductivity, sodium, calcium, magnesium, and sulfate shall be analyzed using a saturated paste extract in accordance with the analytical methodology required by Subsection B of 20.6.2.3224 NMAC. Phosphorus shall be analyzed using the Olsen sodium bicarbonate method in accordance with the analytical methodology required by Subsection B of 20.6.2.3224 NMAC. Nitrate as nitrogen shall be analyzed by a 2 molar KCl extract in accordance with the analytical methodology required by Subsection B of 20.6.2.3224 NMAC. Total Kjeldahl nitrogen, chloride, organic matter, potassium, soil texture, and sodium adsorption ratio shall be analyzed in accordance with the analytical methodology required by Subsection B of 20.6.2.3224 NMAC.

(7) The permittee shall submit the analytical results and a map showing the fields and the sampling locations within each field to the department in the monitoring report due by May 1 following the effective date of the discharge permit.

L. Soil Sampling – Routine: Beginning in the year following the initial soil sampling required by this section, the permittee shall collect annual soil samples from each field within the land application area that has received or is actively receiving wastewater or stormwater. Composite soil samples shall be collected in the five-month period between September 1 and January 31. For those fields that have never before received wastewater, the permittee shall collect soil samples immediately before initial wastewater application and annually thereafter. Once a field has received wastewater it shall be sampled annually regardless of whether the field is cropped, remains fallow, or has recently received wastewater or stormwater. One surface composite soil sample (first-foot) and two sub-surface composite soil samples (second-foot and third-foot) shall be collected from each field. Composite soil samples shall be collected and analyzed according to the following procedure.

(1) Each surface and sub-surface soil sample shall consist of a single composite of 15 soil cores collected randomly throughout each field. Should a field consist of different soil textures (i.e., sandy and silty clay), a composite soil sample shall be collected from each soil texture within each field.

(2) Surface soil samples (first-foot) shall be collected from a depth of 0 to 12 inches.

(3) Each second-foot sub-surface soil sample shall be collected from a depth of 12 to 24 inches.

(4) Each third-foot sub-surface soil sample shall be collected from a depth of 24 to 36 inches.

(5) Surface soil samples shall be analyzed for pH, electrical conductivity, nitrate as nitrogen, chloride, organic matter, potassium, phosphorus, sodium, calcium, magnesium, and sodium adsorption ratio.

(6) Sub-surface soil samples shall be analyzed for electrical conductivity, nitrate as nitrogen, and chloride.

(7) pH, electrical conductivity, sodium, calcium, and magnesium shall be analyzed using a saturated paste extract in accordance with the analytical methodology required by Subsection B of 20.6.2.3224 NMAC. Phosphorus shall be analyzed using the Olsen sodium bicarbonate method in accordance with the analytical methodology required by Subsection B of 20.6.2.3224 NMAC. Nitrate as nitrogen shall be analyzed by a 2 molar KCl extract in accordance with the analytical methodology required by Subsection B of 20.6.2.3224 NMAC. Chloride, organic matter, potassium, and sodium adsorption ratio shall be analyzed in accordance with the analytical methodology required by Subsection B of 20.6.2.3224 NMAC.

(8) The permittee shall submit the analytical results and a map showing the fields and the sampling locations within each field to the department in the monitoring report due by May 1.

20.6.2.3226 ADDITIONAL MONITORING REQUIREMENTS FOR DAIRY FACILITIES DISCHARGING TO AN EVAPORATIVE WASTEWATER DISPOSAL SYSTEM: Wastewater to be Evaporated – Sampling and Reporting: A permittee shall collect a composite wastewater sample on a semi-annual (once every 6 months) basis from each wastewater or combination wastewater/stormwater impoundment used for disposal by evaporation. The composite sample from each impoundment shall consist of a minimum of six sub-samples collected around the entire perimeter of each impoundment and thoroughly mixed. Samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, total sulfur and total dissolved solids pursuant to Subsection B of 20.6.2.3224 NMAC. A permittee shall submit the analytical results to the department in the monitoring reports due by May 1 and November 1.

20.6.2.3227 CONTINGENCY REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Exceedance of Ground Water Standards – All Monitoring Wells Except Impoundment Monitoring Wells: If the constituent concentration in a ground water sample and in any subsequent ground water sample collected from the same monitoring well intended to monitor a contamination source other than an impoundment exceeds one or more of the ground water standards of Section 20.6.2.3103 NMAC and exceeds the concentration of such constituent(s) in a ground water sample collected from the upgradient monitoring well, then the permittee shall take the following actions. For the purpose of this subsection, ground water samples obtained from the source monitoring well and the upgradient monitoring well that are used for comparison of constituent concentrations shall be collected within two days of each other. If ground water quality data for the upgradient monitoring well are not

submitted by the permittee, the ground water standards of Section 20.6.2.3103 NMAC shall be the applicable standard used to determine if the requirements of this subsection must be met. Once enacted the contingency requirements of this subsection apply until the permittee has fulfilled the requirements of this subsection and ground water monitoring pursuant to 20.6.2.3223 NMAC confirms for a minimum of eight consecutive ground water sampling events that the standards of 20.6.2.3103 NMAC are not exceeded and the total nitrogen concentration in ground water is less than or equal to 10 milligrams per liter.

(1) A corrective action plan shall be submitted within 120 days of the subsequent sample analysis date unless a petition for variance is filed in accordance with paragraph (2) of this subsection. The corrective action plan shall describe any repairs made to address the cause of the exceedance, and propose source control measures and a schedule for implementation. The implementation schedule shall include a schedule of all proposed corrective action activities and the date that corrective action will be completed. The department shall approve or disapprove the corrective action plan within 60 days of receipt. Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan. If the department does not approve the corrective action plan, the department shall notify the permittee of the deficiencies by certified mail. The permittee shall submit a revised corrective action plan to the department within 60 days of the date of postal notice of the notice of deficiency. The department shall approve or disapprove the corrective action plan within 60 days of receipt. If the department does not approve the revised corrective action plan, or if the permittee fails to submit a revised plan as required by this subsection, the department may pursue enforcement actions authorized by Section 74-6-10 NMSA 1978.

(2) The permittee may investigate potential sources of contamination that may have caused a standard(s) to be exceeded. If such an investigation indicates that the source of the contamination is not the source intended to be monitored by the well, the permittee may petition within 120 days of the subsequent sample analysis date for a variance from the requirements of this section in accordance with 20.6.2.1210 NMAC. It is the permittee's burden to prove any claim that the source of the contamination is not the source intended to be monitored by the well. If the petition is denied the permittee shall submit a corrective action plan meeting the requirements of paragraph (1) of this subsection within 60 days of the denial.

(3) The permittee may be required to submit an abatement plan proposal pursuant to Section 20.6.2.4106 NMAC within 60 days of written notice from the department. Abatement shall be performed pursuant to Sections 20.6.2.4101, 20.6.2.4103, 20.6.2.4104, and 20.6.2.4106 through 20.6.2.4115 NMAC.

B . Exceedance of Ground Water Standards – Impoundment Monitoring Well: If the constituent concentration in a ground water sample and in any subsequent ground water sample collected from a monitoring well intended to monitor an impoundment(s) exceeds one or more of the ground water standards of Section 20.6.2.3103 NMAC and exceeds the concentration of such constituent(s) in a ground water sample collected from the upgradient monitoring well, then the permittee shall enact one of the following measures. For the purpose of this subsection, ground water samples obtained from the

impoundment monitoring well and the upgradient monitoring well that are used for comparison of constituent concentrations shall be collected within two days of each other. If ground water quality data for the upgradient monitoring well are not submitted by the permittee, the ground water standard(s) of Section 20.6.2.3103 shall be the applicable standard(s) used to determine if the requirements of this subsection must be met. Once enacted the contingency requirements of this subsection apply until the permittee has fulfilled the requirements of this subsection and ground water monitoring pursuant to 20.6.2.3223 NMAC confirms for a minimum of eight consecutive ground water sampling events that the standards of 20.6.2.3103 NMAC are not exceeded and the total nitrogen concentration in ground water is less than or equal to 10 milligrams per liter.

(1) **Pre-Dairy Rule Liner Not Composed of 40/30-mil HDPE (minimum) or Equivalent:** For impoundments utilizing a primary liner installed prior to the effective date of the dairy rules and composed of a material that is not, at a minimum, 40-mil unreinforced HDPE, 30-mil reinforced HDPE, (or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance), the following actions shall be taken.

(a) A corrective action plan shall be submitted within 120 days of the subsequent sample analysis date unless a petition for variance is filed in accordance with subparagraph (c) of this paragraph. The corrective action plan shall describe any repairs or changes in practices made to address the cause of the exceedance, and propose source control measures and a schedule for implementation. The implementation schedule shall include a schedule of all proposed corrective action activities and the date that corrective action will be completed. The department shall approve or disapprove the corrective action plan within 60 days of receipt. If the corrective action plan proposes actions to correct deficiencies with the liner, the proposed actions shall include the following items.

(i) A proposal for reconstruction and relining of an existing impoundment, or construction and lining of a new impoundment. Reconstruction or new construction shall be completed pursuant to Section 20.6.2.3217 NMAC within one year of the subsequent sample analysis date. If a new impoundment is constructed, the existing impoundment shall be permanently closed pursuant to Section 20.6.2.3230 NMAC.

(ii) Reconstruction or construction plans and specifications for the impoundment shall be completed pursuant to Section 20.6.2.3217 NMAC.

(b) Within 30 days of the date of postal notice of the department’s approval of the corrective action plan, the permittee shall initiate implementation of the plan. If the department does not approve the corrective action plan, the department shall notify the permittee of the deficiencies by certified mail. The permittee shall submit a revised correction action plan to the department within 60 days of the date of postal notice of the notice of deficiency. The department shall approve or disapprove the revised corrective action plan within 60 days of receipt. If the department does not approve the revised corrective

action plan, or if the permittee fails to submit a revised plan as required by this subsection, the department may pursue enforcement actions authorized by Section 74-6-10 NMSA 1978.

(c) The permittee may investigate potential sources of contamination that may have caused a standard(s) to be exceeded. If such an investigation indicates that the source of the contamination is not the impoundment intended to be monitored by the well, the permittee may petition within 120 days of the subsequent sample analysis date for a variance from the requirements of this section in accordance with 20.6.2.1210 NMAC. It is the permittee's burden to prove any claim that the source of the contamination is not the impoundment intended to be monitored by the well. If the variance is denied the permittee shall submit a corrective action plan meeting the requirements of subparagraph (a) of this paragraph within 60 days of the denial.

(d) The permittee may be required to submit an abatement plan proposal pursuant to Section 20.6.2.4106 NMAC within 60 days of written notice from the department. Abatement shall be performed pursuant to Sections 20.6.2.4101, 20.6.2.4103, 20.6.2.4104, and 20.6.2.4106 through 20.6.2.4115 NMAC.

(2) **Dairy Rule Liner or Pre-Dairy Rule Liner Composed of 40/30-mil (minimum) HDPE or Equivalent:** For impoundments utilizing a primary liner installed after the effective date of the dairy rules and composed of a material that is, at a minimum, 60-mil HDPE (or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance), or impoundments utilizing a primary liner installed prior to the effective date of the dairy rules and composed of a material that is, at a minimum, 40-mil unreinforced HDPE, 30-mil reinforced HDPE, (or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance), the following actions shall be taken.

(a) **Initial Liner:** For impoundments where the existing liner is the initial liner installed, the following actions shall be taken.

(i) A corrective action plan shall be submitted within 120 days of the subsequent sample analysis date unless a petition for variance is filed in accordance with item (iii) of this subparagraph. The corrective action plan shall describe any repairs or changes in practices made to address the cause of the exceedance, and propose source control measures and a schedule for implementation. The implementation schedule shall include a schedule of all proposed corrective action activities and the date that corrective action will be completed. The department shall approve or disapprove the corrective action plan within 60 days of receipt. If the corrective action plan proposes actions to correct deficiencies with the liner, the proposed actions shall include repair or replacement of the existing liner, or construction and lining of a new impoundment. If liner repair is practicable, repairs shall be made pursuant to Section 20.6.2.3217 NMAC or using a material that is equivalent to the existing liner with respect to material

thickness and composition. Repairs shall be completed within 240 days of the subsequent sample analysis date. If liner repair is not practicable, the corrective action plan shall propose reconstruction and relining of the impoundment pursuant to Section 20.6.2.3217 NMAC or construction and lining of a new impoundment pursuant to Section 20.6.2.3217 NMAC within one year of the subsequent sample analysis date. Reconstruction or construction plans and specifications for the impoundment shall be completed pursuant to Section 20.6.2.3217 NMAC and submitted with the corrective action plan. If a new impoundment is constructed the existing impoundment shall be closed pursuant to Section 20.6.2.3230 NMAC.

(ii) Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan. If the department does not approve the corrective action plan, the department shall notify the permittee of the deficiencies by certified mail. The permittee shall submit a revised corrective action plan to the department within 60 days of the date of postal notice of the notice of deficiency. The department shall approve or disapprove the revised corrective action plan within 60 days of receipt. If the department does not approve the revised corrective action plan, or if the permittee fails to submit a revised plan as required by this subsection, the department may pursue enforcement actions authorized by Section 74-6-10 NMSA 1978.

(iii) The permittee may investigate potential sources of contamination that may have caused a standard(s) to be exceeded. If such an investigation indicates that the source of the contamination is not the impoundment intended to be monitored by the well, the permittee may petition within 120 days of the subsequent sample analysis date for a variance from the requirements of this section in accordance with 20.6.2.1210 NMAC. It is the permittee's burden to prove any claim that the source of the contamination is not the impoundment intended to be monitored by the well. If the variance is denied the permittee shall submit a corrective action plan meeting the requirements of item (i) of this subparagraph within 60 days of the denial.

(iv) The permittee may be required to submit an abatement plan proposal pursuant to Section 20.6.2.4106 NMAC within 60 days of written notification from the department. Abatement shall be performed pursuant to Sections 20.6.2.4101, 20.6.2.4103, 20.6.2.4104, and 20.6.2.4106 through 20.6.2.4115 NMAC.

(b) **Replacement Liner:** If source control measures have been previously implemented such that the existing primary liner replaced a previously installed liner in an impoundment and ground water standard(s) of Section 20.6.2.3103 NMAC continue to be exceeded, such impoundments are authorized to continue to receive wastewater or stormwater pursuant to the following requirements.

(i) The permittee may be required to submit an abatement plan proposal pursuant to Section 20.6.2.4106 NMAC within 60 days of written notice from the department if abatement has not been previously implemented. Abatement shall be performed pursuant to Sections 20.6.2.4101, 20.6.2.4103, 20.6.2.4104, and 20.6.2.4106 through 20.6.2.4115 NMAC.

(ii) If the results of abatement activities indicate that the replacement liner does ~~is~~ not successfully control the source of contamination, the department may modify the discharge permit pursuant to Subsection E of 20.6.2.3109 NMAC and include additional conditions pursuant to Subsection H of 20.6.2.3205 NMAC. The additional conditions shall address, but are not limited to, further source control measures. The requirements of 20.6.2.3215 NMAC shall apply to hearing requests on the proposed additional discharge permit conditions.

C. Monitoring Well Replacement: If information available to the department indicates that a monitoring well(s) required by Section 20.6.2.3223 NMAC is not located hydrologically downgradient of the contamination source it is intended to monitor, is not completed pursuant to Section 20.6.2.3223 NMAC or contains insufficient water to effectively monitor ground water quality, a permittee shall install a replacement monitoring well(s). The replacement monitoring well(s) shall be installed within 120 days of the date of postal notice of notification from the department and a survey of the replacement monitoring well(s) shall be performed within 150 days of the date of postal notice of notification from the department. The replacement monitoring well(s) shall be located, installed, completed, surveyed and sampled pursuant to Section 20.6.2.3223 NMAC. The permittee shall develop a monitoring well completion report pursuant to Subsection J of 20.6.2.3223 NMAC and submit it to the department within 180 days of the date of postal notice of notification from the department.

D. Exceedances of Permitted Maximum Daily Discharge Volume: If the maximum daily discharge volume authorized by the discharge permit is exceeded by more than ten percent for any four average daily discharge volumes within any 12-week period, the permittee shall submit within 60 days of the fourth exceedance: a corrective action plan for reducing the discharge volume; or an application for a modified or renewed and modified discharge permit pursuant to Section 20.6.2.3205 NMAC. Within 30 days of postal notice of department approval, the permittee shall initiate implementation of the corrective action plan.

E. Insufficient Impoundment Capacity: If a survey, capacity calculations, or settled solids thickness measurements, indicate an existing impoundment is not capable of meeting the capacity requirements required by Subsection D of 20.6.2.3217 NMAC, then within 90 days of the effective date of the discharge permit the permittee shall submit a corrective action plan for department approval. The plan may include, but is not limited to, proposals for constructing an additional impoundment, reducing the discharge volume, removing accumulated solids, changing wastewater or stormwater management practices, or installing an advanced treatment system. The corrective action plan shall include a schedule for implementation through completion of corrective actions. The corrective action plan schedule shall propose completion not to exceed one year from the submittal date of the initial corrective action plan. Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan. Should the corrective action plan include removal of accumulated solids, solids shall be removed from the impoundment in a manner that is protective of the

impoundment liner. The plan shall include the method of removal, and locations and methods for storage and disposal of the solids-slurry. If the plan proposes land application of the solids-slurry, the plan must also include the analytical results of total Kjeldahl nitrogen and chloride obtained from a representative sample of the solids-slurry to be applied.

F. Inability to Preserve Required Freeboard: If a minimum of two feet of freeboard cannot be preserved in the wastewater impoundment, the permittee shall submit a corrective action plan to the department for approval. The corrective action plan shall be submitted within 30 days of the date of the initial exceedance of the freeboard requirement. The plan may include, but is not limited to, proposals for constructing an additional impoundment, reducing the maximum daily discharge volume, changing wastewater management practices, or installing an advanced wastewater treatment system. The corrective action plan shall include actions to be immediately implemented to regain and maintain a minimum of two feet of freeboard until permanent corrective actions have been completed. The corrective action plan shall include a schedule for implementation through completion of corrective actions. The corrective action plan schedule shall propose completion not to exceed one year from the submittal date of the initial corrective action plan. Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan.

G. Impoundment – Structural Integrity Compromised: Within 24 hours of discovery, a permittee shall report to the department, any damage to the berms or the liner of an impoundment or any condition that exists that may compromise the structural integrity of the impoundment. Within 15 days of the reported discovery, the permittee shall submit to the department a corrective action plan describing any actions taken or proposed to be taken to repair the damage or condition. Within 30 days of receipt, the department shall respond to the proposed corrective action plan. Repairs to the impoundment liner or berms shall be completed pursuant to Section 20.6.2.3217 NMAC. The corrective action plan shall include a schedule for implementation through completion of corrective actions. The corrective action plan schedule shall propose completion not to exceed one year from the submittal date of the initial corrective action plan. The schedule of corrective actions shall be commensurate to the magnitude and scope of the activities to be completed. Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan.

H. Impoundments Utilizing Primary and Secondary Liners - Primary Liner Leakage: Within 30 days of the date of discovering that the leakage rate detected in the leak detection system is increasing or that the functioning automated pump system is unable to keep the interstitial space between the liners free of fluids, the permittee shall submit a corrective action plan for department approval. The corrective action plan shall at a minimum, address how leak(s) in the primary liner will be assessed, how the liner will be repaired (if liner repair is possible) or replaced, and how wastewater or stormwater will be managed while repair or replacement is occurring. The corrective action plan shall include a schedule for implementation of all proposed corrective actions and the date that such actions will be completed. The

corrective action plan schedule shall propose completion not to exceed one year from the submittal date of the initial corrective action plan. Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan.

I. Unauthorized Discharge - Reporting and Correction: In the event of a spill or release that is not authorized by the discharge permit, the permittee shall notify the department and take corrective actions pursuant to Section 20.6.2.1203 NMAC. Wastewater or stormwater shall be contained and pumped to a permitted sump, impoundment, or land application area pursuant to the dairy rules. Wastewater or stormwater applied to the land application area shall conform to the requirements of Sections 20.6.2.3221 and 20.6.2.3225 NMAC. The permittee shall repair or replace failed components within 48 hours from the time of failure or as soon as possible.

20.6.2.3228 ADDITIONAL CONTINGENCY REQUIREMENTS FOR DAIRY FACILITIES WITH A LAND APPLICATION AREA: [RESERVED]

20.6.2.3229 ADDITIONAL CONTINGENCY REQUIREMENTS FOR DAIRY FACILITIES DISCHARGING TO AN EVAPORATIVE WASTEWATER DISPOSAL SYSTEM: Inability to Maintain Required Freeboard: If a combination wastewater/stormwater impoundment used for disposal by evaporation does not have free capacity below the two-foot freeboard level required by Subsection D of 20.6.2.3217 NMAC, then within seven days of the date of discovery of insufficient free capacity the permittee shall submit a corrective action plan for department approval. The plan shall include, but is not limited to, a request for temporary permission to discharge to allow immediate removal and disposal of combined wastewater and stormwater; a proposal for long-term corrective actions which may include constructing an additional impoundment; reducing the discharge volume; changing wastewater or stormwater management practices; or installing an advanced treatment system. The corrective action plan shall include schedule for implementation to complete corrective actions within one year from the submittal date of the initial corrective action plan. Upon department approval, the permittee shall initiate implementation of the corrective action plan.

20.6.2.3230 CLOSURE REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Permanent Closure of Dairy Facility or Impoundments: The following closure actions shall be performed at dairy facilities:

(1) For permanent closure of a dairy facility:

(a) The department shall be notified no later than 30 days after wastewater discharge has permanently ceased at the dairy facility.

(b) Installation of all monitoring wells shall be completed pursuant to Section 20.6.2.3223 NMAC.

(c) All wastewater and combination wastewater/stormwater impoundments shall be emptied within six months of permanently ceasing wastewater discharge at the dairy facility; combination wastewater/stormwater impoundments may continue to receive stormwater after removal of the impounded wastewater/stormwater. All stormwater and combination wastewater /stormwater impoundments shall be emptied of stormwater within one year of removing all livestock from the dairy facility. Wastewater and stormwater removed from impoundments shall be applied to the designated land application area, as authorized by a discharge permit. In the event that land application is not authorized by a discharge permit, a disposal plan shall be submitted for department approval and the plan implemented upon department approval.

(d) Manure solids and compost shall be removed from surface areas at the dairy facility and applied to the designated land application area, as authorized by a discharge permit, or transferred off-site for proper disposal within one year of removing all livestock from the facility.

(e) Complete removal of manure solids from the wastewater impoundment(s) shall be achieved within two years of permanently ceasing wastewater discharge. Complete removal of manure solids from the stormwater and combination wastewater/stormwater impoundment(s) shall be achieved within two years of removing all livestock from the dairy facility. Manure solids shall be applied to the designated land application area, as authorized by a discharge permit. In the event that land application is not authorized by a discharge permit, a disposal plan shall be submitted for department approval and the plan implemented upon department approval.

(f) Impoundment liners shall be perforated or removed and the impoundments shall be re-graded with clean fill to blend with surface topography to prevent ponding within two years of permanently ceasing wastewater discharge and removing all livestock from the facility.

(2) For closure of an impoundment at a facility not undergoing permanent closure (e.g., existing impoundment replaced with new impoundment):

(a) Impoundments shall be emptied of wastewater and stormwater within six months of ceasing receipt of wastewater or stormwater into the impoundments. Wastewater and stormwater removed from impoundments shall be applied to the designated land application area, as authorized by a discharge permit. If land application is not authorized by a discharge permit, a disposal plan shall be submitted for department approval and the plan implemented upon department approval.

(b) Complete removal of manure solids from impoundments shall be achieved within two years of ceasing receipt of wastewater or stormwater into the impoundments. Manure solids shall be applied to the designated land application area, as authorized by a discharge permit. If land application is not authorized by a discharge permit, a disposal plan shall be submitted for department approval and the plan implemented upon department approval.

(c) Liners in impoundments shall be perforated or removed and the impoundments shall be re-graded with clean fill to blend with surface topography to prevent ponding within two years of ceasing receipt of wastewater or stormwater into the impoundments.

B. **Post-Closure Ground Water Sampling and Reporting:** Following completion and confirmation by the department of the requirements of Subsection A of this section, ground water monitoring shall continue pursuant to Section 20.6.2.3223 NMAC until a minimum of eight consecutive ground water sampling events confirm that the standards of Section 20.6.2.3103 NMAC are not exceeded and the total nitrogen concentration in ground water is less than or equal to 10 milligrams per liter. If monitoring results show that one or more of the standards of Section 20.6.2.3103 NMAC is exceeded or the total nitrogen concentration in ground water is greater than 10 milligrams per liter, the permittee shall implement contingency requirements pursuant to Section 20.6.2.3227 NMAC. Upon notification from the department that post-closure ground water monitoring may cease, the permittee shall abandon all monitoring wells and submit a report to the department pursuant to Subsection C of this section.

C. Monitoring Well Abandonment: Upon notification from the department, the permittee shall abandon monitoring wells pursuant to Part 19.27.4 NMAC and the following requirements.

(1) The well casing shall be removed and neat cement grout, bentonite based plugging material, or other sealing material approved by the state engineer in accordance with Part 19.27.4 NMAC shall be placed from the bottom of the borehole to the ground surface using a tremmie pipe.

(2) If the casing cannot be removed, neat cement grout, bentonite based plugging material, or other sealing material approved by the state engineer in accordance with Part 19.27.4 NMAC shall be emplaced in the well using a tremmie pipe from the bottom of the well to the ground surface.

(3) A well abandonment report shall be prepared by the permittee and shall provide information equivalent to the plugging record requirements of Part 19.27.4 NMAC. The well abandonment report shall be submitted to the department within 60 days of completion of well plugging activities.

D. Discontinuance of Ground Water Monitoring – Former Impoundments: Ground water monitoring conducted at previously utilized impoundments pursuant to Subsection A of 20.6.2.3223 NMAC may be discontinued following closure of the impoundment pursuant to Subsection A of this section. Upon the achievement of a minimum of eight consecutive ground water sampling events following completion of closure confirming the conditions of Paragraph (1) and (2) of this subsection, the permittee may request approval to discontinue ground water monitoring at previously utilized impoundments. Upon approval from the department, the permittee shall abandon the monitoring wells pursuant to Subsection C of this section.

(1) Ground water samples from the monitoring wells used to monitor the former impoundments confirm that the standards of Section 20.6.2.3103 NMAC are not exceeded.

(2) The total nitrogen concentration in ground water samples from monitoring wells used to monitor the former impoundments confirm that the total nitrogen concentration in ground water does not exceed 10 milligrams per liter.

E. Discontinuance of Ground Water Monitoring – Former Fields: Ground water monitoring conducted at previously utilized fields within a land application area pursuant to Subsection A of 20.6.2.3223 NMAC may be discontinued following cessation of land application of wastewater or stormwater to the field(s). Upon the achievement of a minimum of eight consecutive ground water sampling events following cessation of land application of wastewater or stormwater confirming the conditions of Paragraph (1) and (2) of this subsection, the permittee may request approval to discontinue ground water monitoring at previously utilized fields. Upon approval from the department, the permittee shall abandon the monitoring wells pursuant to Subsection C of this section.

(1) Ground water samples from the monitoring wells used to monitor the former fields confirm that the standards of Section 20.6.2.3103 NMAC are not exceeded.

(2) The total nitrogen concentration in ground water samples from monitoring wells used to monitor the former fields confirm that the total nitrogen concentration in ground water does not exceed 10 milligrams per liter.

20.6.2.3231 ADDITIONAL CLOSURE REQUIREMENTS FOR DAIRY FACILITIES WITH A LAND APPLICATION AREA: [RESERVED]

20.6.2.3232 ADDITIONAL CLOSURE REQUIREMENTS FOR DAIRY FACILITIES DISCHARGING TO AN EVAPORATIVE WASTEWATER DISPOSAL SYSTEM: [RESERVED]

20.6.2.3233 RECORD RETENTION REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. A permittee shall retain a written record at the dairy facility of all data and information related to field measurements, sampling, and analysis conducted pursuant to this part and the discharge permit. The following information shall be recorded and shall be made available to the department upon request:

(1) the dates, exact place and times of sampling or field measurements;

(2) the name and job title of the individuals who performed each sample collection or field measurement;

(3) the date of the analysis of each sample;

(4) the name and address of the laboratory and the name and job title of the person that performed the analysis of each sample;

(5) the analytical technique or method used to analyze each sample or take each field measurement;

(6) the results of each analysis or field measurement, including raw data;

(7) the results of any split, spiked, duplicate or repeat sample; and

(8) a description of the quality assurance and quality control procedures used.

B. A permittee shall retain a written record at the dairy facility of any spills, seeps, or leaks of effluent, and of leachate or process fluids not authorized by the discharge permit. Records shall be made available to the department upon request.

C. A permittee shall retain a written record at the dairy facility of the operation, maintenance, and repair of all features/equipment used to treat, store or dispose of wastewater, measure flow rates, monitor water quality, or collect other data. Records shall include repair, replacement or calibration of any monitoring equipment and repair or replacement of any equipment used in the waste or wastewater treatment and disposal system. Records shall be made available to the department upon request.

D. A permittee shall retain records of all monitoring information at the dairy facility, including all calibration and maintenance records, copies of all reports, and the application for the discharge permit. Records shall be retained for a period of at least 10 years from the date of the sample collection, measurement, report or application.

20.6.2.3234 TRANSFER OF DAIRY DISCHARGE PERMITS:

A. Transfer of discharge permits for dairy facilities shall be made pursuant to 20.6.2.3111 NMAC and this section.

B. The transferee(s) shall notify the department, in writing, of the date of transfer of ownership and provide contact information for the new owner(s) pursuant to Subsection B of 20.6.2.3206 NMAC and Subsection B of 20.6.2.3207 NMAC. Notification shall be submitted to the department of the transfer within 30 days of the ownership transfer date.

20.6.2.3235 CONTINUING EFFECT OF PRIOR ACTIONS DURING TRANSITION:

A. A discharge permit issued pursuant to Section 20.6.2.3109 NMAC that has not expired on or before the effective date of the dairy rules shall remain in effect and enforceable pursuant to the conditions of the discharge permit and for its term as designated by Section 74-6-5 NMSA 1978. If an effective discharge permit contains a permit condition with a time period for submittal of a renewal application that is different from the time period contained in 20.6.2.3205.A NMAC, that condition will remain in effect for two years following the effective date of the dairy rule.

B. An application for a new discharge permit or an application for a renewed or modified discharge permit submitted to the department before the effective date of the dairy rules, shall be processed by the department if the application has been deemed administratively complete and the requirements of Subsection D of 20.6.2.3108 NMAC have been satisfied. The applicant shall submit a permit fee payment

equal to one-half of the applicable permit fee from Table 1 of 20.6.2.3114 NMAC within 90 days of the effective date of the dairy rules.

C. If a discharge permit for a dairy facility is expired on the effective date of the dairy rules and an application for renewal has not been received by the department, the permittee, owner of record of the dairy facility or the holder of the expired discharge permit:

(1) shall within 90 days of the effective date of the dairy rules submit to the department an application for a discharge permit renewal, renewal and modification or closure pursuant to 20.6.2.3205 NMAC and a filing fee and permit fee payment pursuant to 20.6.2.3204 NMAC; or

(2) if the dairy facility has not been constructed or operated, the permittee, the owner of record of the dairy facility or the holder of the expired discharge permit may submit a statement to the department instead of an application for renewal certifying that the facility has not been constructed or operated and that no discharges have occurred. Upon the department's verification of the certification, the department shall retire the discharge permit number from use.

D. The department shall process submissions meeting the requirements of Subsections B and C of this section according to the following schedule and subject to the public notice requirements of Section 20.6.2.3108 NMAC. If the department issues a discharge permit, the permittee shall have ninety days from the effective date of the discharge permit to submit all the necessary information to comply with Sections 20.6.2.3205 through 20.6.2.3208 NMAC.

(1) For a new discharge permit application or for a renewal application for a discharge permit whose term ended on or before December 31, 2005, the department shall propose approval of a discharge permit or disapproval of an application within 90 days of the effective date of the dairy rules. The department shall notify the applicant of the proposed action by certified mail.

(2) For a renewal application for a discharge permit whose term ended in calendar year 2006, the department shall propose approval of a discharge permit or disapproval of an application within 180 days of the effective date of the dairy rules. The department shall notify the applicant of the proposed action by certified mail.

(3) For a renewal application for a discharge permit whose terms ended in calendar year 2007, the department shall propose approval of a discharge permit or disapproval of an application within 270 days of the effective date of the dairy rules. The department shall notify the applicant of the proposed action by certified mail.

(4) For a renewal application for a discharge permit whose terms ended in calendar year 2008, the department shall propose approval of a discharge permit or disapproval of an application within 360 days of the effective date of the dairy rules. The department shall notify the applicant of the proposed action by certified mail.

(5) For a renewal application for a discharge permits whose term ended in calendar year 2009, the department shall propose approval of a discharge permit or disapproval of an application within

450 days of the effective date of the dairy rules. The department shall notify the applicant of the proposed action by certified mail.

(6) For a renewal application for a discharge permit whose term ended on or after January 1, 2010 but before the effective date of this section, the department shall propose approval of a discharge permit or disapproval of an application within 540 days of the effective date of the dairy rules. The department shall notify the applicant of the proposed action by certified mail.

E. Any dairy facility discharging, capable of recommencing discharging, or that has ceased discharging within the term of its most recent discharge permit shall continue all monitoring and submittal of monitoring reports as prescribed in the most recent discharge permit until the department issues a renewed or renewed and modified discharge permit.

F. Any discharge permit proposed for approval (i.e., draft discharge permit) by the department pursuant to Section 20.6.2.3109 NMAC, but not made final before the effective date of the dairy rules, is withdrawn. Any permit fee submitted before the withdrawal of such a draft discharge permit shall be applied towards the permit fee for the permit issued pursuant to the dairy rules.

STATE OF NEW MEXICO
BEFORE THE WATER QUALITY CONTROL COMMISSION

In the Matter of:	)	
PROPOSED AMENDMENT TO 20.6.2 NMAC (Dairy Rule)	)	**No. WQCC 09-13(R)**
New Mexico Environment Department, Petitioner.	)	

ENVIRONMENT DEPARTMENT'S PROPOSED STATEMENT OF REASONS

This Proposed Statement of Reasons is submitted for the purpose of assisting the Water Quality Control Commission ("Commission") in its deliberation in this proceeding. In adopting the Dairy Rule, the Commission must prepare a Statement of Reasons to fulfill the requirement that the rulemaking record "must indicate the reasoning of the Commission and the basis on which it adopted the regulations." *City of Roswell v. New Mexico Water Quality Control Comm'n*, 84 N.M. 561, 565, 505 P.2d 1237 (Ct. App. 1972). See also, *Bokum Resources Corp. v. New Mexico Water Quality Control Comm'n*, 93 N.M. 546, 603 P.2d 285 (1979) and *Tenneco Oil Co. v. New Mexico Water Quality Control Comm'n*, 107 N.M. 469, 760 P.2d 161 (Ct. App. 1987).

This Proposed Statement of Reasons outlines the rulemaking process, the legal authority for the proceeding, and provides the factual findings, with citations to the evidentiary record, and conclusions of law to support the Department's proposed rule. A Closing Argument is being submitted concurrently with this Proposed Statement of Reasons, explaining why the Commission should adopt the Dairy Rule as proposed by the Environment Department.

PROCEDURAL HISTORY

1. On December 22, 2009, the Department filed a Petition for Regulatory Change and Request for Hearing.

2. On December 23, the Hearing Officer issued an Order setting the hearing for March 9, 2010.

3. On December 28, 2009, a Notice of Docketing was issued.

4. On January 14, 2010, parties filed a Joint Motion to Reschedule Hearing and for a Procedural Order Regarding the Presentation of Hearing Testimony.

5. On January 15, 2010, a Scheduling Order and a Procedural Order were issued.

6. On January 26, 2010 a Notice of Public Hearing was issued.

7. On January 29, 2010 the Department filed a Revised Petition for Regulatory Change.

8. On March 8, 2010, Notices of Intent to Present Technical Testimony were filed on behalf of Amigos Bravos, Caballo Concerned Citizens, Food and Water Watch and the Sierra Club, Rio Grande Chapter (collectively, "the Coalition"), the New Mexico Environment Department, and the Dairy Industry Group for a Clean Environment ("DIGCE").

9. On March 24, DIGCE filed a Motion for Continuance of Deadlines in the Scheduling Order.

10. On March 25, the Hearing Officer issued his first amended Scheduling Order, rescheduling a prehearing conference.

11. On March 25, the Department filed a response to DIGCE's Motion for Continuance of Deadlines in the Scheduling Order.

12. On March 26, the Coalition filed a response to DIGCE's Motion for Continuance of Deadlines in the Scheduling Order.

13. On March 26, the Hearing Officer issued an Order denying DIGCE's Motion for Continuance.

14. On March 29, 2010 the Coalition, the Department and DIGCE each filed a Notice of Intent to Present Technical Testimony.

15. On March 30, the Hearing Officer issued his First Prehearing Procedural Order.

16. On April 6, 2010, DIGCE filed a Motion to Dismiss for Failure to Meet Statutory Criteria, a Motion to Strike Testimony for a Violation of Protocols for Stakeholder Negotiations, a Motion to Dismiss for Violations of Section 74-6-4(K) NMSA 1978, and a Motion to Strike Testimony on Legislative History.

17. On April 9, 2010, the Coalition filed a response to DIGCE's Motion to Strike Testimony for a Violation of Protocols for Stakeholder Negotiations, to DIGCE's Motion to Dismiss for Failure to Meet Statutory Criteria. The Department filed a response to DIGCE's Motion to Strike Testimony or a Violation of Protocols for Stakeholder Negotiations, to DIGCE's Motion to Strike Testimony on Legislative History, to DIGCE's Motion for Dismiss for Failure to Meet Statutory Criteria and to DIGCE's Motion to Dismiss for Violations of Section 74-6-4(K) NMSA 1978.

18. On April 9, 2010, DIGCE filed a reply to the Department's and DIGCE's Responses to DIGCE's Motion to Strike Testimony for a Violation of Protocols for Stakeholder Negotiations.

19. On April 9, 2010, Affidavits of Publication were filed showing that the Notice of Hearing was timely published in the Albuquerque Journal, the Hobbs News Sun, the Las Cruces Sun News, the Clovis News Journal and the Portales Tribune.

20. On April 12, 2010, correspondence showing notification of the Small Business Advisory Committee on December 22, 2009 and February 1, 2010 was filed.

21. On April 12, 2010 the Hearing Officer issued an Order on Prehearing Motions. The Hearing Officer DIGCE's Motion to Dismiss for Failure to Meet Statutory Criteria was denied, DIGCE's Motion to Dismiss for Violation of Section 74-6-4(K) NMSA 1978 was denied, DIGCE's Motion to Strike Testimony for a Violation of Protocols for Stakeholder Negotiations was withdrawn, and DIGCE's Motion to Strike Testimony on Legislative History was taken under advisement for later disposition.

22. On April 13, 14, 15 and 16 2010 the Commission conducted a hearing in this matter, but the hearing was not completed. At the end of the hearing, the Hearing Officer urged the parties to meet and work out technical issues before the hearing resumed.

23. On May 4, 2010, the parties filed a Joint Motion to Reschedule Resumption of Hearing. The parties jointly requested that the hearing be resumed in June of 2010. On that same date, the Hearing Officer issued an Order resuming the hearing on June 8, and to continue thereafter on June 9, 10, and 11.

24. On June 3, 2010, the Department filed a Notice of Proposed Language Changes to the proposed rule.

25. On June 4, 2010, DIGCE filed a Notice to Present Technical Testimony of Dr. John Sweeten.

26. On June 7, 2010, the Department filed a Supplemental Notice of Proposed Language Changes and a Notice of Errata.

27. On June 9, 2010, the Department filed a Notice of Revised NMED Rebuttal Attachment 2, June 8, 2010 version ("June 9 version").

28. On July 8, 2010, a Notice of Transcript was issued.

LEGAL AUTHORITY

29. NMSA 1978, Section 74-6-4 (D) grants the Commission the authority to promulgate regulations to prevent or abate water pollution in the state.

30. In 2009, the Legislature amended Section 74-6-4 and 74-6-5 of the Water Quality Act ("2009 WQA amendments"). The amendments removed a provision in 74-6-4 (E) that prohibited the Department from specifying "the method to be used to prevent or abate water pollution." NMED Exhibit WO-4.

31. The 2009 WQA amendments also requires the Commission to "specify in regulations the measures to be taken to prevent water pollution and to monitor water quality."

32. The 2009 WQA amendments also require the Commission to adopt regulations for the dairy industry.

33. The 2009 WQA amendments also state, "The commission shall consider, in addition to the factors listed in Subsection E of this section, the best available scientific information. The regulations may include variations in requirements based on site-specific factors, such as depth and distance to ground water and geological and hydrological conditions. The constituent agency shall establish an advisory committee composed of persons with knowledge and expertise particular to the industry category and other interested stakeholders to

advise the constituent agency on appropriate regulations to be proposed for adoption by the commission. The regulations shall be developed and adopted in accordance with a schedule approved by the commission. The schedule shall incorporate an opportunity for public input and stakeholder negotiations."

BACKGROUND

34. Once the 2009 WQA amendment passed the legislature and was signed by the Governor, the Department started working on a draft of a proposal for a dairy rule. Testimony of William Olson, NMED NOI Attachment 1, p.9. On April 14, 2009, the Department briefed the Commission on the 2009 legislative changes to the WQA and presented a tentative schedule for development and adoption of specific rules for dairy facilities. On May 22, 2009, the Department released an initial discussion draft for public comment. The majority of the initial discussion draft was comprised of the standardized permit conditions that the Department had developed over the years as well as existing Department guidance documents for monitoring well construction and engineering requirements (NMED Exhibits WO-2 and WO-5). The initial discussion draft also incorporated prior agreements that had been reached with the dairy industry in the 2007 and 2008 meetings (NMED Exhibit WO-3). In effect, the initial discussion draft represented the compilation of the institutional and historical knowledge the Department had gained in over 30 years of regulating the dairy industry. Testimony of William Olson, NMED NOI Attachment 1, p.9.

35. From June 1, 2009 through June 23, 2009, the Department held evening public meetings in Hobbs, Clovis/Portales, Roswell, Mesquite and Los Lunas to inform the public about changes in the WQA, the legislative requirement for dairy industry specific rules, and to encourage the submission of comments on the Department's May 22, 2009 initial discussion

draft. (NMED Exhibit WO-6). The Department also notified dairy industry permit holders that it would be available for meetings during the day of each public meeting to reach out directly to dairy facility permittees for input (NMED Exhibit WO-7). However, the Department held only one such permittee meeting on the same day as the Clovis/Portales public meetings. The Department cancelled the remainder of the permittee meetings because the dairy industry boycotted the meetings (NMED Exhibit WO-8). Testimony of William Olson, NMED NOI Attachment 1, Pp.9-10.

36. After the public meetings, pursuant to the requirements in the new Subsection K of Section 74-6-4 of the 2009 amended WQA, the Department then convened an advisory committee "to advise [it] on appropriate regulations to be proposed for adoption by the commission." (NMED Exhibit WO-9). The advisory committee was comprised of dairy industry members, dairy industry consultants, dairy trade associations, environmental groups, academic members, other state agencies with links to dairies, health associations, and general public members (NMED Exhibit WO-10). The Department's staff discussed the initial discussion draft with the advisory committee and solicited ideas on any other appropriate regulations for dairy facilities at meetings on June 26, July 8 and July 15, 2009. Testimony of William Olson, NMED NOI Attachment 1, p.10.

37. On July 14, 2009 at a regular meeting of the Commission, the Department along with the dairy industry presented a negotiated schedule to the Commission for the development and adoption of dairy regulations that incorporated an opportunity for public input and stakeholder negotiation pursuant to the new Subsection K of Section 74-6-4 of the 2009 amended WQA. This negotiated schedule was approved by the Commission. Testimony of William Olson, NMED NOI Attachment 1, p.10.

38. Based upon the input from the advisory committee the Department revised the initial discussion draft and on August 7, 2009 released a revised discussion draft to the public to solicit additional public comments and to solicit stakeholders for negotiations over the content of proposed dairy regulations. The Department revised its proposal after receiving the additional public comment and used that revised proposal as its starting point for stakeholder negotiations. Testimony of William Olson, NMED NOI Attachment 1, p.10 and 11.

39. In accordance with the approved schedule of the Commission, from October 15 through November 30, 2009, the Department engaged in extensive negotiations with various industry and public members that previously identified themselves as stakeholders regarding dairy industry specific rules (NMED Exhibit WO-11). Based on those stakeholder negotiations, according to the schedule adopted by the Commission, the Department developed a revised dairy regulation proposal and filed it with the Commission as part of the Department's rule-making petition on December 22, 2009. At that time the various stakeholders wished to provide additional comments on the Department's proposed rule in its December 22, 2009 rule-making petition. The Department agreed to accept additional comments from the stakeholders on the December 22, 2009 proposal by January 19, 2010. The Department received and considered those comments, revised its proposal and filed a revised rule-making petition with the Commission on January 29, 2010. Testimony of William Olson, NMED NOI Attachment 1, p. 11.

40. On March 8, 2010, the Department filed its Notice of Intent to Present Technical Testimony, along with the pre-filed direct testimony of its direct witnesses. NMED NOI Attachment 8 was the Department's proposed rule as of that date, along with testimony supporting the proposed rule.

41. On March 29, 2010, the Department filed its Notice of Intent to Present Technical Rebuttal Testimony, including NMED Rebuttal Attachment 2, which contained the Department's proposed rule as of that date.

42. On June 3, 2010, the Department filed a Notice of Proposed Language Changes, showing proposed changes to NMED Rebuttal Attachment 2.

43. On June 7, 2010, the Department filed a Supplemental Notice of Proposed Language Changes, and a Notice of Errata.

44. On June 9, 2010, the Department filed its Notice of Revised NMED Rebuttal Attachment 2, 6/8/10 version, (referred to herein as the Department's June 9 version) incorporating all proposed changes as of that date, including those filed on June 3, 2010 and June 7, 2010.

45. Concurrently with its filing of its Closing Argument and Proposed Statement of Reasons, the Department filed its "Final Proposed Rule." This document indicates any changes proposed by the Department to the NMED Rebuttal Attachment 2, 6/8/10 version.

FINDINGS OF FACT

Section 20.6.2.3201 Purpose.

46. Section 20.6.2.3201[1] is the purpose section of the proposed rule. The purpose of the rule is to supplement the general permitting requirements of 20.6.2.3000 through 3114 NMAC.

[1] Section references contained herein are to the Department's Final Proposed Rule, filed concurrently with this Proposed Statement of Reasons on August 23, 2010, unless otherwise indicated.

Section 20.6.2.3202 Definitions.

47. Section 20.6.2.3202 is the definition section of the proposed rule. The definitions proposed in the Department's Final Proposed Dairy Rule are necessary to properly interpret the meanings of the defined terms as used throughout the rule. Particular definitions will be further discussed below.

48. In 20.6.2.3202.B(18) in the definition of "Impoundment," the Department proposes to add the sentence, "A wastewater or stormwater transfer sump is not an impoundment." This clarification was added based on concerns expressed at hearing by DIGCE. See Tr. 4, Pp. 872-875. The concern was further addressed by the testimony of Mr. Schuman in response to questions by Commissioner Jones that a sump would not be a structure designed and used for storage or disposal of wastewater. Tr. 8, Pp. 1643-1646. This clarification language should be accepted.

49. In 20.6.2.3202.B(29) for the definition of "Wastewater" the Department proposes to delete the phrase "except overflow from the drinking water system and stormwater" in the first sentence, and add the sentence, "Wastewater does not include overflow from the drinking water system or stormwater unless overflow or stormwater that is collected is comingled with wastewater, or it comes into contact with water contaminants as a result of being directly or indirectly used in facility operations." This language change was made to clarify the Department's intention that stormwater that is re-used and is used in the wastewater stream would be consider wastewater. Tr. 3, Pp. 554-557.

50. The definitions in Section 3202 are necessary to define the meaning of specific terms as they are used only in the context of the permitting of dairy facilities pursuant to the dairy rule. These definitions supplement the definitions of the Water Quality Act and WQCC

general definitions of Section 20.6.2.7 NMAC and are not intended to apply to any other type of discharge permit facility or other regulation of the WQCC. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 4. DIGCE and the Coalition did not raise any substantive issues with respect to Section 3202 definitions that were not adequately clarified in the Department's Final Proposed Rule as discussed above. The Section 3202 Definitions as proposed in the Department's Final Proposed Rule are reasonable and properly reflect the intention of the Commission.

Section 20.6.2.3203 Requirements For Discharging From Dairy Facilities.

51. Subsection A of Section 3203 affirmatively states that no person shall discharge from a dairy facility without a discharge permit. This subsection is necessary to establish that a discharge permit is required to discharge from a dairy facility, and that a person intending to discharge from a dairy facility must apply for a discharge permit under the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 3.

52. Subsection B of Section.3203 states that Permittees, owners of record of a dairy facility and holders of an expired permit are responsible for complying with the dairy rule. The purpose of this provision is to ensure that there is a responsible party for a dairy facility that is subject to the requirements of the dairy rule, even if a discharge permit for a dairy facility expires. This subsection is necessary to protect ground water by ensuring that a person is responsible to implement the requirements of the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 4. See also, Tr. 3, Pp. 559-560.

53. Subsection C of Section 3203 states that Sections 3200 through 3235 apply to a dairy facility. This subsection is necessary to specify the applicable sections that comprise the

dairy rule as they apply to the dairy industry. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 4.

54. Subsection D of Section 3203 states that unless otherwise noted in the dairy rule, the requirements of section 20.6.2.3101 through 20.6.2.3114 also apply to a dairy facility. This subsection establishes that the WQCC's current permitting rules continue to apply unless the dairy rule specifies otherwise. This subsection is necessary because the dairy rule, as proposed by NMED, integrates with the WQCC's current permit rules. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 4. For example, public notice for a discharge permit for a dairy facility relies on Section 20.6.2.3108 NMAC of WQCC's current permitting rules. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 4.

55. Subsection E of Section 3203 states that complying with the requirements of the dairy rule does not relieve a dairy facility owner, operator or permittee from complying with the requirements of other applicable local, state and federal regulations or laws. This subsection establishes that complying with the dairy rule does not relieve a person's responsibility from complying with other applicable laws. This will also help avoid confusion regarding whether compliance with the dairy rule relieves a person from compliance with EPA's Concentrated Animal Feedlot Operations ("CAFO") rules. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 4.

56. Section 3203 as proposed in the Department's Final Proposed rule is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality.

<u>Section 20.6.2.3204 Fees.</u>

57. Section 3204 addresses the permit application fees for dairy facilities.

58. Subsection A of Section 3204 sets forth the schedule of payment for permit fees for new permit applications and for renewals. The total permit fees applicable to a dairy are found in the current regulations at Table 1 of 20.6.2.3114. The fees do not change, but the schedule of payments is changed to provide for a filing fee of $100 plus one-half the permit fee found in Table of Section 3114. The remaining half of the permit fee is spread out over annual payments made each August over the five-year period of the permit. This provision is necessary so that the Department can receive fee revenue at the same time the Department is investing staff resources to review and process the application. This schedule will also give the Department and the dairy industry certainty as to when payments are due. In addition, this approach is consistent with existing WQCC regulation Subsection B of 20.6.2.3114 NMAC which requires that half of the permit fee be paid even if an application is withdrawn or denied. Under the current rules once an application is submitted, an applicant is obligated to pay at least half of the applicable permit fee. By having the applicant pay half of the permit fee upfront with the application, payment is assured and the administrative process is streamlined because there is no need to later attempt to collect half of the permit fee if the application is withdrawn or denied. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 4-5. This provision does not change the fee amount and is reasonable and necessary for the adequate implementation of the regulatory program.

59. Subsection B of Section 3204 addresses fees for applications for modifications of a permit not part of a renewal. The subsection reiterates the existing requirements of 20.6.2.3114 NMAC, but in the context of the schedule established in Subsection A. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 5.

60. Subsection C of Section 3204 applies to applicants seeking temporary permission to discharge under subsection B of 20.6.2.3106. It states that the fee amount shown in 20.6.2.3114 is applicable. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 5.

61. Section 3204 as proposed in the Department's Final Proposed rule is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality.

Section 20.6.2.3205 General Application Requirements For All Dairy Facilities.

62. Section 20.6.2.3205 sets forth the general requirements for applications for discharge permits for all dairy facilities, including those that have been permitted but have not been constructed or operated. The section serves as a "roadmap" for the application process and specifies other provisions of the rule that apply to permittees and applicants. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 6.

63. Subsection A of Section 20.6.2.3205 sets the deadline for the submission for a discharge permit renewal application for a dairy facility that will continue to operate or is undergoing closure or post-closure measures. Subsection A makes the deadline one year before the expiration of an existing, effective discharge permit. This is a greater period of time than is currently required by Subsection F of 20.6.2.3106 NMAC, which requires a holder of an effective discharge permit to submit an application for renewal at least 120 days before the expiration of the permit. 120 days is an insufficient time to effectively review an application for technical completeness, develop a discharge permit in the form of a draft permit, provide public notice and receive public comment, conduct a hearing, if necessary, and finalize the discharge

permit before the expiration date of the existing permit. This is particularly true for dairy facilities because the technical details of the discharge at a dairy facility are complex and the threat to ground water quality is high. Under the current 120 day timeframe, when a public hearing is requested and granted on a particular discharge permit, it is impossible to issue a final discharge permit before the expiration date of the existing permit. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 6-7.

64. An application review can take a year because of the timeframes required to complete the permitting process. To illustrate, once an application is filed, an administrative completeness determination can take up to 30 days. 20.6.2.3108.B. The applicant is then given 30 days to publish notice of the application. 20.6.2.3108.C. The applicant is then given 15 days to provide proof of the notice. 20.6.2.3108.D. If the proof is late or notice incorrect, some additional time may be needed. Once proof of notice is completed, the Department has 60 days to review the application for technical completeness. 20.6.2.3205.G. If the application is incomplete, the applicant has 60 days to complete the application. 20.6.2.3205.H. The Department then has 60 days to prepare its proposed permit and notice of proposed action. 20.6.2.3108.H. Then there is a 30 day period for comments and requests for hearing. 20.6.2.3108.K. The Department Secretary must determine if a hearing should be held. 20.6.2.3108.K. If it is determined that a hearing should be held, a notice of hearing must be issued within 60 days. 20.1.4.200.C. At least 30 days notice of the hearing must be given. 20.1.4.200.C(2)(b). The pre-hearing, hearing, and post-hearing procedures alone can take months. 20.1.4.500. Taking these timeframes into account, a one year period for permit review is reasonable.

65. Subsection A of Section 3205 is also expected to eliminate any gap in discharge permit coverage for a dairy facility from the inception of a dairy facility through completion of post-closure monitoring of a dairy facility. Although the existing WQCC regulation 20.6.2.3106 NMAC includes language to extend the life of a discharge permit when (1) the renewal application is submitted within 120 days of expiration and (2) the permittee is not in violation of the discharge permit on the permit's expiration date, this existing regulation often fails in the context of the permitting of dairy facilities. Even when a renewal application is timely, 120 days is insufficient time to for the permittee to correct any outstanding violations before the expiration date. For a permittee, the expiration immediately cancels a permittee's authorization to discharge such that the permittee is now technically discharging without a valid permit. The expiration also limits the Department's ability to enforce the conditions of a discharge permit. By making the application deadline one year before the expiration date of the discharge permit, the rule should eliminate gaps in discharge permit coverage for a dairy facility from the inception of a dairy facility through completion of post-closure monitoring of a dairy facility. It is not in the best interest of the public, the dairy industry or the Department to have dairy facilities discharging without a permit. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 6-7.

66. Subsection B of Section 3205 states that at least 180 days before the due date for an application for renewal, a permittee may request a pre-application meeting with the Department, and provides procedures for requesting and confirming the meetings. The pre-application meetings are to be held in Santa Fe at the offices of the Department unless otherwise agreed to by the Department, and must occur more than 60 days prior to the application due date.

67. The Department's March 8 version of the rule did not contain a provision for a pre-application meeting, but the Department included a provision for pre-application meetings in its June 9 version of the rule (Rebuttal Attachment 2, June 8 version filed June 9, 2010) as part of Subsection A.

68. DIGCE proposed language for Section 3205 providing that upon request, the Department must schedule and participate in a pre-application meeting to include a walkthrough of the facility and a discussion of potential changes to the facility to comply with the dairy rule. DIGCE Exhibit 8, p. 8.

69. In its June 9 version of the rule, the Department proposed language allowing a permittee to request a pre-application meeting between 180 days and 60 days prior to the application due date. The June 9 version stated that the pre-application meeting would be held in Santa Fe unless otherwise agreed by the Department. Tr. 5, p. 979. The Department must be allowed to schedule the meetings in Santa Fe, rather than at the dairy, because of serious staff constraints. Tr. 5, p. 989. The Department currently has a 30 percent vacancy rate in permitting staff due to the hiring freeze. Tr. 4, p. 763.

70. Subsection B of Section 3205 applies to dairies that have obtained a permit, but have not been constructed or operated. It allows such dairies to either submit a statement to the Department certifying that it will not be operating, so the Department can retire the permit, or to file a renewal application pursuant to Subsection A. This approach creates an efficient regulatory process for the permittee and the Department, because if the permittee has not and does not intend to construct the dairy facility and has not and does not intend to discharge at the dairy facility, then the Department can verify the certification and retire the discharge permit number from use. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 7.

71. Subsection C of Section 3205 sets forth the sections of the dairy rule that an applicant for a dairy permit must comply with, rather than the general ground water discharge permitting rule, 20.6.2.3106. This subsection is necessary to direct an applicant for a discharge permit for a dairy facility to the provisions of the proposed rule that specify the information required by an application. This subsection directs an applicant to provide all of the information required by the proposed 20.6.2.3205 NMAC and, depending on the type of discharge permit being sought, the information required by 20.6.2.3206 NMAC, 20.6.2.3207 NMAC or 20.6.2.3208 NMAC. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 8.

72. Subsection D of Section 3205 directs the Department to create an application form for a dairy discharge permit. It is useful for the Department to create application forms to assist applicants in assuring that all necessary information is provided in the application. The form will be used by all dairy facilities applying for a discharge permit, thus providing consistency for the industry, more efficient completion of the forms by the applicant, and more efficient processing of the forms by the Department. The information required by Sections 20.6.2.3106 NMAC through 20.6.2.3108 NMAC will be identified on the form. Having the applicant attest to the truth of the information in the application by signing and notarizing the form, is necessary to ensure that the Department can rely on the information when developing a draft discharge permit and so that accurate information is available to the public. This provision will also ensure that the applicant is aware of the contents of the permit application and allow for the submission of complete and accurate permit information.

73. In its Exhibit 8, DIGCE proposed language requiring the Department to engage in a public comment process similar to that used with a rulemaking procedure prior to adopting forms. There is no need to set forth such a requirement in this rule.

74. DIGCE also proposed that dairy facilities be allowed to submit information in electronic format, and that in a permit renewal application the dairy not be required to resubmit information that was submitted in the original dairy application. It is necessary to provide an application form and require its use by every dairy facility so as to provide consistency for the industry, more efficient completion of the forms by the applicant, and more efficient processing of the forms by the Department. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 9. The Department requires a complete application upon renewal because it is necessary to have a complete record for public review. Modifications are generally triggered by major changes at a facility, and it is necessary for the Department to have all relevant information available to it. Furthermore, most permit modifications are done in conjunction with a permit renewal, therefore, the information would be required regardless. Tr. 8, Pp. 1650, 1656.

75. Subsection E of Section 3205 applies to applicants for a new discharge permit and specifies that the applicant must certify that it meets the setback requirements proposed in Section 3216 of the dairy rule. If the dairy does not certify that it meets the applicable setback requirements, the application will be rejected. For new discharge permits, whether the setback requirements of Section 3216 can be met is a necessary pre-requisite for reviewing an application for administrative and technical completeness. This provision makes the application process predictable and efficient for applicants and the Department. In selecting a site, an applicant can review whether the setbacks will be met. For the Department, if an applicant does not certify that the setbacks of Section 3216 are met, then the Department saves the time and resources needed to review an application and for administrative completeness and technical completeness that may never meet the requirements of the dairy rule. This is an important consideration due to the limited staff and resources of state government. In the event that setbacks can be verified,

but such information was not included in the application, the applicant has the option to re-initiate the discharge permit process by re-submitting a new application to the Department. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 9.

76. Subsection F of Section 3205 states that the Department must review an application for technical completeness within 60 days of proof of notice of the application as required by Subsection D of Section 3206. The requirements of this subsection are consistent with those of Subsection H of 20.6.2.3108 NMAC and should be included for clarity and specificity of the process.

77. Subsection G of Section 3205 sets forth the requirements that an application must meet to be considered technically complete. It also sets forth the procedures to be followed depending on whether an application is determined to be technically complete. If the application is technically complete, the Department will proceed pursuant to Subsection H of 20.6.2.3108. If it is not technically complete, the Department will provide notice to the applicant, and the applicant will have 60 days from the date of postal notice to provide the required information. If the information is not timely submitted, the application may be denied, or the Department may approve the permit, but still require compliance with the rule. Department Final Proposed Rule, 20.6.2.3205.H.

78. The approach set forth by Subsection G will streamline the permitting process. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 10. This approach benefits the permittee, the Department and the public, and the permittee also has the benefit of an effective discharge permit. For the Department, this approach will save staff oversight time and avoid the potential for delay caused from trying to obtain the required information. Historically, delays of this type have plagued the Department, whereby countless hours of staff time have

been spent repeatedly requesting technical information required to evaluate an application. Id. In extreme cases, delays of this type have continued for years. (NMED Exhibit 3205-2). The dairy rule prescribes the engineering, operational, monitoring, contingency, and closure requirements for the permitting of dairy facilities. This provision is necessary to give the Department discretion to issue a permit if it has sufficient information to determine which provisions of the dairy rule apply and then provides the permittee with a 60 day period after the effective day of the discharge permit to provide the remaining missing information. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 10.

79. Subsection H of Section 3205 states that the Department may impose additional conditions on a discharge permit pursuant to Section 74-6-5 NMSA 1978. It also provides that the Department shall include a written explanation for any additional conditions, and allow comments in accordance with 20.6.2.3108 NMAC. It also allows for a hearing to be requested pursuant to 20.6.2.3215 NMAC. The amended Water Quality Act, at Subsection D of Section 74-6-5, NMSA 1978 (NMED Exhibit 3205-3), includes a provision authorizing the Department to include additional permit conditions in a discharge permit not otherwise specified in rules for the dairy industry. This subsection establishes the procedures to implement and comply with the requirements of Subsection D of Section 74-6-5, NMSA 1978.

80. Subsection I of Section 3205 states that the Secretary of the Department shall approve a discharge permit provided that the requirements of the dairy rule are met, and the provisions of 20.6.2.3109 are met, with the exception of Subsection C of that section. Subsection C of 20.6.2.3109 sets forth the requirements that an applicant for a non-dairy discharge plan must meet to prevent water pollution and monitor water quality, but these general requirements are superseded by this prescriptive dairy rule. Under Subsection I, if an application

complies with the dairy rule it is approvable subject to conditions contained in the dairy rule and additional conditions required by the Department.

81. Section 3205 as proposed in the Department's Final Proposed rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality.

Section 20.6.2.3206 Application Requirements For A New Discharge Permit.

82. Subsection A of Section 3206 states that an application for a new discharge permit must include the information described in the section.

83. Subsection B of Section 3206 sets forth the contact information that the applicant must provide. Requiring this information is reasonable for the purpose of assuring that the Department can contact the appropriate persons as needed and for enforcement purposes if necessary. DIGCE objected to providing the contact information for consultants, and the Department provided an amendment in its March 29 and June 9 versions that would require the dairy only to submit the phone number and address of consultants who are authorized by the applicant to assist the dairy with compliance with the Water Quality Act. During permit application reviews, when the Department contacts the applicant to ask questions about the content of the application, it is not uncommon for a dairy operator to refer the Department to their consultant who assisted in preparation of the application. If the applicant has authorized a consultant to act on their behalf, it would be helpful if this information was provided upfront with the application so that the application can be efficiently processed. To address DIGCE's concerns, the language of this paragraph clarifies the applicant need only provide information

about any consultants "authorized" by the applicant to assist in the development of the permit. Testimony of William C. Olson, NMED Rebuttal Attachment 3, Pp. 16, 22.

84. Subsection C of Section 3206 sets forth the ownership information for the dairy facility, including any property agreements giving the dairy facility the right to use the land of others for land application purposes. In its Final Proposed Rule, the Department added partnerships as an entity that should disclose the ownership interest. This was in response to questions by Commissioner Jones, who pointed out that partnership interests weren't necessarily covered by the existing language, and should be added. Tr. 7, Pp. 1478-1482. This change is reasonable and should be accepted.

85. Additionally, in Subsection C of Section 3206 of its initial version of the rule filed on March 8, 2010, the Department included a requirement that the applicant provide the names of the business entity's directors, officers, members or partners. NMED NOI Attachment 8, 20.6.2.3206.C(1)(b). DIGCE opposed this language in its Exhibit 8 comments. Subsequently, the Department removed this requirement in its March 29 rebuttal version of the rule (NMED Rebuttal Attachment 2), because it believed this information would be available at the Public Regulation Commission. However, on cross-examination by the Coalition, it became clear that the language should remain in the rule, because officers and directors may change without notification to the Public Regulation Commission. Tr. 3, Pp. 520-522. The language proposed in Subsection C of the Department's Final Proposed Rule relating to providing the names of each entity's directors, officers, members or partners, which is the same as the language originally proposed in its March 8 version, should be accepted.

86. Subsection D of Section 3206 requires the applicant to certify that the setback requirements of Section 3216 NMAC are met. Subsection D sets up a prerequisite or threshold

for determining whether an application is accepted for processing or rejected under Section 20.6.2.3205 NMAC. Subsection D requires an applicant to certify that setback requirements have been met and to provide a scaled map showing relevant features. This subsection is necessary to clarify that it is the applicant's duty to verify and demonstrate that all setbacks requirements of Section 3216 NMAC are met. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 16.

87. Subsection G of 20.6.2.3206 states that an applicant must include the pre-discharge total dissolved solids concentration from analytical results of ground water obtained from the on-site test boring done prior to discharge. The Department's Final Proposed Rule adds the phrase, "if applicable, or from the nearest well within a one-mile radius of the dairy facility" to allow an applicant to provide samples from such a well if a sample from a test boring cannot be taken. This language is necessary because the requirement for a test boring was changed in the final version of Section 3220.Y (formerly Z) so that borings are now only required to a depth of 75 feet, which may not intersect with ground water. The need for this change was discussed by Mr. Olson in response to questions by Commissioner Jones. Tr. 7, Pp. 1482-1483. The one-mile radius is consistent with Section 3220.Y(1). Another change to Section 3206 resulting from the change to Section 3220.Y so that borings are only required to a depth of 75 feet is the deletion of the words "measurements from the one site specific test boring" in Subsection L(1). These changes are for the purpose of making these subsections consistent with Section 3220.Y, are reasonable, and should be accepted.

88. Subsections E through R of 20.6.2.3206 set forth other informational requirements that must be included in an application, including: location information, public notice information, pre-discharge total dissolved solids concentration in ground water,

determination of maximum daily discharge volume, wastewater quality, identification and physical description of the facility, flow metering information, depth to most shallow ground water and ground water flow direction information, monitoring well information, surface soil survey and vadose zone geology information, a flood zone map, engineering and surveying information and land application area information. The substantive requirements of each of these items are contained in other portions of the rule.

89. Subsection L(1) of Section 3206 requires an applicant to indicate the depth to most shallow ground water in its application. In its Final Proposed Rule, the Department struck the requirement that the application include "measurements from the one site specific test boring" to be consistent with the change to Section 3220.Y. Borings are now only required to a depth of 75 feet as discussed in relation to Subsection G, above.

90. Subsection N of Section 3206 requires an applicant to include lithologic logs of its test bore in its application. In its Final Proposed Rule, the Department added the words "if applicable" to be consistent with the change to Section 3220.Y. Borings are now only required to a depth of 75 feet as discussed in relation to Subsection G, above.

91. Cross-references in Section 3206 are changed to be consistent with changed subsection lettering in the Department's Final Proposed Rule.

92. The provisions of Section 20.6.2.3206 are necessary to explain the application requirements for new discharge permits, are reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality and should be accepted as contained in the Department's Final Proposed Rule.

<u>Section 20.6.2.3207 Application Requirements For Discharge Permit Renewal or Modification.</u>

93. Subsection A of Section 3207 sets forth the requirement that an application for a renewed or modified discharge permit shall include the information described in the section. The requirements for applications for renewed permits and permit modifications are much like those required for applications for new dairies, except setback information is not required, and public notice requirements are different. Having a separate section minimizes the number of references the applicant needs to utilize when applying for a discharge permit, and provides clear and direct guidance to an applicant depending on the applicant's situation (i.e., new discharge permit, renewal or closure). This concept is summarized by Subsection C of Section 3205. Here, an applicant will only need to refer to Section 3205 and this section when completing an application for a renewal, or renewal and modification, of a discharge permit. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 20.

94. Subsection C of the Department's Final Proposed Rule was changed to add partnerships as an entity that should disclose the ownership interest. This was in response to questions by Commissioner Jones, who pointed out that partnership interests weren't necessarily covered by the existing language, and should be added. Tr. 7, Pp. 1478-1482. This change is reasonable and should be accepted.

95. Additionally, in this subsection of its initial version of the rule filed on March 8, 2010, the Department included a requirement that the applicant for renewal or modification provide the names of the business entity's directors, officers, members or partners. NMED NOI Attachment 8, 20.6.2.3206.C(1)(b). DIGCE opposed this language in its Exhibit 8 comments. Subsequently, the Department removed this requirement in its March 29 rebuttal version of the rule (NMED Rebuttal Attachment 2), because it believed this information would be available at the Public Regulation Commission. However, on cross-examination by the Coalition, it became

clear that the language should remain in the rule, because officers and directors may change without notification to the Public Regulation Commission. Tr. 3, Pp. 520-522. The language proposed in Subsection C(1)(b) of Section 3207 of the Department's Final Proposed Rule relating to providing the names of each entity's directors, officers, members or partners, which is the same as the language originally proposed in its March 8 version, should be accepted.

96. Subsection D was changed to add a requirement for the discharge permit identification number as designated in the most recent permit for the facility. This change is based on a suggestion by Commissioner Jones, and should be accepted. Tr. 3, p. 594.

97. Subsection E sets forth the public notice requirement.

98. Subsection F sets forth the requirement for pre-discharge total dissolved solids concentration in ground water. In its Final Proposed Rule, the Department adds the phrase "nearest well within a one-mile radius of the dairy facility" and deletes "nearby off-site supply well." As with Subsection G of Section 3206, this language is necessary because the requirement for a test boring was changed in Section 3220.Y (formerly Z) so that borings are now only required to a depth of 75 feet. The one-mile radius is consistent with Section 3220.Y(1). The need for this change was discussed by Mr. Olson in response to questions by Commissioner Jones. Tr. 7, Pp. 1482-1483. This change is reasonable and should be accepted.

99. Subsection G sets forth the requirement that an application include the proposed maximum daily discharge volume and other information related to discharge volumes.

100. Subsection H sets forth the requirement that the application include an identification of all impoundments, fields, system components and other necessary information, and also requires a scaled map of the facility. The Departments Final Proposed Rule also corrects a cross-reference to conform to changes in the final proposal, which should be accepted.

101. Subsection I requires the application to describe the flow metering system to be used at the dairy. Cross-references were changed in the Department's Final Proposed Rule to be consistent with changed subsection lettering in the proposed rule. These should be accepted.

102. Subsection J requires the application to include depth to most shallow ground water and indicate ground water flow direction beneath the dairy facility on a ground water elevation contour map. The Department's Final Proposed Rule contains a change to make this subsection consistent with the change to Section 3220.Y. The phrase, "measurements from the one site-specific test boring" is deleted because the test-boring measurements may not be available. This change is reasonable for consistency purposes and should be accepted.

103. Subsection K states that an application must include well construction logs for existing monitoring wells and an identification of monitoring well locations.

104. Subsection L requires an application to include soil survey maps and lithologic logs. This requirement in the Department's Final Proposed Rule contains an addition of the terms "if available" and "if applicable" to conform this paragraph to the change to Section 3220.Y so that test borings are now only required to a depth of 75 feet. This change is reasonable and should be accepted. Subsection L also contains a corrected cross-reference that should be accepted.

105. Subsection M requires applications to include a topographic location map, showing surface contours.

106. Subsection N requires applications to include a flood zone map.

107. Subsection O requires applications to include engineering and surveying plans for proposed structures and liners.

108. Subsection P requires dairies which are planning on using land application areas to include specific information about those areas.

109. 20.6.2.3207 explains the application requirements for renewal and modification applications and should be accepted with the changes as shown in the Department's Final Proposed Rule. The information required by this section is necessary for the Department to conduct a complete technical review of a facility's proposed discharge plan renewal, or renewal and modification, and subsequently propose a discharge permit for approval. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 20. Section 3207 of the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3208 Application Requirements For A Discharge Permit For Closure.

110. Section 3208 sets forth the application requirements for a discharge permit for closure. The information required by this section is necessary to allow the Department to conduct a complete technical review of a facility's proposed closure plan, and subsequently propose a discharge permit for closure for approval. This section references a subset of the information required by Section 20.6.2.3207 NMAC. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 21. Section 3208 of the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3209 Additional Public Notice Requirements for Applications for A New Discharge Permit.

111. Section 3209 creates a public notice requirement in addition to the Commission's requirements in 20.6.2.3108.B NMAC that applies only to a new discharge permit for a future dairy facility whose application for a new permit is received by the Department after the effective date of the dairy rule. This requirement would not apply to existing dairies. For these types of new permit applications, the radial distance for which the applicant would be required to provide notice would be expanded from the current distance of 1/3 of a mile to a distance of one mile. This expanded distance is necessary as data available to the Department has shown that ground water contamination at existing dairy facilities can migrate to distances of greater than 1/3 of a mile as discussed in the testimony of Department witness Bart Faris (see NMED NOI Attachment 3). The potential for ground water impacts at a distance from a dairy facility makes it necessary to have a greater public notice distance so that adjacent landowners that could be potentially impacted have an opportunity to participate in the permitting process. This larger notice distance is also consistent with the notice requirements in the WQCC regulations for "Abatement and Prevention of Water Pollution" in 20.6.2.4108.B(4) NMAC. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 21-22. Section 3209 of the Department's Final Proposed Rule is reasonable and should be adopted.

Section 20.6.2.3215 Procedures For Requesting Public Hearings On Permitting Actions For Dairy Facilities.

112. The amended WQA at Subsection D of Section 74-6-5, NMSA 1978, states that "[a]fter regulations have been adopted for a particular industry, permits for facilities in that industry shall be subject to conditions contained in the regulations." Section 3215 is necessary to provide the requirements regarding the submittal and evaluation of hearing requests consistent with the amended WQA and pursuant to Section 20.6.2.3108.K NMAC. Under the amended

WQA a hearing may only be granted for the review of additional conditions placed on a discharge permit that are not specified by rule. This section will streamline the issuance of discharge permits for dairies and minimize the investment of time and cost incurred by the Department by clarifying that hearings will only be held to consider the specific additional discharge permit requirements being disputed. Hearing requests to dispute conditions contained in the dairy rule must be denied because the Secretary does not have the authority to alter requirements of the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 22. Section 3215 of the Department's Final Proposed Rule is reasonable and should be adopted.

Section 20.6.2.3216 Setback Requirements For Dairy Facilities Applying For A new Discharge Permit.

113. This section creates setback requirements that apply only to a new application for a permit for a future dairy facility whose application for a new discharge permit is received by the Department after the effective date of the dairy rule. This requirement would not apply to existing dairies. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 24. It is also intended under this section that if the facility meets all the setback distances at the time of its initial application, then the facility does not become out of compliance if a neighbor puts in a domestic well within the setback distance at a later time. Tr. 3, p. 511.

114. Setbacks are necessary to place a buffer zone between potential sources of ground water contamination and places where surface water and ground waters have a public or private use. Setbacks are important because a large percentage of dairy facilities in New Mexico have caused ground water contamination (approximately 57% of permitted dairy facilities) as discussed in the testimony of Sarah McGrath. The creation of a setback allows for a buffer zone

whereby if ground water contamination is detected adjacent to a source of contamination at a dairy, such as an impoundment, the contamination would be at some distance from a potential user of ground water. The setbacks are intended to provide adequate time to implement source controls and abate the water pollution before it could reach a potential user. In addition, setbacks also provide for a buffer between potential contamination sources and surface water systems such that if a surface spill occurs it would be less likely to impact a surface water system. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 24. The setbacks set forth in 20.6.2.3216 of the Department's Final Proposed Rule should be adopted.

115. Section 20.6.2.3216 of the Department's Final Proposed Rule has added a Subsection C and been re-worded to clarify the intent of the section that if the facility meets all the setback distances at the time of its initial application, then the facility does not become out of compliance if a neighbor puts in a domestic well within the setback distance at a later time. On cross-examination, Mr. Olson testified that this is the intent. Tr. 3, p. 511. This clarification is reasonable and should be accepted. Section 3216 of the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3217 Engineering and Surveying Requirements for All Dairy Facilities.

116. Section 3217 sets forth the engineering and surveying requirements that a dairy must meet to obtain a permit. The requirements apply to impoundments, manure solids separators, grading and drainage, flow metering and other aspects of a dairy that require engineering or surveying. Department's Final Proposed Rule, 20.6.2.3217.

117. Subsection A of Section 3217 states that all plans, specifications and other work products requiring the practice of engineering shall be signed and sealed by an engineer registered in New Mexico pursuant to the New Mexico Engineering and Surveying Practice Act, §§ 61-23-1 through 61-23-32 NMSA 1978. This section is in conformance with existing statutory requirements and should be adopted. Written Testimony of Charles Thomas, NMED NOI Attachment 8, p. 25.

118. Subsection B of Section 3217 states that all surveys of impoundments, monitoring well locations and elevations, and other work product requiring the practice of surveying shall be signed and sealed by a professional surveyor registered in New Mexico pursuant to the New Mexico Engineering and Surveying Practice Act, §§ 61-23-1 through 61-23-32 NMSA 1978. This section is in conformance with existing statutory requirements. Written Testimony of Charles Thomas, NMED NOI Attachment 8, Pp. 25-26.

119. Paragraphs (1) and (2) of Subsection C of Section 3217 require that an applicant or permittee proposing or required to construct or improve an impoundment must submit construction plans and specifications, including construction quality assurance and quality control plans (QA/QC), to the Department. Department's Final Proposed Rule, 20.6.2.3217.C. Designing an impoundment, whether for the construction of a new impoundment or for the improvement of an existing impoundment constitutes the practice of engineering. Therefore, it is necessary that detailed and complete construction plans and specifications and supporting design calculations bearing the seal and signature of a licensed New Mexico professional engineer be developed for the construction of these structures. Written Testimony of Charles Thomas, NMED NOI Attachment 8, Pp. 25-26. Paragraph (1) also requires that the applicant document

compliance with the requirements of the dam safety bureau of the state engineer. Paragraph (2) makes clear that the construction must conform to the submitted plans and specifications.

120. Subparagraphs (a) and (b) of Paragraph (1) of Subsection C of Section 3217 set the deadlines for the submission of plans and specifications for a new wastewater impoundment. Subparagraph (a), which requires that the plans and specifications be submitted with the application, applies when an applicant or permittee proposes on his or her own initiative to construct or improve a particular feature at a dairy facility, in this instance an impoundment. It is necessary to require the submission of the plans and specifications with the application such that the Department will have the opportunity to review them, request additional information of the applicant (if necessary), and incorporate the details of the feature in a draft discharge permit. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 28-29.

121. Regarding Subparagraph (b), which requires the submission of the plans and specifications within 90 days after the effective date of the discharge permit, the Department acknowledges that an applicant or permittee may not always recognize the necessity for the design and construction of a new feature or for the design and improvement of an existing feature that is required by the dairy rule until the applicant or permittee undergoes the permitting process. Rather than cite the applicant or permittee for a violation of the dairy rule or delay the permitting process, Subparagraph (b) provides the applicant or permittee 90 days from the effective date of the discharge permit to provide the required information. This approach is necessary and efficient for the applicant/permittee, the Department and the public to minimize the delay for issuing an effective and enforceable discharge permit. (NMED Exhibit 3217-1). Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 28-29.

122. In its initial proposed rule, at 20.6.2.3217.C(2)(a), the Department included a requirement that the person responsible for QA/QC have at least three years experience in lagoon construction and lining. NMED NOI Attachment 8, p. 29. This requirement was deleted in the Department's June 9 version and in the Department's Final Proposed Rule.

123. Dairy wastes contain high levels of water contaminants and discharges at dairy facilities, especially discharges related to impoundments, and have caused ground water contamination in excess of WQCC standards discharges at approximately 57% of the dairies in New Mexico. As a result it is necessary for the design and construction of impoundments used for the storage of these wastes be submitted to the Department for review to ensure that the systems are capable of containing wastewater and stormwater consistent with the requirements of the dairy rule such that ground water quality is protected. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 27-28.

124. The requirement for CQA/CQC plans, or their equivalent, are commonplace among regulations for construction of landfills, including in the Environmental Improvement Board's Solid Waste Rules, Sections 20.9.3.21 and 20.9.4.14 NMAC (NMED Exhibit 3217-4), and as requirements for construction of roads for various states' departments of transportation. EPA has also published a technical guidance document, Construction Quality Management for Remedial Action and Remedial Design Waste Contamination Systems (EPA/540/R-92/073, October 1992), for use in the design and construction of hazardous and non-hazardous waste landfills and surface impoundments (NMED Exhibit 3217-2). Nebraska's Department of Environmental Quality has even developed a guidance document, Construction Quality Assurance for CAFO Livestock Waste Control Facility (05-029, February 2005), for CQA plans required to be included with applications for construction approval (NMED Exhibit 3217-3).

Concepts from these documents were used to develop the rules found in this Paragraph. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 30.

125. Paragraph (3) of Subsection C of Section 3217 requires that an applicant or permittee proposing or required to improve an impoundment must submit a plan for managing wastewater or stormwater during the improvement process. It is necessary to submit this plan to ensure that wastewater or stormwater is properly managed to minimize impacts to ground water during this period of improvements. It is also necessary that this plan be submitted with the design plans and specifications to allow the Department the opportunity to evaluate the plan and issue temporary permission to discharge, if necessary. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 30-31.

126. Paragraph (4) of Subsection C of Section 3217 applies to an applicant or permittee proposing or required to construct a new manure solids separator as a component of a newly designed wastewater storage or disposal system. The applicant or permittee shall submit construction plan and specifications for the system and separator. Department's Final Proposed Rule, 20.6.2.3217.C(4).

127. Designing a manure solids separator constitutes the practice of engineering. Therefore, it is necessary that detailed and complete construction plans and specifications and supporting design calculations bearing the seal and signature of a licensed New Mexico professional engineer be developed for the construction of these structures. Written Testimony of Charles Thomas, NMED NOI Attachment 8, p. 31.

128. Manure solids separation of wastewater is necessary to minimize the amount of solids entering impoundments to maintain the required free-liquid capacity of a wastewater impoundment (see Paragraph (1) of Subsection D of Section 20.6.2.3217). Therefore, the plans

and specifications for a new wastewater impoundment need to include the plans and specifications for a manure solids separator. In addition, the cost of developing plans and specifications for a new separator as a component of a newly designed wastewater system are negligible compared to the cost of the plans and specifications for the entire wastewater system. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 31.

129. Subparagraphs (a) and (b) of Paragraph (4) of Subsection C of Section 3217 set the deadlines for the submission of plans and specifications for a new wastewater impoundment with a new manure solids separator. Subparagraph (a), which requires that the plans and specifications be submitted with the application, applies when an applicant or permittee proposes on his or her own initiative to construct or improve a particular feature at a dairy facility. It is necessary to require the submission of the plans and specifications with the application such that the Department will have the opportunity to review them, request additional information of the applicant (if necessary), and incorporate the details of the feature in a draft discharge permit. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 31.

130. Regarding Subparagraph (b), which requires the submission of the plans and specifications within 90 days after the effective date of the discharge permit, the Department acknowledges that an applicant or permittee may not always recognize the necessity for the design and construction of a new feature or for the design and improvement of an existing feature that is required by the dairy rule until the applicant or permittee undergoes the permitting process. Rather than cite the applicant or permittee for a violation of the dairy rule or delay the permitting process, Subparagraph (b) provides the applicant or permittee 90 days from the effective date of the discharge permit to provide the required information. This approach is necessary and efficient for the applicant/permittee, the Department and the public to minimize

the delay for issuing an effective and enforceable discharge permit. (NMED Exhibit 3217-1). Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 31.

131. Paragraph (5) of Subsection C of Section 3217 applies to an applicant or permittee proposing or required to construct a new manure solids separator as a component of an existing wastewater storage or disposal system. This requirement is necessary for the same reasons that plans and specifications are necessary for new wastewater systems under Paragraph 4. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 32.

132. Paragraph (6) of Subsection C of Section 3217 requires the applicant for a new, renewed or modified permit to submit a grading and drainage plan with the application. In its June 9 version, in response to concerns raised by DIGCE, the Department revised this paragraph to clarify and simplify what is required to be included with the grading and drainage report and plan. Tr. 5, p. 981.

133. The grading and drainage submittal section (Paragraph (6) of Subsection C of Section 3217) details the information necessary to adequately define the potential effects of storm events. The purpose of this requirement is to define how much stormwater is expected to impact the proposed permit area, where the storm flows would impact, and the methodology for control and containment of any storm flows. Written Testimony of Charles Thomas, NMED NOI Attachment 8, p. 33.

134. Paragraph (7) of Subsection C of Section 3217 requires an applicant who is proposing or required to install a flow meter to submit documentation to support the selection of the proposed device along with construction plans and specifications detailing the installation or construction of the device. Flow meters are necessary for accurate flow measurement of

wastewater generated at a dairy facility. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 33.

135. Subparagraphs (a) and (b) of Paragraph (7) of Subsection C of Section 3217 set the deadlines for the submission of the information. Subparagraph (a), which requires that the plans and specifications be submitted with the application, applies when an applicant or permittee proposes on his or her own initiative to install or construct the flow meters. It is necessary to require the submission of the plans and specifications with the application such that the Department will have the opportunity to review them, request additional information of the applicant (if necessary), and incorporate the details of the feature in a draft discharge permit. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 33-34. In Subparagraph (b), which requires the submission of the plans and specifications within 90 days after the effective date of the discharge permit, the Department acknowledges that an applicant or permittee may not always recognize the necessity for the installation or construction of the flow meter. Rather than cite the applicant or permittee for a violation of the dairy rule or delay the permitting process, Subparagraph (b) provides the applicant or permittee 90 days from the effective date of the discharge permit to provide the required information. This approach is necessary and efficient for the applicant/permittee, the Department and the public to minimize the delay for issuing an effective and enforceable discharge permit. NMED Exhibit 3217-1; Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 33-34.

136. Subsection D of Section 3217 sets forth engineering design requirements for impoundments, stormwater conveyance channels, and impoundment liners. Department's Final Proposed Rule, 20.6.2.2317.D. The Department's initial version of this section was changed substantially between its March 8 and its June 9 version, based on concerns expressed by DIGCE

and Commissioner Jones. In particular, the June 9 version and the Final Proposed Rule clarify that the Department does not determine the capacity requirements for stormwater impoundments, and made changes to the provisions related to liner construction to meet the concerns of DIGCE and Commissioner Jones. Tr. 5, Pp. 981-982.

137. Paragraph (1) of Subsection D of Section 3217 states that wastewater impoundments must meet the capacity design requirements set forth in the rule. This paragraph also explicitly states that the dairy rule does not specify capacity requirements for the containment of stormwater. It also states that the dairy rule does not exempt a dairy facility from applicable local, state or federal laws, including the federal CAFO laws. This paragraph was added in the Department's June 9 version in response to concerns raised by DIGCE, and is intended to clarify that the Department does not regulate stormwater impoundment capacities. Tr. 5, Pp. 981-982.

138. Paragraph (2) of Subsection D of Section 3217 sets forth the capacity requirements for wastewater and combination wastewater/stormwater impoundments. 20.6.2.3217.D(2). Subparagraph (a) of paragraph (2) relates to wastewater impoundment capacity requirements for dairy facilities that discharge to a land application area. In its Final Proposed Rule, the Department added the word "wastewater" so that it is clear this Paragraph applies to volumes and capacities for wastewater and combination wastewater/stormwater impoundments, but not impoundments only used for stormwater. Tr. 5, Pp. 981-982. Item (i) of Subparagraph (a) states that wastewater impoundments must be able to store at least 60 days of wastewater discharge. This provision is necessary such that an impoundment for the storage of wastewater is designed with sufficient capacity to store wastewater for those periods of time when it is not appropriate to land apply wastewater, such as when the ground is saturated or in

the winter when crops are dormant or the ground is frozen. The 60-day storage capacity figure was arrived at through previous negotiations between the dairy industry and the Department during the Department's development of the NMED Policy for Storage and Disposal of Dairy Wastes as they relate to Ground Water, December 13, 1996 (NMED Exhibit 3217-5). It is also necessary that each impoundment be designed to maintain two feet of freeboard above the maximum storage capacity. The freeboard requirement accommodates fluctuating water levels due to wave action in order prevent overtopping of the berms. Overtopping of the berms could threaten the structural integrity of the berms and potentially result in a catastrophic release from the impoundment. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 34. The phrase "or wastewater/stormwater" was deleted from item (i) in the Department's Final proposed rule because this item relates only to wastewater impoundments, and this change will make this consistent with the Department's position that it will not be regulating the capacity of stormwater impoundments. Tr. 5, Pp. 981-982. These changes are reasonable and should be accepted.

139. Item (ii) of Subparagraph (a) of Paragraph (2) of Subsection D of Section 3217 relates to combination wastewater/ stormwater impoundment capacity requirements for dairy facilities that discharge to a land application area. While the rule designates the minimum capacity of such impoundments for wastewater storage, it does not designate the minimum capacity for stormwater storage. This provision is necessary so that a combination impoundment for both the storage of wastewater and the collection of stormwater be designed with sufficient capacity to both contain the wastewater, as discussed under Subparagraph (i) above, and stormwater under the EPA CAFO requirements for containment of stormwater runoff as discussed in greater detail in the testimony of William C. Olson associated with Paragraph (2) of

Subsection D of 20.6.2.3217 NMAC. In addition, it is also necessary that each impoundment be designed to maintain 2 feet of freeboard above the maximum storage capacity. The freeboard requirement accommodates fluctuating water levels due to wave action in order prevent overtopping of the berms. Overtopping of the berms could threaten the structural integrity of the berms and potentially result in a catastrophic release from the impoundment. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 35. In the Department's Final Proposed Rule, it replaced the term "wastewater impoundment" with the term "combination wastewater/stormwater" impoundment because this item relates to combination wastewater/stormwater impoundments, and will make this consistent with the Department's position that it will not be regulating the capacity of stormwater impoundments. Tr. 5, Pp. 981-982. These changes are reasonable to achieve consistency and should be accepted.

140. Subparagraph (b) of Paragraph (2) of Subsection D of Section 3217 relates to capacity requirements for dairy facilities discharging to an evaporative wastewater or combination wastewater/ stormwater disposal system. Item (i) of the paragraph provides that the impoundment must be designed to dispose all of the wastewater discharge while maintaining 2 feet of freeboard. Item (ii) states that a combination impoundment must provide capacity for disposal by evaporation of both the wastewater and stormwater. These provisions are necessary so that an impoundment intended to dispose of wastewater or a combination of wastewater and stormwater by evaporation is designed with sufficient capacity to achieve its purpose. In addition, it is also necessary that each impoundment be designed to maintain two feet of freeboard above the maximum storage capacity. The freeboard requirement accommodates fluctuating water levels due to wave action in order prevent overtopping of the berms. Overtopping of the berms could threaten the structural integrity of the berms and potentially

result in a catastrophic release from the impoundment. Written Testimony of William C. Olson, NMED NOI Attachment 8, p.35. In its Final Proposed Rule the Department added the phrase "or combination wastewater/stormwater" because this subparagraph relates to wastewater and combination wastewater/stormwater impoundments, and will make this consistent with the Department's position that it will not be regulating the capacity of stormwater impoundments. Tr. 5, Pp. 981-982. These changes are reasonable to achieve consistency and should be accepted.

141. Subparagraph (c) of Paragraph (2) of Subsection D of Section 3217 states that an impoundment designed and used for solids settling shall not be used to satisfy the impoundment capacity requirements of this section. Some dairy impoundments are designed and/or used solely for the purpose of capturing the manure solids in wastewater such that the liquid component of wastewater passes on to a wastewater or combination wastewater/stormwater impoundment. While impoundments designed and/or used for solids settling accumulate solids, wastewater or combination wastewater/stormwater impoundments are specifically designed for the purpose of storing wastewater or wastewater/stormwater prior to land application, or disposing of it by evaporation. The objective of solids separation prior to wastewater discharge to an impoundment is to minimize solids input to the impoundments, thus preserving free-liquid capacity in the impoundment for storage of wastewater prior to land application, or for disposal by evaporation. This provision, which prohibits the use of solids settling impoundments to satisfy the capacity requirements of this subsection, is necessary to ensure that a dairy facility has the collective capacity in the wastewater or combination wastewater/stormwater impoundments to achieve the appropriate storage or disposal of wastewater or wastewater/stormwater. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 35-36.

142. Paragraph (3) of Subsection D of Section 3217 states that stormwater conveyance channels shall be designed in accordance with the grading and drainage report and plan. This paragraph is necessary to ensure adequate drainage of stormwater runoff to the stormwater impoundment with the intent to minimize ponding and infiltration of stormwater; thus minimizing the potential impact to ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 37.

143. Paragraph (4) of Subsection D of Section 3217 sets forth the design and construction requirements for impoundments that are required to be synthetically lined. The purpose of these requirements is to set forth the basic design criteria for any impoundment. The criteria are necessary to address proper subgrade preparation, long term viability, long term stability, and ease of maintenance. The requirements are derived from the NMED Construction Programs Bureau "Recommended Standards for Wastewater Facilities", 2003 Edition (NMED Exhibit 3217-10); New Mexico Standard Specifications for Public Works Construction, 2006 Edition (NMED Exhibit 3217-12); and specifications developed by the Geosynthetic Institute (NMED Exhibit 3217-14). Written Testimony of Charles Thomas, NMED NOI Attachment 8, Pp. 37-38.

144. Paragraph (5) of Subsection D of Section 3217 sets forth specific criteria for synthetic liners. The purpose of these requirements is to identify the construction requirements specific to synthetic liners that are necessary to promote the long-term viability and effectiveness of the constructed impoundment. The requirements are derived from the USDA National Resource Conservation Service (NRCS) National Engineering Handbook, Part 642 (NMED Exhibit 3217-13) and specifications developed by the Geo-Synthetic Institute (NMED Exhibit 3217-14). Written Testimony of Charles Thomas, NMED NOI Attachment 8, Pp. 38-39.

145. Paragraph (6) of Subsection D of Section 3217 sets forth the requirement that an applicant proposing or required to construct a new or to improve an existing wastewater or combination wastewater/stormwater impoundment must line the impoundment with a synthetic liner. Under Subparagraph (a) where the depth to ground water is 50 feet or less, then the dairy facility must use a double synthetic liner. Under Subparagraph (b) where the depth to ground water is more than 50 feet, the dairy facility may use a single synthetic liner. This paragraph also requires that the synthetic liner be 60-mil HDPE or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids to be impounded, tensile strength and tear and puncture resistance. Department's Final Proposed Rule, 20.6.2.3217.D(6).

146. Synthetic liners are necessary for new dairy facilities and for impoundments that are being expanded or repaired because these impoundments contain high strength wastewater and stormwater, and have a high potential for contamination of ground water. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 29-30. Past practices, such as earthen-lined lagoons, have resulted in a majority of New Mexico dairies contaminating ground water, with most of that contamination coming from impoundments. See Written Testimony of Sarah McGrath, NMED NOI Attachment 2, p. 4; Tr. 5, p. 1087. Because of this, the Department has been requiring synthetic liners since 2002 (Written Testimony of Sarah McGrath, NMED NOI Attachment 2, p. 4) and most dairies in New Mexico now have synthetically lined impoundments. Tr. 11, p. 2279.

147. Synthetic liners are the best available scientific technology for the construction of dairy impoundments. Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 41. They are the most reliable and environmentally protective lining material currently available.

NMED Exhibit 3217-10, Pp. 130-154. Synthetic liners are essentially impermeable – in fact, they are about a million times less permeable than clay liners. Testimony of William C. Olson, Tr. 5, Pp. 1087-1088, p. 1420. Of the 69 dairies that have contamination from impoundments, only two were synthetically lined. Tr. 7, p. 1419; Tr. 4, p. 906. While it is not known why those liners failed (Id.), these failures underscore the importance of requiring double liners in shallow ground water settings.

148. Synthetic liners are resistant to ultraviolet light. NMED Exhibit 3217-13, p. 9. Compared to a 40-mil liner thickness (as is proposed by DIGCE), 60-mil liners have superior puncture resistance, tear resistance, and tensile strength. Written Testimony of Charles Thomas, NMED Rebuttal Attachment 3, p. 41; see also Tr. 5, p. 1054; NMED Exhibit 3217-14; DIGCE Exhibit 8, p. 40. 60-mil liners are more resistant to hail damage. Tr. 5, p. 1066. While a liner thickness of 80-mil offers even greater protection, 60-mil liners are more flexible and easier to work with, in addition to being less costly. Tr. 8, p. 1652; Tr. 5, p. 1063; NMED Exhibit 3217-13. 60-mil liners are readily available (Tr. 5, p. 1063) and are the most commonly used liner thickness for wastewater containment. Tr. 5, p. 1054.

149. DIGCE acknowledges that synthetic liners provide superior protection over soil or clay liners, as their proposal would require synthetic liners where depth to ground water is less than or equal to 100 feet. See DIGCE Exhibit 8, Pp. 39-40. DIGCE agrees that there is no material that is equivalent to an HDPE liner in terms of permeability. Tr. 11, p. 2354.

150. Ground water contamination at some dairy facilities due to seepage from impoundments has been extensive with plumes of contaminated ground water over one mile in length and the loss of use of thousands of acre feet of ground water due to contamination. Seepage from some of these impoundments has also caused contamination of drinking water

wells and the potential for public health impacts. Remediating contaminated ground water is complicated and costly. The first stage of abatement of ground water pollution is to define the plume of contamination. This stage alone can be costly. For example, as discussed in the direct testimony of Bart Faris in NMED NOI Attachment 3, definition of the plume of contaminated ground water at the Cheyenne 1 and 3 Dairy has required, to date, the installation of 34 monitoring wells. This dairy facility, as discussed by Mr. Faris in his testimony, has also impaired four domestic wells and is providing bottled water for consumption to the people living on three of those properties. There are significant costs associated with all of these activities. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 40.

151. There is a high potential for impoundments with high strength wastewater, such as that found in dairy impoundments, to cause ground water contamination in shallow ground water settings. Currently, 29 dairies located in areas where the depth to ground water is less than or equal to 50 feet have documented nitrate-nitrogen ground water contamination in excess of WQCC ground water standards (NMED Exhibit 3217-8). Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 40.

152. A double lined impoundment system is necessary where depth to ground water is less than 50 feet to provide a higher level of ground water protection commensurate with the high risk that a dairy impoundment may cause ground water contamination in shallow ground water settings. The installation of a double lined impoundment with a leak detection system in these settings provides for a secondary barrier for containment of wastes. The primary liner has the potential to leak; however, the removal of effluent and/or leachate minimizes the head on the secondary liner and the possibility of leakage through the secondary liner. This provides a mechanism for continuous evaluation of the effectiveness of the primary liner, and the

opportunity for early detection of leaks in the primary liner and expedient repair of the liner. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 40.

153. The detailed requirements of 20.6.2.3217(D)(6)(a) regarding the components and construction of the leak detection system were adapted from a U.S. EPA technical manual that describes the construction of liners and leachate collection systems (NMED Exhibit 3217-9). Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 40.

154. Paragraph (7) of Subsection D sets forth the requirement that an applicant proposing or required to improve an existing stormwater impoundment must line the impoundment with a synthetic liner that is at least 60-mil HDPE or equivalent. The synthetic lining requirement is limited to circumstances where improvements are required because ground water contamination results from an existing impoundment pursuant to the contingency in Subsection B of 20.6.2.3227. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 41.

155. This provision is necessary to provide, in certain circumstances, requirements for stormwater impoundment lining that are consistent with the lining requirements for wastewater impoundments. Stormwater quality is similar to wastewater quality and contains potentially high concentrations of total Kjeldahl nitrogen (TKN), chloride, and total dissolved solids (TDS) (NMED Exhibit 3217-16). Stormwater concentrations of TKN have been found in excess of 440 mg/L similar those found to concentrations found in dairy wastewater. Additionally, data available to the Department has shown instances where monitoring wells located near stormwater impoundments have detected nitrate-nitrogen contamination of ground water in excess of Commission standards as shown in exhibits for the testimony of Sarah McGrath (Table 2 of Exhibit SKM-1 and Table 2 of Exhibit SKM-2). Due to similarities between stormwater quality and

wastewater quality, and documented ground water contamination from stormwater impoundments, this provision is necessary to provide for stormwater impoundment lining requirements that are consistent with the lining requirements for wastewater impoundments in cases where the stormwater impoundment has caused ground water contamination in excess of the Commission standards. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 41.

156. Paragraph (8) of Subsection D of Section 3217 sets forth the requirement that impoundments not be constructed where the depth to ground water is four feet or less from the floor of the impoundment. The purpose of this requirement is to ensure protection of the structural integrity of an impoundment as well as the materials used for construction of the impoundment from ground water intrusion. Ground water intrusion will negatively impact the compacted strength of the subgrade supporting the liner, which can stress the liner material and seams, and can cause uplift and bursting of the liner. The requirement is derived from "Recommended Standards for Wastewater Facilities; New Mexico Environment Department - Construction Program Bureau, 2003 edition" (NMED Exhibit 3217-10), which recommends a minimum separation of four feet between the bottom of a [wastewater] pond and the maximum ground water elevation, and "Lining of Waste Containment and Other Impoundment Facilities, EPA, 1988" (NMED Exhibit 3217-15). Written Testimony of Charles Thomas, NMED NOI Attachment 8, p. 41.

157. Paragraph (9) of Subsection D of Section 3217 prohibits wastewater impoundments from being constructed with spillways. This paragraph is necessary to specify that no spillway be included in the construction of impoundments intended to contain <u>wastewater only</u>. Spillways are intended to protect berms from failure in the event of an overtopping due to un-manageable or uncontrollable circumstances, such as a storm event that produces more

stormwater runoff than an impoundment is designed to contain. The sole purpose of a wastewater impoundment is to store and manage wastewater generated by the dairy operations including preventing the overtopping of the impoundment berms. The generation and placement of the wastes into the impoundment is under the control of the permittee. There should be no uncontrolled releases from such an impoundment, so there is no need for a spillway. Because these wastewater inputs (and outputs if also permitted to be land applied) can be controlled and managed by the permittee for an impoundment containing wastewater only, there is no reason for a spillway. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 42.

158. Section 20.6.2.3217 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3220 Operational Requirements For All Dairy Facilities.

159. Section 3220 requires notice to the Department prior to the commencement, cessation, or recommencement of wastewater discharge, or the placement, removal, or reintroduction of livestock. In particular, Subparagraph (a) of Paragraph (1) of Subsection A requires a permittee of a new dairy to provide written notice to the Department at least 90 days before the placement of any livestock at the facility, with verification within 30 days after the placement. The 90 days notice gives the Department an opportunity to work with the permittee to ensure that measures required by the dairy rule and measures that are protective of ground water are completed before livestock are placed at a facility. Once livestock are placed at a facility there is the potential to generate stormwater. This stormwater would be contained in an impoundment which may then have the potential to migrate into the subsurface and impact

ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 42-43.

160. Subparagraph (b) of Paragraph (1) of Subsection A of Section 3220 requires at least 90 days notice prior to the estimated initial wastewater discharge date at the facility. This notice gives the Department an opportunity to ensure that required measures and measures that are protective of ground water are completed before the commencement of wastewater discharge at a dairy facility. Once wastewater discharge begins there is a potential for water contaminants in the wastewater to migrate into the subsurface and impact ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 43.

161. Paragraph (2) of Subsection A of Section 3220 applies to existing dairies, and requires notice 30 days after the removal of all livestock from the facility, or the date of reintroduction of any livestock if all were previously removed. It also requires notice 30 days after cessation of wastewater discharges and 90 days notice prior to recommencement of any such discharges. Notice of these activities is necessary to give the Department the ability to track the operational status of the dairy facility. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 43.

162. Subsection B of 3220 requires that impoundments at dairy facilities meet the liner, design and construction requirements of Subsection D of 20.2.5.3217 (synthetic liner requirements) unless sampling shows that there is no ground water contamination resulting from the impoundment. An existing dairy can continue to use a non-synthetically lined impoundment if there is no ground water contamination from the impoundment. The initial version of this subsection, contained in NMED NOI Attachment 8, was reworded in NMED's Rebuttal Attachment 2 and the Department's Final Proposed Rule.

163. Subsection B of 3220 is necessary to ensure that impoundments meet liner, design and construction requirements of the dairy rule. This provision also creates an exemption for the continued use of an existing impoundment that does not meet the liner, design and construction requirements, except for the capacity requirements, and of the dairy rule as long as ground water monitoring shows that applicable WQCC ground water standards are not exceeded downgradient of the impoundment. This subsection addresses the circumstances under which continued use of an existing impoundment may continue. This subsection allows an existing impoundment to remain in use under a permit indefinitely provided ground water monitoring demonstrates that the impoundment is not causing ground water standards to be exceeded, or is not causing an exceedance of the constituent concentration observed in the upgradient monitoring well if the upgradient concentration exceeds the ground water standard. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 44. The subsection was reworded in the Department's rebuttal filing for clarity and to identify the specific ground water data to be used (i.e., date of sample collection) for the comparison of upgradient monitoring well and impoundment monitoring well constituent concentrations. Further language was proposed in the Department's rebuttal filing to clarify that the contingency requirements of Subsection B of Section 3227 of the proposed dairy rule are invoked should an existing impoundment cause a ground water standard to be exceeded, or cause an exceedance of a constituent concentration in the upgradient monitoring well. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, Pp. 50-51.

164. Subsection C of 3220 states that if record drawings are unavailable or have not been completed for an impoundment constructed before the date the dairy rule becomes effective, the permittee must submit survey data to the Department with capacity calculations for each

impoundment. The purpose of this requirement is to document the constructed capacity of existing impoundments. For existing impoundments without record drawings, this information is necessary to assess compliance with capacity requirements found in Subsection D of 20.6.2.3217. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 44. The term "stormwater" was deleted from this subsection to be consistent with the Department's changes to Section 3217 making clear that the Department does not regulate stormwater impoundment capacities. Testimony of William C. Olson, Tr. 5, Pp. 981-982. This deletion is reasonable and should be accepted. Tr. 5, Pp. 981-982.

165. Subsection D of 3220 requires an applicant or permittee to measure the thickness of settled solids in impoundments, and sets forth the procedures that must be used for taking the measurements. Settled solids accumulate in dairy wastewater and stormwater impoundments. These settled solids occupy a portion of what would otherwise be free-liquid capacity within impoundments. It is important that the settled solids be measured properly so that the available free-liquid capacity of the impoundment can be accurately estimated for compliance with the impoundment capacity requirements set forth in Section 20.6.2.3217.D. Written Testimony of Robert George, NMED NOI Attachment 8, Pp. 44-45.

166. Many dairy impoundments have an excessive amount of solids within their impoundment (NMED Exhibit 3220-2) and thus may not have adequate storage or evaporative capacity. Inadequate impoundment capacity can have nutrient management implications for facilities that land apply wastewater or stormwater, or can lead to unauthorized discharges for facilities that dispose of wastewater or stormwater by evaporation. The Department's Final Proposed Rule requires that the free-liquid capacity of each impoundment be estimated prior to each renewal (approximately every five years) or modification of the discharge permit. By

requiring submission of the measurements and estimation of the free-liquid capacity of each impoundment with the application for a discharge permit, the Department will have the opportunity to review the information, request additional information of the applicant (if necessary), and assess compliance with the impoundment capacity requirements of the dairy rule and the discharge permit. The subsection will result in a relatively up-to-date estimation of free-liquid capacity of the impoundments by allowing the applicant a timeframe of up to one year prior to submission of an application (i.e., two years prior to the existing permit's expiration) to conduct the measurements to be submitted with the application. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 45-46.

167. With regard to the procedure for estimating the free-liquid capacity of an impoundment, the proposed procedure, though basic, will provide the information necessary to evaluate the facility's compliance with the dairy rule without undue financial burden to the facility. The Department's proposed procedure is simple and reasonable, and will obtain accurate measurements of the thickness of settled solids and therefore the free liquid capacity in an impoundment. This procedure is necessary to provide specificity for dairy facilities and consistency in conducting these assessments. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 45-46.

168. Subsection E of 3220 requires that construction of new impoundments or improvements to existing impoundments be performed in accordance with the construction and design plans submitted to the Department. Paragraphs (1) and (2) set forth the timing required for completion of impoundments. The submission of a Construction Certification Report is necessary to ensure that the installation or construction of an impoundment was completed according to the construction plans and specifications and meets the final capacity specifications

as previously submitted according to Subsection C of 20.6.2.3217 NMAC. The requirement for a Construction Certification Report was a recommendation of the dairy advisory committee. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 44.

169. Paragraph (1) of Subsection E of Section 3220 is necessary to address the timing required for completion of impoundments at new facilities. In the case of impoundments designed to contain wastewater only, construction needs to be completed prior to discharging wastewater. However, for any impoundments designed to receive stormwater, construction needs to be completed prior to placement of livestock at the facility because manure and feed contributes water contaminants to the stormwater runoff. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 47. Subparagraph (c) of paragraph (1) of Subsection E of Section 3220 has been deleted to be consistent with the Department's changes to clarify that the rule does not govern the capacity requirements of stormwater impoundments. This deletion is reasonable should be accepted. Tr. 5, Pp. 981-982.

170. Paragraph (2) of Subsection E is necessary to address the timing required for completion of new impoundments or improvements to existing impoundments at existing facilities. For existing facilities, the subsection provides a timeframe of one year, or that specified in Subsection B of 20.6.2.3227 NMAC, to complete impoundment construction or improvements. One year for completion of construction or improvements is a reasonable timeframe to complete the necessary dirt work and impoundment lining while allowing for inclement weather. The timeframe for completion does not exceed one year to minimize the potential impacts to ground water quality particularly when improvements to existing impoundments are required. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 47.

171. Subsection F of Section 3220 requires dairies to have manure solids separators. Subsection (1) requires the manure solids separator to be constructed according to the submitted construction and design plans, and requires submission of a completion confirmation. Subsection (2) sets forth a timeline for construction of new solids separators at dairies that do not currently have one. Manure solids separation of wastewater is necessary in order to minimize the collection of solids in impoundments and maintain the required free-liquid capacity of a wastewater impoundment (see Paragraph (1) of Subsection D of Section 20.6.2.3217 NMAC). Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 48.

172. Subsection G of Section 3220 requires an applicant or permittee to complete or improve the grading and drainage system in accordance with the grading and drainage report and plan submitted by the applicant. This subsection is necessary to ensure that a proper grading and drainage system has been completed to convey stormwater runoff to the appropriate impoundment. For new facilities the system must be in place before placing livestock at the facility because manure contributes water contaminants to the stormwater. For existing facilities, the Department proposes a timeframe of one year to complete required improvements to the system. One year for completion of system improvements is reasonable because improvements to the system may need up to a year to complete due to inclement weather. In addition, in most cases minor improvements, such as re-grading a conveyance channel, may be completed in a shorter amount of time. A timeframe for system improvement, not to exceed one year, is necessary to minimize the potential for impacts to ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 48.

173. Subsection H of Section 3220 requires a permittee to divert stormwater from corrals and other areas of the facility in accordance with the grading and drainage plan. This

subsection is necessary to ensure that the grading and drainage system will convey stormwater runoff to the appropriate impoundment, with the intent of minimizing ponding and infiltration of stormwater in the drainage system was into underlying soils; thus minimizing the potential for impacts to ground water. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 49.

174. Subsection I of Section 3220 requires a permittee to transfer stormwater that has been collected in an unlined impoundment to the wastewater impoundment or the distribution system for the land application area after a storm event to minimize the potential for movement to ground water. The capture and containment of stormwater runoff at dairies is regulated by the EPA CAFO program. However, once stormwater collects in an unlined impoundment, it has a constant hydraulic head that may cause these fluids to migrate into the subsurface and potentially impact ground water quality. The stormwater may contain water contaminants in excess of WQCC ground water standards (NMED Exhibit 3220-12). The longer that these wastes reside in an unlined impoundment the more likely it is that ground water will be impacted. Data shows instances where monitoring wells located near stormwater impoundments have detected nitrate-nitrogen contamination of ground water in excess of Commission standards as shown in the testimony of Sarah McGrath (Table 2 of Exhibit SKM-1 and Table 2 of Exhibit SKM-2). It is therefore important that collected stormwater be managed for the protection of ground water quality. Operational pumps are required to be maintained on-site to prevent delayed removal of stormwater from the impoundment. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 49. In its Final Proposed Rule, the Department deleted the phrase, "and to restore the free capacity required by Subsection D or 20.6.2.3217 NMAC" to be consistent with the Department's changes to Section 3217 that made clear that the Department will not be

regulating stormwater impoundment capacity under CAFO laws and regulations. This deletion is reasonable should be accepted. Tr. 5, Pp. 981-982.

175. Subsection J of Section 3220 of the Department's initial rule proposal as well as its June 9 version required the dairy to transfer stormwater from its stormwater impoundments after each storm event so as to maintain the free liquid capacity of the stormwater impoundment. This entire subsection was deleted in the Department's Final Proposed Rule to be consistent with the Department's changes to Section 3217 that made clear that the Department will not be regulating stormwater impoundment capacity under CAFO laws and regulations. This deletion is reasonable should be accepted. Tr. 5, Pp. 981-982.

176. Subsection J (renumbered) of Section 3220 in the Department's Final Proposed Rule (Flow Meter Installation) requires permittees to use flow meter systems to measure the volume of wastewater discharged at the dairy facility. It also requires that the flow meters be installed according to the submitted plans and specifications, and that installation be confirmed. Department's Final Proposed Rule, 20.6.2.3220.J.

177. The installation of flow meters is necessary for the accurate measurement of wastewater discharge generated at the facility, and wastewater and stormwater applied to the land application area in accordance with a nutrient management plan. Flow meters are widely recognized as the practical, appropriate and accurate method of measuring flow. Alternative devices or methods that do not meet the definition of "flow meter" as defined in Section 20.6.2.3202 NMAC of the dairy rule and Subsection L of 20.6.2.3220 NMAC should not be allowed because they do not provide accurate flow measurement. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 50.

178. The reason flow meters are required to be installed in accordance with plans and specifications is to achieve accurate flow measurement. It is necessary to require labeling of flow meters so that the permittee can easily identify the appropriate meter while recording measurements and conducting inspections, and the Department can easily identify the appropriate meter during compliance inspections. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 50.

179. The purpose of confirming installation of the meter is to provide the Department with specific details about the meter and the field calibration results. Paragraph (1) is necessary to require new facilities to install and submit confirmation of the flow meters prior to discharging at the facility so that all wastewater discharges, and wastewater and stormwater applications, can be accurately measured. Paragraph (2) is necessary to require that existing facilities install and submit confirmation of the flow meters within 150 days of the effective date of the discharge permit so that all wastewater discharges, and wastewater and stormwater applications, can be accurately measured. This timeframe for the submission of this information proposed by the Department allows the permittee a reasonable period of time to employ an engineer to evaluate the facility and determine the necessary type of flow meter, create and submit the plans and specifications, and order and install the equipment. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 51.

180. Subsection K of Section 3220 sets forth the flow meter methods that must be used by the dairy facility. Subsection (1) requires a closed-pipe velocity sensing totalizing flow meter on pressurized lines. Subsection (2) requires an open-channel primary flow measuring device with head sensing and totalizing mechanisms on gravity flow situations. These devices are widely employed in the domestic wastewater treatment, water supply and irrigation industries

and the practice of flow measurement is well developed and understood. Written Testimony of Robert George, NMED NOI Attachment 8, p. 51.

181. DIGCE Exhibit 71 is a research article discussing flow meters in dairy operations. The article states that "All the tube magmeters did an excellent job of measuring manure-pond discharges. They were very accurate, consistently within 5% accuracy across a wide range of flow rates, and were trouble free in operation." DIGCE Exhibit 71, p. 95. It also concluded that flow meter costs can be quickly justified as part of an improved manure nutrient management system. DIGCE Exhibit 71, p. 96.

182. Level gauges or "staff gauges" are not a practical way to measure discharge volumes because 1) accurately calculating the volume pumped from an impoundment can be difficult; 2) inflow that enters the lagoon during the pumping period is not accounted for, 3) if settled solids occupy a portion of the volume removed during pumping, a negative error is introduced, and 4) unlike totalizing meters and data loggers, no record, outside of the record created by the permittee, exists to verify the flow measurements. NMED Exhibit 3220-5, Pp. 2-3.

183. Subsection L of Section 3220 requires an applicant to identify the location of flow meters that are installed or proposed to be installed. It is necessary to identify existing and proposed flow meter locations in the application for a discharge permit so that the Department can determine, prior to issuing a draft discharge permit, if the flow meter locations are appropriate to achieve compliance with the dairy rule. Additionally, identification of the flow meters on a site map allows the Department to easily locate the meters during compliance inspections. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 51-52.

184. Subsection M of 3220 requires an applicant with an existing flow meter to document that it is installed and calibrated consistently with the dairy rule. This subsection is necessary to alleviate unnecessary financial burden on a dairy facility by authorizing the use of existing flow meters that achieve compliance with the flow metering requirements in the dairy rule, but were installed prior to the effective date of the dairy rule. The Department proposes to require that specific documentation be submitted so that the existing flow meters can be evaluated for compliance with flow of metering requirements in the dairy rule, and authorized for use (if acceptable) in a discharge permit. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 52.

185. Subsection N of 3220 requires flow meters to be installed to measure the volume of wastewater discharged from all wastewater sources to the impoundments. There is a potential for movement of wastewater from an impoundment directly or indirectly into ground water. Therefore, the placement of wastewater generated at a dairy facility into an impoundment falls under the authority of Section 20.6.2.3104 NMAC and a discharge permit is required. Under a discharge permit the volume of wastewater discharged at a dairy facility to an impoundment(s) using a flow meter is necessary because item (i) of Subparagraph (c) of Paragraph (3) of Subsection C of 20.6.2.3109 NMAC requires "adequate flow monitoring so that the amount being discharged onto or below the surface of the ground can be determined." The only way this requirement can be effectively and accurately satisfied is through the direct measurement of the volume of wastewater discharged from all wastewater sources to the impoundment(s). Direct and accurate measurement of flow can only be achieved by a flow meter installed on the wastewater line from all wastewater sources to the impoundment(s). Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 52-53.

186. Accurate measurement of wastewater discharges is also necessary because the maximum daily discharge volume dictates the required storage capacity of wastewater in impoundments (see Paragraph 1 of Subsection D of 20.6.2.3217 NMAC), and influences the development of an Nutrient Management Plan ("NMP") for the land application. Direct and accurate measurement of wastewater discharged from all sources by use of flow meters allows the Department to assess a facility's compliance with the permitted maximum daily discharge volume, and subsequently compliance with the impoundment capacity and nutrient management requirements of the discharge permit and the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 52-53.

187. Subsection O of Section 3220 sets forth requirements that dairy facilities perform daily visual inspections of their flow measurement devices. A visual inspection consists of observing the device while operational, looking for any abnormal conditions and observing the instantaneous flow readout (if so equipped) and/or the totalizer reading. For open channel devices, cleaning (wash down), ensuring sediment is not accumulating in stilling wells and removal of foreign debris are typical duties. For closed-pipe devices, visual inspection of the device and periodic cleaning of any sensors that contact the measured liquid are typical. Some close-pipe applications demand removal of the meter to clear foreign debris when it becomes trapped in the meter itself. Written Testimony of Robert George, NMED NOI Attachment 8, p. 53. To be consistent with a change to Section 3224 C, to allow weekly readings instead of daily readings, the Department has changed the requirement for a daily inspection to a weekly inspection. See Tr. 5, p. 985. This change is reasonable and should be accepted.

188. Paragraph (1) of Subsection O sets forth the requirement that when a flow meter is repaired, permittees are required to submit a report to the Department with the next quarterly

monitoring report that details the malfunction that occurred, the method of repair and a calibration report. Understanding the details of the malfunction and the method of repair will allow the Department to consider the cause of the failure to meter flow during the malfunction and the permittee's attempt to correct the situation when considering if enforcement actions are appropriate. Written Testimony of Robert George, NMED NOI Attachment 8, p. 54. Paragraph (2) of Subsection O states that when a flow meter is replaced, permittees are required to submit plans and specifications for the replacement device and a flow meter calibration report. The requirement for plans and specifications is consistent with the requirement for plans and specifications in Section 20.6.2.3217.C.7.

189. Subsection P requires a permittee to maintain impoundments to prevent conditions which could affect the structural integrity of the impoundments and liners. It requires monthly inspections, and requires reporting to the Department of any damage that threatens the structural integrity of the berm or liner. This subsection is necessary so that all impoundments and associated liners can be inspected on a monthly basis to identify conditions which could affect the structural integrity of the liner or impoundment, posing a threat to ground water quality. By conducting routine inspections problems can be corrected, which could otherwise result in impoundment failure and an unauthorized discharge. The potential for failure of an impoundment warrants immediate notification to the Department to initiate corrective actions (Subsection G of 20.6.2.3227 NMAC) necessary to prevent failure of the impoundment. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 54-55.

190. Subsection Q of Section 3220 applies to dairies that have double liners with a leak detection system. According to this subsection, impoundments utilizing a dual liner system with leak detection must be inspected and maintained in order to perform as intended. If leachate

accumulates in the leak detection system, it must be returned to the impoundment with an automatic pump to minimize head on the secondary liner. The system must be inspected monthly, and if malfunctions occur, they must be repaired within 30 days. The Department must be notified in 60 days. The intent of a dual liner system with leak detection is to provide an added level of protection by collecting leachate from the primary liner, should leakage occur, and minimizing hydraulic head on the secondary liner; thus minimizing potential leakage from the impoundment system and impacts to ground water quality from the water contaminants held within the impoundment. An automated pump activation system is the most effective way to minimize hydraulic head on the secondary liner. In order to effectively minimize leakage from the dual-lined impoundment it is necessary that the components of the leachate removal system be maintained and operable at all times. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 55.

191. Subsection R of Section 3220 requires the permittee to maintain pipes and fixtures used for wastewater or stormwater to prevent the unauthorized discharge of contaminated water. It requires weekly inspections and repairs of leaks within 72 hours of discovery. It also requires notification to the Department of the leak and corrective action pursuant to Subsection I of 20.6.2.3227. This cross-reference was corrected from Section 20.6.2.1203. The inspection of these systems on a periodic basis is necessary to allow for the early detection of leaks and spills, reduce the likelihood of contamination, reduce permittee cleanup costs from leaks and spills, and minimize the potential for long term leaks and spills that could cause ground water contamination. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 55-56.

192. Subsection S of Section 3220 requires the permittee to manage the solids captured by a manure solids separator in a way that minimizes the generation and infiltration of leachate.

Manure solids removed from the wastewater stream by a separator system have a considerably high moisture content compared to manure collected in the corrals and can generate leachate (NMED Exhibit 3220-13). This requirement is important because of the high concentration of nitrogen found in leachate from these solids which, if it migrates into the subsurface, has the potential to impact ground water quality. Therefore, it is necessary that leachate from manure solids be collected and contained on an impervious surface prior to land application or disposal as an appropriate practice for the prevention of pollution. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 56.

193. Subsection T of Section 3220 states that a permittee must remove manure solids and composted material from the dairy facility unless land application of the materials is authorized by the discharge permit. The storage of dry manure solids (e.g., solids accumulated in or stored from corrals) and the management and storage of compost materials should not on their own generate leachate; however, contact with stormwater creates the potential for the generation of leachate that is high in nitrogen. Poor management of manure solids and compost that creates leachate and/or promotes ponding creates the potential for impacts to ground water quality. This requirement is necessary to minimize the potential for leachate to migrate into the subsurface and potentially impact ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 56.

194. Subsection U of Section 3220 states that a permittee must minimize the generation and infiltration of leachate from silage storage areas and prevent ponding within the silage storage areas. This subsection is necessary because nitrogen found in silage may be leached due to the high moisture content of the silage, the ensiling process itself, or mismanagement of the silage storage area. Ensiling a crop with a moisture content greater than

the optimal necessary for the fermentation process will result in seepage losses (NMED Exhibits 3220-6, 3220-6A, and 3220-6B), containing lost nutrients and possibly nitrate. Leachate generated from silage storage (or the ensiling process) can be high in nitrogen (NMED Exhibit 3220-7). It is necessary to collect and contain leachate from silage on an impervious surface to minimize the potential for leachate to migrate into the subsurface and potentially impact ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 56-57.

195. Subsection V of Section 3220 states that an applicant or permittee must submit a scaled map of the dairy facility to the Department with its application for a permit, renewal or modification, and sets forth the requirements for the map. A scaled map is necessary to provide an accurate visual representation of the components utilized to transfer, manage, and treat or dispose of wastewater discharges and stormwater runoff, as well as the locations of monitoring devices. A scaled map aids in the permit development and allows inspections of the facility by Department staff to be more effective and complete. A scaled map is also useful when conducting monitoring activities by providing accurate locations and identification of monitoring devices such that the permittee and the Department can be consistent in the comparison of monitoring data. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 57-58.

196. Subsection W of Section 3220 requires updates of the facility map within 90 days of the additions or changes. Updates to the scaled map are necessary to provide an accurate visual representation of the components utilized to transfer, manage, and treat or dispose of wastewater discharges and stormwater runoff, as well as the locations of monitoring devices. This is important for the reasons discussed in Subsection V above. These updates need to be made in a timely manner. The Department's proposed 90 day timeframe for submission of these updates does not pose an undue burden on a permittee for submission of this information.

Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 58. The Department's Final Proposed Rule also corrects cross-references to be consistent with its relettering. These changes should be accepted.

197. Subsection X of Section 3220 governs disposal of animal mortalities that may be legally disposed of at a dairy facility. It requires that 1) only mortalities originating at the dairy facility may be disposed of at the dairy facility; 2) mortalities shall not be stored or buried within 200 feet (measured as horizontal map distance) from private or public wells, or any watercourse; 3) mortalities shall not be stored or buried within 100 feet (measured as horizontal map distance) from the 100-year flood zone of any watercourse, as defined by the most recent Federal Emergency Management Administration ("FEMA") map; 4) stormwater run-on to disposal areas shall be prevented by use of berms or other physical barriers; and 5) mortalities disposed of by burial shall be placed in a pit(s) where the vertical distance between the seasonal high ground water level and the floor of the pit(s) is greater than 30 feet as documented through the most recent ground water data obtained from an on-site test boring(s) or monitoring well(s). In its Final Proposed Rule, the Department has added the words "that may be legally disposed of" to the rule, to make clear that the permittee has the obligation to make sure that any mortalities that may not be legally buried at the facility due to infectious diseases or other reasons are not buried there. Tr. 7, p. 1523. This change is reasonable and should be accepted. The purpose of the requirements in this subsection are to minimize the potential for impacts to ground water quality. Several states have similar requirements for facilities intending to bury or compost animal mortalities (NMED Exhibit 3220-8). It is necessary to impose these requirements to ensure that animal mortalities are not disposed of in areas that have a higher potential for impacts on water wells and surface water systems. It is also necessary to divert stormwater run-on from disposal

areas as a reasonable method to prevent water stormwater from accumulating over these areas and minimizing the migration of water contaminants from these areas into the subsurface and potentially impacting ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 59.

198. Subsection Y of Section 3220 sets forth the methods by which an applicant or permittee without a monitoring well may evaluate ground water depth. The Department's initial version of this subsection (Subsection Z) required the applicant to conduct a test boring to ground water. In its June 9 version, in an attempt to reduce costs to dairies for conducting test borings, the Department modified this subsection to provide that an applicant without a monitoring well may establish that the depth to ground water is greater than 50 feet by using well record information from the state engineers office to show that all wells within one mile of the facility indicate a depth of greater than 100 feet. If any wells within a mile of the facility indicate that the depth to ground water is less than 100 feet, the applicant must conduct a test boring to a depth of 75 feet, to establish whether the ground water depth is greater than 50 feet from the bottom of an impoundment. Tr. 5, Pp. 983, 1125. It also requires that lithologic logs from the test boring be provided to the Department, and that the borehole be abandoned and grouted with cement, bentonite or other material approved by the state engineer. This provision requires the determination of depth to ground water and geology (NMED Exhibit 3220-11) beneath a facility if such information does not exist at the time of submittal of a permit application. These are critical factors relevant to determine the potential for water contaminants that are discharged from a dairy facility to cause ground water contamination, therefore knowledge of these factors is necessary for the Department's permit evaluation of the effectiveness of the proposed discharge methods. Lithologic information is typically information

obtained during a test boring. Tr. 5, Pp. 1125-1126. This information is useful to know the underlying geology of the area in the event of spills and prevention of ground water contamination. It is not a burden on the dairy to produce this information, and can also help in abatement assessments. Tr. 7, Pp. 1527-1528.

199. Subsection Z of Section 3220 prohibits the commingling of domestic wastewater with dairy wastewater or stormwater. Wastewater generated by dairy operations should not be commingled with that of domestic wastewater because, due to the presence of human pathogens, domestic wastewater is subject to additional state and federal requirements. Specifically, the Department issues discharge permits for domestic wastewater that include treatment quality, pathogen and usage limitations, as well as setback requirements, which are accompanied by the Federal 40 CFR 503 sludge disposal rules (NMED Exhibit 3220-9). Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 59-60.

200. Domestic wastewater systems at a dairy facility designed to receive or receiving less than or equal to 2,000 gallons per day (gpd) are permitted under the authority of the Liquid Waste Treatment and Disposal Regulations, 20.7.3 NMAC (NMED Exhibit 3220-10). Domestic wastewater systems designed to receive or receiving greater than 2,000 gpd must be issued a separate domestic waste discharge permit, under the authority of the Water Quality Control Commission Regulations, 20.6.2 NMAC. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 59-60.

201. Various cross-references were changed in Section 3220 of the Department's Final Proposed Rule to be consistent with its renumbering of paragraphs. These changes should be accepted.

202. Section 20.6.2.3220 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3221 Additional Operational Requirements For Dairy Facilities With A Land Application Area.

203. Subsection A of Section 3221 provides that dairies with a land application area must store wastewater in an impoundment, and must manage the impoundment to maintain the capacity and two feet of freeboard required by Subsection D of 20.6.2.3217. The Department's Final Proposed rule deletes the term "free-liquid" from the last sentence, as it relates to combination wastewater/stormwater impoundments. This change is to make the sentence consistent with Subsection D of Section 3217 and the clarification changes to that subsection that make clear that the Department is not regulating stormwater impoundment capacity under federal CAFO laws. The change is reasonable and should be adopted. This subsection is necessary to operate and maintain an impoundment for the storage of wastewater when it is not appropriate to land apply as dictated by the Nutrient Management Plan, such as in the winter when crops are dormant or when the ground is saturated or frozen. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 60.

204. Subsection B of Section 3221 prohibits the introduction of irrigation water into any impoundment authorized for the storage of wastewater or stormwater.

205. The introduction of irrigation water into an impoundment increases the variability and decreases the uniformity of the wastewater and/or stormwater quality making it difficult to account for the amount of nutrients applied to a field within the land application area and contributes to uneven application of nutrients across the field (NMED Exhibit 3221-1). Data in

Exhibit 3221-1A show considerable variability in wastewater quality between different wastewater management practices as well as within a single wastewater management practice. Variability of TKN concentrations affects the ability of an individual to develop and accurately implement a nutrient management plan to minimize the potential impacts to ground water. If the nutrient value of the water to be applied is not accurately collected, then it is not possible to accurately assess whether the nutrient needs of the crop have been met or exceeded. Additionally, an NMP cannot be developed and utilized appropriately and compliance with an NMP cannot be accurately assessed. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 60-61.

206. Due to the complex hydraulic behavior of impoundments, natural flow patterns such as stagnant zones and recirculation already exist, creating a non-uniform mix in these impoundments (NMED Exhibits 3221-4 and 3221-4A). Even with the introduction of inflow into an impoundment from an inlet pipe oriented at various angles, research found that recirculation occurred back towards the inlet, forming a large stagnant zone resulting in non-uniform mixing (NMED Exhibit 3221-4). Research has shown that aeration and/or mixers (depending on depth) arranged at locations and intervals appropriate for the characteristics of the impoundment are necessary to produce more uniform mixing within an impoundment (NMED Exhibits 3221-4 and 3221-4A). Thus to achieve a uniform blend of wastewater in an impoundment, an appropriate arrangement of mechanical mixing/agitation must be employed (NMED Exhibits 3221-2 and 3221-3). Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 60-61.

207. The introduction of irrigation water occupies volume within the impoundment which otherwise should be reserved to hold wastewater or stormwater until such time when it is

appropriate to be land applied (e.g., crop nutrient needs, frozen ground, saturated soil, etc.). Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 60-61.

208. The introduction of irrigation water into an unlined impoundment authorized for the collection of stormwater runoff defeats the purpose of removing accumulated stormwater from these impoundments, which is to remove the hydraulic head from the impoundment to minimize the potential movement of contaminants to ground water. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 60-61.

209. Subsection C of Section 3221 provides that the permittee must apply wastewater and stormwater to fields within the land application area, and must apply the wastewater and stormwater uniformly over the fields at the planned rate consistent with the NMP. This subsection is necessary to authorize the facility to discharge up to a maximum permitted acreage for land application. However, the facility may apply to less acreage than the maximum in accordance with the NMP. The discharge permit would then specify the acreage and location of each field within the land application area and authorize the application of wastewater or stormwater in only those areas. Application of wastewater or stormwater to fields not listed in the discharge permit is an unauthorized discharge and a violation of Section 20.6.2.3104 NMAC whereby "no person shall cause or allow effluent or leachate to discharge so that it may move directly or indirectly into grounds water unless he is discharging pursuant to a discharge permit issued by the secretary." Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 61-62.

210. Subsection C is also necessary to require the even application of wastewater and stormwater. When applying to a field, wastewater and/or stormwater needs to be applied evenly to improve the uptake and removal of nutrient by the crop grown. Even application also

minimizes ponding of wastewater and stormwater on the land surface, and subsequently the potential for water contaminants in wastewater and stormwater to migrate into the subsurface and impact ground water quality. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 62.

211. Subsection D of Section 3221 requires an applicant or permittee to submit documentation of irrigation water rights from the office of the State Engineer for all fields within the land application area to the Department with its application. It also provides that land application will not be approved unless adequate water rights are held for irrigation to produce and harvest the crops necessary for the removal of nitrogen for the effective term of the permit. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 62.

212. Those facilities proposing to land apply wastewater and/or stormwater are ultimately proposing to use crop production as the equivalent of a nutrient "treatment and removal" system for their wastewater and/or stormwater. For this "treatment and removal" system to be effective, a viable and harvestable crop must be grown to utilize the nutrients in the wastewater or stormwater for crop production and harvest. NMED Exhibit 3221-5. In this arid region, irrigation water must be supplied to ensure a viable crop is grown for the uptake and removal of nutrients year after year. Fresh irrigation water is necessary to meet the water consumptive needs of a crop. Therefore, to demonstrate that a facility is capable of such a treatment system, the Department requires documentation of the potential viability of the "treatment and removal" system in the form of irrigation waters availability for each field in the proposed land application area. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 62.

213. Subsection E of Section 3221 states that wastewater shall only be applied to fields within the land application area receiving fresh irrigation water. Facilities proposing to land apply wastewater and/or stormwater are ultimately proposing to use crop production as the equivalent of a nutrient “treatment and removal” system for wastewater and/or stormwater. In this arid region, irrigation water must be supplied to meet the water consumptive needs of the crop, thus ensuring a viable and harvestable crop is grown for the uptake and removal of nutrients. If wastewater and/or stormwater alone are used to meet the water consumptive needs of a crop, it is likely that nutrients and salts will be over-applied, reducing the crop production and thus the "treatment and removal" potential of a field. (NMED Exhibits 3221-5, 3221-6, and 3221-7). This practice would also result in the application of nutrients at times when it is not required by the crop and may not be taken up by the crop; thus creating a potential loss of nutrients due to leaching and a threat to ground water quality. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 62-63.

214. Over-application of nutrients from wastewater and/or stormwater being used to meet water consumptive needs may also result in possible accumulation of nitrate in crop tissue causing livestock poisoning; buildup of salts and nutrients in the soil; and a reduction in crop yields. Land application is being used as a treatment system for nutrient removal; if it is not properly managed, the system will not effectively remove the nutrients applied (NMED Exhibits 3221-8 and 3221-9). Written Testimony of William Pearson, NMED NOI Attachment 8, p. 63.

215. Subsection F of Section 3221 prohibits combining wastewater with irrigation water in an impoundment. It allows blending in the fresh irrigation water supply lines when the fresh water irrigation line is equipped with a reduced pressure principle backflow prevention assembly. It also provides that wastewater and irrigation water may be blended in a mix-tank for

application, or may be applied to the land in separate lines. The purpose of this requirement is two fold, to prevent the problems associated with the introduction of irrigation water into impoundments authorized for wastewater and/or stormwater, and to minimize the potential backflow of wastewater or stormwater into supply wells. In its initial proposed rule, the Department proposed to prohibit entirely the blending of fresh irrigation water with wastewater in irrigation lines, because of a concern that backflow could contaminate ground water. See NMED NOI Attachment 8, p. 63. In its June 9 version, in response to concerns raised by DIGCE, the Department modified its language to allow blending in lines if a particular type of backflow prevention device is used. See also Subsections O and P of Section 3221.

216. Mixing in-line creates a scenario for potential backflow contamination of supply wells from wastewater and/or stormwater. Both wastewater and stormwater are untreated contaminated waters with the potential to impact ground water quality, therefore require the greatest degree of backflow prevention available (air-gap) (NMED Exhibit 3221-21). A reduced pressure principal backflow device also provides adequate protection for a high degree of hazard. Tr. 7, Pp. 1578-1579.

217. Introducing irrigation water into an authorized impoundment results in issues with storage capacity, and increased variability of the wastewater or stormwater quality and decreased uniformity making it hard to account for the nutrients that are applied to each field in the land application area. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 63.

218. Mix-tanks, such as those used by Clover Knolls Dairy, Rajen II Dairy, or the NMSU Agricultural Science Center Research Station in Artesia (NMED Exhibits 3221-10, 3221-22, and 3221-23), achieve the needed air-gap protection. Such mix-tanks are reasonably inexpensive to set-up and increase the uniformity of the wastewater/stormwater and irrigation

water mixture by providing a small area with high flow rates creating turbulence and an opportunity for mixing. The same irrigation water line may be used to apply wastewater and/or stormwater when not in use for fresh irrigation water application as long as it can be and is physically disconnected from supply wells, thus providing air-gap backflow protection. Finally, the use of a separate line for wastewater and/or stormwater applications, entirely unconnected to irrigation water line system, serves to provide air-gap backflow prevention as well. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 63-64.

219. Subsection G of Section 3221 requires the applicant or permittee with existing land application infrastructure to submit documentation confirming the type and location of the existing land application distribution system and backflow prevention used. It is necessary that documentation be submitted with the application for a discharge permit identifying and confirming the existence of the infrastructure used to apply wastewater or stormwater to each field within the land application area. The information submitted with the application concerning the total number of acres and the crops to be grown within each field along with the documentation of a distribution system are used to calculate the nitrogen loading to each field within the land application area. If there is no infrastructure then the fields are not capable of receiving nutrients from wastewater and stormwater in accordance with the NMP. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 64.

220. Subsection H of Section 3221 requires the applicant or permittee without an existing infrastructure to install such infrastructure prior to land application, and once it is installed, to submit documentation confirming the type and location of the land application distribution system and backflow prevention used. Documentation needs to be submitted prior to initial application of wastewater or stormwater to a field which has not previously received such,

to verify the existence of the infrastructure. This information is necessary to verify that the facility is capable of land applying nutrients from wastewater and stormwater in accordance with the NMP. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 64-65. The Department's Final Proposed Rule adds a statement that the documentation must consist of a narrative statement and photographic documentation that confirm the new land application system, to be consistent with the requirement for existing infrastructure in Subsection G. This was added based on Mr. Olson's testimony at hearing regarding the documentation of infrastructure. Tr. 6, pp. 1214-1215. This change is reasonable and should be adopted.

221. Subsections I and J of Section 3221 require a permittee to install flow meters to measure the volume of wastewater discharged from the wastewater, combination wastewater/stormwater and stormwater impoundments to the land application area. The land application of wastewater and/or stormwater to a crop is the treatment system for the removal of nutrients; thus it is critical to accurately determine the amount of nutrients that are being land applied. To determine the amount of nutrients applied from wastewater and/or stormwater it is necessary to measure the volume (e.g. gallons, acre feet) applied so that it may be used to calculate the nutrient loading to a crop. Use of a flow meter provides a direct measurement of the volume of wastewater or stormwater applied to a crop. This accuracy of measurement is necessary for the accounting of nutrients that are applied to a crop, ensuring compliance with the Nutrient Management Plan and reduce the likelihood of ground water contamination. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 65.

222. Subsection K of Section 3221 requires a dairy applying wastewater to land to prepare a Nutrient Management Plan, and to apply the wastewater in compliance with that Nutrient Management Plan. It requires the Nutrient Management Plan to be developed using

Natural Resources Conservation Service ("NRCS") templates as adopted by the NRCS New Mexico Field Office, and in accordance with the NRCS practice standard for New Mexico. It further requires that the NMP be developed, signed and dated annually by an individual certified by the American Society of Agronomy as a Certified Crop Advisor ("CCA") or Certified Professional Agronomist ("CPAg") and by an individual certified by the NRCS as a conservation planner-comprehensive nutrient management plan. An applicant or permittee proposing land application and crop production as a means of treatment for wastewater and stormwater, by removing nutrients such as nitrogen and phosphorus, should demonstrate how that treatment system is expected to perform. The Department's Final Proposed Rule requires that such a demonstration be made by the development and utilization of an NMP. NMPs are also required by EPA for facilities regulated under the National Pollutant Discharge Elimination System ("NPDES") CAFO regulations. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 66. In addition, in its Final Proposed Rule, the Department has clarified that the templates are adopted by the New Mexico office of the USDA NRCS. Tr. 7, p. 1462. This is based on comments by Commissioner Vigil, and should be accepted.

223. The NRCS defines an NMP as "managing the amount, source, placement, form and timing of the application of nutrients and soil amendments" (NMED Exhibit 3221-8). NRCS states the purpose of an NMP is to "budget and supply nutrients for plant production; properly utilize manure or organic by-products as a plant nutrient source; minimize agricultural non-point source pollution of surface and ground water resources; protect air quality by reducing nitrogen emissions and the formation of atmospheric particulates; and maintain or improve the physical, chemical and biological condition of the soil". The Department's Final Proposed Rule requires all dairy facilities with land application to develop an NMP for the term of the discharge permit

and submit the NMP with the application for a discharge permit. The Department further proposes that the NMP be updated annually to address such items as current soil nutrient availability data, correct past nutrient over-applications or nutrient deficiencies and to utilize all potential nutrients available from the facility. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 66.

224. It is necessary that an NMP be developed and approved by an individual certified by the American Society of Agronomy ("ASA"), as well as an individual certified by New Mexico NRCS as a CNMP Conservation Planner. The ASA is a prominent international scientific society, which offers voluntary certification programs (CCA and CPAg). (NMED Exhibit 3221-11). These certification programs, much like other such programs, set standards for knowledge, measure applicants against those standards, and are responsible for investigating individuals that practice outside the program's code of ethics. A certified New Mexico CNMP Conservation Planner is an individual certified by New Mexico NRCS with the ability to develop an overall Comprehensive Nutrient Management Plan (CNMP) (NMED Exhibit 3221-12). To become a certified New Mexico Conservation Planner an individual must complete the training elements set forth by New Mexico NRCS or obtain a waiver from the NRCS State Resource Conservationist. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 66-67.

225. Subsection L of Section 3221 requires a permittee to remove crops from fields within the land application area by mechanical harvest unless an alternative proposal for the use of grazing is submitted with the application. If grazing is proposed, that method of crop removal must be incorporated in the NMP, with appropriate controls as set forth in this subsection. These controls include rotational grazing to achieve uniform uptake of forage and deposition of waste across the land application area. Actively managed rotational grazing is a grazing system in

which animals at a high stocking density are rotated frequently through a series of paddocks in a manner that maximizes both forage yield and quality (NMED Exhibit 3221-13). In its Final Proposed Rule, the Department has corrected a typographical error to add the word "of" to the phrase, "Annual updates to the NMP shall include updates to the grazing plan as well as report of actual weight gains..." This change should be accepted.

226. The Department proposes the use of managed rotational grazing as an alternative method to mechanical harvesting of crops only if a nutrient management plan proposal is submitted to the Department as part of an application for a new, renewed, or modified discharge permit. A nutrient management plan shall be developed and submitted pursuant to Subsection K of 20.6.2.3221 NMAC. The use of grazing as a means of crop removal is not as straight forward as mechanical harvest when determining the amount of nitrogen removed from a land application field. Coleman (NMED Exhibit 3221-14) discusses the difficulty of determining actual forage intake by grazing ruminants, indicating that it is largely reliant on educated guesswork. In a review of water quality issues related to grazing, Hubbard et al., 2004 (NMED Exhibit 3221-15) refers to an earlier study where it was hypothesized that a control area of forage (pasture) production with grazing would have lower nitrate-nitrogen concentrations in ground water when compared with areas receiving dairy lagoon wastewater applications. Instead they found that the inorganic nitrogen applications at recommended rates for forage production plus waste from grazing animals resulted in higher nitrate-nitrogen concentrations in ground water than that under areas receiving lagoon wastewater. This research demonstrates that without careful consideration of all nitrogen applications for the grazing system, nitrate-nitrogen contamination in ground water can occur. Wells and Dougherty, 1997 and Stout et al., 1997 (NMED Exhibits 3221-16 and 3221-17) indicate that urination and defecation patterns of grazing cattle do not

result in recycling of nutrients uniformly over a field and that grazing practices will affect the distribution of recycled nutrients (more uniformly or less). North Carolina's Farm-A-Syst program has developed a publication to help producers better understand, evaluate, and manage potential effects of grazing on livestock on surface and ground water quality (NMED Exhibit 3221-18). Written Testimony of William Pearson, NMED NOI Attachment 8, p. 68.

227. The information required by the Department concerning grazing is necessary to evaluate the amount of nutrients removed from the field by the animals grazed. Nutrient removal from grazing is not a direct measurement but rather is based on educated assumptions of nutritional needs for animal production (meat or milk) or maintenance, and of nutrient sources left within the field as animal waste products. Actively managed grazing is necessary to achieve uniform uptake of forage and deposition of waste across the pasture. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 68.

228. In its March 8, 2010 version, the Department proposed inserting the language "or estimated intake for maintenance or milk production" in Paragraph (3) of Subsection L to give a permittee more options when developing a grazing NMP which uses grazing as the method for nutrient removal. Because nutrient removal by grazing is not a direct measurement, this additional language allows a permittee to use other methods instead of estimated weight gain when computing nutrient removal. Similarly, the Department proposed inserting the language "and residency period" in Paragraph (4). This additional language will improve the estimate of nutrient removal by grazing by requiring the permittee to estimate the amount of time which the livestock graze. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 68-69.

229. Subsection M of Section 3221 states that a permittee who proposes to change the method of crop removal, (as between mechanical and grazing methods) must apply to modify

their permit to accommodate the change. A change in the method of crop removal can significantly affect the performance of a dairy facility's "treatment and removal" system. The Department proposes that all proposed changes to the method of crop harvest be submitted in an application to modify a discharge permit prior to implementation of the change(s). The modified application shall describe the changes proposed as pursuant to 20.6.2.3221, Subsection K and L. This requirement is necessary to give the Department the opportunity to evaluate the proposed change in the method of crop removal. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 69.

230. Subsection N of Section 3221 requires irrigation ditches used to land apply wastewater or stormwater to be concrete lined. It also requires periodic inspection and repairs if needed. The land application of wastewater and/or stormwater using ditch systems and flood irrigation (border or row crop), creates the potential for the wastewater and/or stormwater to leak from the system and migrate into the subsurface and into underlying shallow ground water. Most dairy facilities utilizing ditch irrigation systems to land apply wastewater and/or stormwater are located in the Rio Grande River Valley (Mesquite) and Pecos River Valley (Roswell; Lake Arthur, etc.) where there is a very shallow depth to ground water (less than 100 ft, and generally less than 50 ft). Lining of these ditches (NMED Exhibit 3221-19) helps to minimize potential impacts to ground water quality from the leakage of wastewater from the ditch system. Concrete lining of these ditches is preferred to synthetic lining for durability. However, concrete liners are prone to cracking and expansion joint seals are prone to desiccation, therefore inspection and maintenance of these ditch systems is necessary. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 69.

231. Subsection O of Section 3221 requires a permittee to protect wells from being contaminated from backflow of wastewater or stormwater by either using an air gap separation or by the installation of a reduced pressure principle backflow prevention assembly. In its initial version of its proposed rule, the Department proposed to allow only the air gap method for assuring there would be no backflow. See, NMED NOI Attachment 8, Pp. 69-70, Section 20.6.2.3221.O. In its June 9 version, in response to concerns raised by DIGCE, the Department modified its language to allow a particular type of backflow prevention device known as a reduced principle backflow prevention assembly. Tr. 5, p. 984. Backflow either from back-siphonage or back-pressure of wastewater or stormwater into a water supply well due to the lack or failure of a backflow prevention system poses an immediate and high contamination risk to ground water quality. Failure or lack of backflow prevention measures for irrigation supply wells cross-connected with pipelines distributing wastewater or stormwater to land application fields make such wells susceptible to becoming a direct conduit for contaminants to enter ground water. This has the potential to impact ground water quality, and poses a risk to public health by the consumption of that water. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 70.

232. There are various types of backflow prevention devices, assemblies and methods: air-gap, non-pressure type vacuum breakers (e.g., atmospheric vacuum breaker), pressure-type vacuum breakers (e.g., pressure vacuum breaker backflow prevention assembly), double check valve backflow prevention assembly, and reduced pressure principle backflow prevention assembly (NMED Exhibit 3221-20). However, not all backflow prevention devices, assemblies or methods are appropriate for all uses; the device, assembly or method selected must be

appropriate to the potential hydraulic conditions (back-siphonage or back-pressure) and the degree of hazard (NMED Exhibits 3221-20 and 3221-21).

233. Because dairy wastewater and stormwater are not treated to remove water contaminants, these wastes present a high risk to ground water quality and possibly human health when direct contamination of ground water occurs due to backflow. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 70.

234. The Uniform Plumbing Code recognizes the air gap method and the reduced pressure principle assembly as the appropriate devices to prevent backflow for a high degree of hazard. Tr. 7, p. 1578.

235. An air-gap provides water supply sources with the greatest degree of protection from back-siphonage or back-pressure, regardless of the degree of hazard. A properly constructed air-gap (NMED Exhibits 3221-20 and 3221-21) provides a physical separation between the water supply and the opening (or rim) of the receiving vessel (e.g., mix tank) preventing the possibility of backflow (NMED Exhibits 3221-22 and 3221-23). Unlike other backflow prevention devices or assemblies, an air-gap requires the least degree of maintenance and no testing to ensure proper performance and protection. Simply stated, an air-gap system provides the only absolute method for preventing backflow, because it eliminates the cross-connection. It is also the most basic type of backflow prevention as it has no mechanical parts, and is typically the least expensive to employ. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 70. A reduced pressure principal backflow device also provides adequate protection for a high degree of hazard. Tr. 7, Pp. 1578-1579.

236. Subsection P of Section 3221 was added to the proposed rule when it added the reduced principle backflow device as an allowable method of backflow prevention in its June 9

version. NMED Rebuttal Attachment 2, 6/8/10 version, p. 40. It requires that the permittee have RP devices inspected and tested at the time of installation and annually thereafter by a certified backflow prevention assembly tester. Records of inspection and testing must be submitted to the Department annually.

237. Subsection Q of Section 3221 requires that supply wells located within the land application of a of a dairy must have a surface pad constructed in accordance with state engineer regulations, 19.27.4.29.G and 19.27.4.29.I NMAC. Members of the dairy advisory committee raised concerns about appropriate wellhead protection for water wells at dairy facilities. Rules issued by the Office of the State Engineer, Part 19.27.4 NMAC (NMED Exhibit 3221-24) recommend the construction of a concrete pad around a wellhead and require the use of a permanent well cap or cover on a completed well. The Department therefore proposes to ensure the integrity of the surface completion of supply water wells at dairy facilities and minimize the potential for contaminants to migrate through the wellbore. This subsection reiterates the language of Part 19.27.4 NMAC for all water wells other than monitoring wells at dairy facilities (which have specific requirements addressed in Section 3223 of the proposed rule, including wellhead protection), but is more stringent than Part 19.27.4 NMAC in requiring the construction of a surface pad rather than simply recommending one. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 71.

238. Section 3221 of the Department's Final Proposed Rule contains cross-reference corrections to conform to relettered subsections. These changes should be accepted.

239. Section 20.6.2.3221 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3222 Additional Operational Requirements for Dairy Facilities Discharging To An Evaporative Wastewater Disposal System.

240. Section 3222 requires facilities discharging to an evaporative wastewater disposal system to maintain two feet of freeboard. It is necessary that facilities intending to dispose of wastewater or a combination of wastewater and stormwater by evaporation to operate and maintain adequate capacity to achieve its purpose. Proper operation and maintenance of impoundments for the disposal of wastewater and/or stormwater by evaporation is necessary in order to prevent unauthorized discharges and to eliminate the need to request emergency relief from the Department in the form of temporary permission to discharge when an impoundment exceeds its capacity. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 71. Section 20.6.2.3222 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3223 Ground Water Monitoring Requirements For All Dairy Facilities.

241. Subsection A of Section 3223 requires a Permittee to monitor ground water quality hydrologically downgradient from each source of ground water contamination, including impoundments and fields within land application areas. The monitoring well must be located so as to detect any contamination as soon as possible. The 2009 amended WQA at Subsection K of Section 74-6-4 requires that the WQCC "shall specify in regulations the measures to be taken to prevent water pollution and to monitor water quality." As required by the amended WQA, this subsection provides for the installation, use and maintenance of ground water monitoring wells to monitor ground water quality at dairy facilities. Ground water monitoring wells are the only

technology available to monitor ground water quality and to directly assess whether the discharge, management, or land application of water contaminants at a dairy facility is causing an exceedance of the ground water quality standards as established by the WQCC. It is therefore necessary that each feature or component that contains or receives wastewater or stormwater containing water contaminants that could potentially impact ground water quality have an associated ground water monitoring well to monitor the effect that the specific feature or component is having on ground water quality. Placement of a monitoring well hydrologically downgradient of each feature or component that receives wastewater or stormwater is the most practical location to effectively monitor ground water quality most likely to be impacted by sources of water contaminants. Written Testimony of William Olson, NMED NOI Attachment 8, p. 72.

242. Paragraph (1) of Subsection A requires a minimum of one monitoring well located hydrologically downgradient and within 75 feet from the top inside edge of each wastewater impoundment. It also requires a monitoring well for impoundments that received wastewater under the dairy's most recent permit issued prior to the effective date of the dairy rule, even if the impoundment will not receive wastewater under the renewed permit. Wastewater impoundments contain water contaminants that can potentially migrate to ground water. A monitoring well located hydrologically downgradient of a wastewater impoundment assesses potential impacts to ground water due to impoundment leakage. A monitoring well must be located as close as practicable to an impoundment to allow early detection of impacts to ground water quality in order to initiate timely source control measures and abatement actions. The proposed distance of 75 feet allows for an adequate distance (approximately 50 feet) from the top inside edge of an impoundment to avoid installation of a monitoring well in a berm and

an additionally distance of approximately 25 feet to allow for a service road around the impoundment. Using the top inside edge for measurement of distance to monitoring wells is a consistent point of reference for all impoundments at all dairy facilities. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 73.

243. Subparagraphs (a) (b) and (c) of Subparagraph (1) of Subsection A set forth the timelines by which dairies must install monitoring wells. An impoundment that will be constructed after the adoption of this rule must have a monitoring well installed prior to discharge to the impoundment to realize the benefit of establishing pre-discharge ground water quality in the vicinity of the impoundment. An impoundment in existence prior to the adoption of this rule must have a monitoring well installed promptly following issuance of a renewed discharge permit (see 20.6.2.3235 NMAC); a period of 120 days allows ample time for a dairy facility to seek bids from qualified drilling contractors and have the wells installed. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 73.

244. Subparagraph (2) of Subsection A sets forth the monitoring well requirements for combination wastewater/stormwater impoundments. Combination wastewater/stormwater impoundments contain water contaminants that can potentially migrate to ground water. A monitoring well located hydrologically downgradient of a combination wastewater/stormwater impoundment assesses potential impacts to ground water due to impoundment leakage. A monitoring well must be located as close as practicable to an impoundment to allow early detection of impacts to ground water quality in order to initiate timely source control measures and abatement actions. The proposed distance of 75 feet allows for an adequate distance (approximately 50 feet) from the top inside edge of an impoundment to avoid installation of a monitoring well in a berm and an additionally distance of approximately 25 feet to allow for a

service road around the impoundment. Using the top inside edge for measurement of distance to monitoring wells is a consistent point of reference for all impoundments at all dairy facilities. Written Testimony of George Schuman, NMED NOI Attachment 8, Pp. 73-74.

245. Subparagraphs (a) (b) and (c) of Subparagraph (2) of Subsection A set forth the timelines by which dairies must install monitoring wells relative to combination impoundments. An impoundment that will be constructed after the adoption of this rule must have a monitoring well installed prior to placing any livestock at the dairy to realize the benefit of establishing pre-discharge ground water quality in the vicinity of the impoundment. An impoundment in existence prior to the adoption of this rule must have a monitoring well installed promptly following issuance of a renewed discharge permit (see 20.6.2.3235 NMAC); a period of 120 days allows ample time for a dairy facility to seek bids from qualified drilling contractors and have the wells installed. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 73; See Tr. 8, Pp. 1764-1772.

246. At hearing, Commissioner Jones brought up an inconsistency in language between Subparagraph (a) of Paragraph (1) and Subparagraph (a) of the other paragraphs in this subsection. See, Tr. 8, Pp. 1764-1772. The timing for when a new dairy must install a monitoring well under different circumstances needed correction. To correct the timing requirements and resolve the inconsistency, the Department has modified the language in Subparagraph (a) of Paragraph (2), Subparagraphs (a) and (b) of Paragraph (4), and Subparagraph (a) of Paragraph 5 to require a monitoring well for a new dairy *prior to placement of livestock* at the dairy. These changes are made because an impoundment collecting stormwater, and a field to which stormwater can be applied, may begin receiving contaminated water when livestock are introduced to the facility. In comparison, a wastewater impoundment

will only begin receiving contaminated water when the dairy is actually discharging from the milking parlor. See Tr. 8, Pp. 1764-1772. These changes are made in the Department's Final Proposed Rule, are reasonable, and should be accepted.

247. Subparagraph (3) of Subsection A sets forth the monitoring well requirements for stormwater impoundments. Stormwater impoundments contain water contaminants that can potentially migrate to ground water. A monitoring well located hydrologically downgradient of a stormwater impoundment assesses potential impacts to ground water due to impoundment leakage. A monitoring well must be located as close as practicable to an impoundment to allow early detection of impacts to ground water quality in order to initiate timely source control measures and abatement actions. The proposed distance of 75 feet allows for an adequate distance (approximately 50 feet) from the top inside edge of an impoundment to avoid installation of a monitoring well in a berm and an additionally distance of approximately 25 feet to allow for a service road around the impoundment. Using the top inside edge for measurement of distance to monitoring wells is a consistent point of reference for all impoundments at all dairy facilities. Written Testimony of George Schuman, NMED NOI Attachment 8, Pp. 74-75.

248. Subparagraphs (a) (b) and (c) of Subparagraph (3) of Subsection A set forth the timelines by which dairies must install monitoring wells relative to stormwater impoundments. An impoundment that will be constructed after the adoption of this rule must have a monitoring well installed prior to placing any livestock at the dairy to realize the benefit of establishing pre-discharge ground water quality in the vicinity of the impoundment. An impoundment in existence prior to the adoption of this rule must have a monitoring well installed promptly following issuance of a renewed discharge permit (see 20.6.2.3235 NMAC); a period of 120 days allows ample time for a dairy facility to seek bids from qualified drilling contractors and

have the wells installed. Written Testimony of George Schuman, NMED NOI Attachment 8, Pp. 74-75; See, Tr. 8, Pp. 1764-1772.

249. Paragraph (4) of Subsection A sets forth the requirement for monitoring wells associated with fields within land application areas. Subparagraph (a) sets forth monitoring well requirements for fields that use flood irrigation. Wastewater or stormwater that is applied to a field is likely to contain contaminants that can migrate to ground water. A monitoring well located hydrologically downgradient and within 50 feet of a flood irrigated field assesses potential impacts to ground water due to the land application of wastewater or stormwater. A monitoring well must be located as close as practicable to a field to allow early detection of impacts to ground water quality in order to initiate timely source control measures and abatement actions. A well location distance of 50 feet places a well relatively close to a field, yet affords flexibility in well placement so as not to interfere with farming operations. The language in this requirement ties the acreage of flood irrigated land to the number of wells required for ground water monitoring. More extensive ground water monitoring is required for flood irrigation than sprinkler or drip irrigation because flood irrigation has a greater potential to cause movement of nitrogen beyond the root zone and impacts to ground water quality (NMED Exhibit 3223-1, p. 357; NMED Exhibit 3223-2, Pp. 1184, 1190, 1192, 1193). Therefore, more extensive monitoring of ground water quality is warranted. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 75. In its Final Proposed Rule the Department changed the requirement for installing a monitoring well from "before discharging" to "before placing livestock" as discussed in regard to Paragraphs (1) and (2) of Subsection A of this section. This resolves an inconsistency noted by Commissioner Jones. See, Tr. 8, Pp. 1764-1772. This change is reasonable and should be adopted.

250. A field(s) that will be activated after the adoption of this rule must have a monitoring well installed prior to placing any livestock at the dairy, and consequent discharges to the field, to realize the benefit of establishing pre-discharge ground water quality in the vicinity of the field(s). A field(s) in existence prior to the adoption of this rule must have a monitoring well installed promptly following issuance of a renewed discharge permit (see 20.6.2.3235 NMAC); a period of 120 days allows ample time for a dairy facility to seek bids from qualified drilling contractors and have the wells installed. Written Testimony of George Schuman, NMED NOI Attachment 8, Pp. 75-76; See, Tr. 8, Pp. 1764-1772.

251. Subparagraph (b) of Paragraph (4) of Subsection A sets forth the monitoring well requirements for fields that use sprinkler or drip irrigation. Wastewater or stormwater that is applied to a field is likely to contain contaminants that can migrate to ground water. A monitoring well located hydrologically downgradient and within 50 feet of a sprinkler or drip irrigated field assesses potential impacts to ground water due to the land application of wastewater or stormwater. A monitoring well must be located as close as practicable to a field to allow early detection of impacts to ground water quality in order to initiate timely source control measures and abatement actions. A well location distance of 50 feet places a well relatively close to a field, yet affords flexibility in well placement so as not to interfere with farming operations. The language in this requirement ties the acreage of sprinkler or drip irrigated land to the number of wells required for ground water monitoring. Less extensive ground water monitoring is required for sprinkler or drip irrigation than flood irrigation because efficient irrigation methods like sprinkler and drip irrigation have a lesser potential to cause movement of nitrogen beyond the root zone and impacts to ground water quality (NMED Exhibit 3223-1, p. 357; NMED Exhibit 3223-2, Pp. 1184, 1190, 1192, 1193). Therefore, less extensive monitoring

of ground water quality is warranted. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 76.

252. A field(s) that will be activated after the adoption of this rule must have a monitoring well installed prior to placement of livestock at the dairy and consequent discharge to the field(s) to realize the benefit of establishing pre-discharge ground water quality in the vicinity of the field(s). In its Final Proposed Rule the Department changed the requirement for installing a monitoring well from "before discharging" to "before placing livestock" as discussed in Paragraphs (1) and (2) of Subsection A of this section. This resolves an inconsistency noted by Commissioner Jones, and should be adopted. See, Tr. 8, Pp. 1764-1772. A field(s) in existence prior to the adoption of this rule must have a monitoring well installed promptly following issuance of a renewed discharge permit (see 20.6.2.3235 NMAC); a period of 120 days allows ample time for a dairy facility to seek bids from qualified drilling contractors and have the wells installed. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 77; See Tr. 8, Pp. 1764-1772.

253. Subparagraph (c) of Paragraph (4) of Subsection A sets forth the monitoring well requirements for fields that use grazing as a method of crop removal, notwithstanding the method of irrigation. A monitoring well located hydrologically downgradient and within 50 feet of a grazed field is intended to assess potential impacts to ground water due to the land application of wastewater or stormwater. A monitoring well should be located as close as practicable to a field to allow early detection of impacts to ground water quality and timely source control and abatement actions. A well location distance of 50 feet places a well relatively close to a field, yet allows latitude in well placement so as not to interfere with farming operations. The language in this requirement specifies a monitoring well for each field that is

grazed, rather than tying the number of wells required to the acreage of irrigated land. There are several reasons for this requirement. Cow urination can contribute substantial amounts of nitrogen to a grazed field, and urine and feces are disproportionately concentrated in areas where cows congregate (NMED Exhibit 3223-3, p. 9). Additionally, research has shown that appreciable amounts of nitrogen excreted in urine can be leached from the root zone (NMED Exhibit 3223-4, Pp. 1789, 1790, 1791, 1793). Therefore, crop removal by grazing may pose a greater threat to ground water quality than crop removal by mechanical harvest, and additional ground water monitoring is appropriate. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 77.

254. A field(s) that will be activated after the adoption of this rule must have a monitoring well installed prior to placing any livestock at the dairy, and consequent discharges to the field, to realize the benefit of establishing pre-discharge ground water quality in the vicinity of the field(s). A field in existence prior to the adoption of this rule must have a monitoring well installed promptly following issuance of a renewed discharge permit (see 20.6.2.3235 NMAC); a period of 120 days allows ample time for a dairy facility to seek bids from qualified drilling contractors and have the wells installed. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 77.

255. Paragraph (5) of Subsection A sets forth the requirement for upgradient monitoring wells associated with sources of contamination. A monitoring well located hydrologically upgradient of contamination sources at a dairy facility assesses the quality of ground water flowing beneath the facility from upgradient locations. Installation of an upgradient monitoring well at the same time as installation of downgradient monitoring wells allows for the comparison of ground water quality upgradient and downgradient of facility

contaminant sources at discrete intervals over an extended time period. This comparison allows the Department and permittee to determine if facility contaminant sources are causing or contributing to ground water contamination. A new dairy facility must have an upgradient monitoring well installed prior to placement of livestock at the facility to realize the benefit of establishing pre-discharge ground water quality that is unaffected by the facility discharge. In its Final Proposed Rule the Department changed the requirement for installing a monitoring well from "before discharging" to "before placing livestock" as discussed in regard to Paragraphs (1) and (2) of Subsection A of this section. This resolves an inconsistency noted by Commissioner Jones, and should be adopted. See, Tr. 8, Pp. 1764-1772. An existing dairy facility must have an upgradient monitoring well installed promptly following issuance of a discharge permit; a period of 120 days allows ample time for a dairy facility to seek bids from qualified drilling contractors and have the well installed. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 78.

256. Paragraph (6) of Subsection A of Section 3223 allows the use of existing monitoring wells, and prescribes the requirements for such use. The language of this paragraph allows existing monitoring wells to be used for ground water monitoring after the adoption of this rule provided the wells substantially meet the requirements of this rule. This requirement is the Department's attempt to achieve a reasonable balance between the financial burden of replacing monitoring wells and the need for proper ground water quality monitoring. Monitoring well screen length and well orientation relative to the source and ground water flow direction are important factors influencing the effectiveness of a monitoring well to assess compliance with ground water quality standards. Therefore, these requirements cannot be compromised. The acceptable distance of a monitoring well from the source intended to be monitored is not exact;

however, a monitoring well must be located as close as practicable to a source to allow early detection of impacts to ground water quality in order to initiate timely source control measures and abatement actions. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 79.

257. Paragraph (7) of Subsection A of Section 3223 sets forth exceptions to the monitoring well requirements under certain circumstances. The exceptions allowed for in this paragraph are based upon discussions and agreements between the Department and the Dairy Industry Group in 2008 (NMED Exhibit 3223-20). This paragraph identifies some circumstances whereby a monitoring well may not be required for each source as specified by the proposed rule. Subparagraphs (a) and (b) provide for circumstances where it may not be practical to install a monitoring well hydrologically downgradient of each source when impoundments are in close proximity to each other. Subparagraph (c) also provides for a circumstance where the threat to ground water quality is potentially reduced by the method of irrigation, effective management of nutrients of wastewater or stormwater that are land applied, and appreciable depth to ground water. In these circumstances the Department may grant an exception in a discharge permit to the requirement to install a monitoring well downgradient of each source of water contaminants. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 80. In addition, the Final Proposed Rule contains changes in Subparagraph (c) to accommodate the Department's change to Section 3220.Y, which removes the requirement for a test boring well deeper than 75 feet. The change allows an alternative method for determining depth to ground water. These changes are reasonable and should be accepted.

258. Paragraph (8) of Subsection A of Section 3223 states that if fewer than 3 monitoring wells are needed to satisfy the requirements of Paragraphs (1) through (7) of

Subsection A of this section, a third monitoring well must be installed within 75 feet downgradient from a source and in an alternate location to another well. In certain limited circumstances (e.g., a facility that disposes of wastewater and stormwater by evaporation in a single combination wastewater/stormwater impoundment), the proposed rule may only require the installation of two monitoring wells (i.e. one monitoring well hydrologically downgradient of the impoundment and one monitoring well hydrologically upgradient of the facility sources). The installation of a third monitoring well is necessary to develop a ground water elevation contour map and accurately assess the ground water flow direction. This paragraph requires that a third monitoring well be installed in this circumstance such that the direction of ground water flow at a dairy facility can be determined and effects of sources of water contaminants from the dairy facility on ground water quality can be effectively evaluated. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 80.

259. Subsection B of Section 2332 requires an applicant of permittee to identify monitoring well locations in the application, and prescribes the information that must be submitted supporting the locations. This subsection is necessary so that specific information on monitoring well locations and the ground water flow direction be submitted with the discharge permit application to enable the Department to determine if the proposed or existing well locations meet the requirements of the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 81.

260. Subsection C of Section 2332 requires permittees to identify each monitoring well with an identification tag and prescribes the requirements for the tags. Use of identification tags prevents confusion regarding the identification of monitoring wells during surveying, sampling and compliance inspections. As seen in NMED Exhibit 3223-28, the Department has

encountered problems in the past related to the mislabeling of monitoring wells. When uncertainty exists regarding monitoring well nomenclature, ground water analytical data cannot be reliably associated with a specific monitoring well. Therefore, the record of analytical data is potentially invalidated with respect to assessing the impact of a source on ground water quality. In addition, rules issued by the Office of the State Engineer (Part 19.27.4 NMAC) allow for well identification tags (NMED Exhibit 3223-5, pp. 6-7). This requirement is reasonable and necessary to provide accurate information for the labeling and identification of monitoring wells. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 81-82.

261. Subsection D of Section 2332 requires that monitoring wells be constructed in conformance with regulations of the state engineer (19.27.4 NMAC). Paragraph (1) of Subsection D requires well drillers to be licensed by the State Engineer. In accordance with rules issued by the Office of the State Engineer (19.27.4.8 NMAC), any person who engages in the business of well drilling, such as the drilling the monitoring wells required by this section, must obtain a well driller license issued by the state engineer (NMED Exhibit 3223-5, p. 2). The language of this paragraph reiterates the requirements of existing state regulations. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 82.

262. Paragraph (2) of Subsection D of Section 2332 specifies drilling techniques that must be used in drilling monitoring wells. These proposed rule contains a requirement specifying the maximum length of well screen that may be installed below the water table; therefore, use of drilling techniques that allow for accurate determination of the depth of the most shallow ground water encountered are essential in order to meet the well screen installation requirement. The requirement for cleaning of drilling equipment is necessary to prevent the introduction of contaminants into the sub-surface. The requirement for a minimum annular

space size is necessary to ensure the effective placement of a well screen filter pack and annular space sealants. The equipment cleaning and annular space size requirements are consistent with well construction rules issued by the Office of the State Engineer, Part 19.27.4 NMAC (NMED Exhibit 3223-5, Pp. 6,7). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 82.

263. Paragraph (3) of Subsection D of Section 2332 specifies that after completion, the well shall be allowed to stabilize for a minimum of 12 hours before development is initiated. A minimum period of 12 hours is required prior to initiation of development allowing annular seals to set to prevent settlement or slumping of the seal. This requirement was adapted from the State of Wisconsin rules for ground water monitoring wells (NMED Exhibit 3223-6, p. 347). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 82.

264. Paragraph (4) of Subsection D of Section 2332 specifies that the well be developed so that formation water flows freely through the screen and is not turbid. Monitoring well development is necessary to remove fine sand, silt, clay, and drilling fluids (if used) from the region around the well screen. Removal of fine sediment and drilling mud is necessary to eliminate the potential for water chemistry changes due to contact of the water to be sampled with these materials (NMED Exhibit 3223-7, Pp. 725-726). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 83.

265. Paragraph (5) of Subsection D of Section 2332 specifies the type of casing pipe that must be used in a monitoring well. The language of this paragraph requires the use of common well casing materials for monitoring well construction (NMED Exhibit 3223-8, Pp. 339, 342) that will not alter the quality of water samples for the constituents of interest at the facility (NMED Exhibit 3223-9, p. 325). The casing material requirements are consistent with

the well construction rules issued by the Office of the State Engineer, Part 19.27.4 NMAC (NMED Exhibit 3223-5, p. 6). Monitoring wells of not less than two inches in diameter allow for ground water sampling with standard equipment (e.g., bailers, pumps) (NMED Exhibit 3223-8, p. 339). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 83.

266. Paragraph (6) of Subsection D of Section 2332 specifies how casing sections must be joined. The language of this paragraph identifies acceptable joint types for joining casing: commonly-used welded or threaded joints (NMED Exhibit 3223-7, p. 723); or newer mechanically locking joints (NMED Exhibit 3223-10). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 84.

267. Paragraph (7) of Subsection D of Section 2332 specifies requires the use of specific devices (steel well shroud or well vault) to protect monitoring wells from physical damage. The fitting of caps or plugs is required to prevent contaminants from entering the wellbore and migrating to ground water (NMED Exhibit 3223-8, Pp. 348-349) and is consistent with the well construction rules issued by the Office of the State Engineer, Part 19.27.4 NMAC (NMED Exhibit 3223-5, p. 6). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 84.

268. Paragraph (8) of Subsection D of Section 2332 requires the use of well screen materials that are commonly used for monitoring well construction (NMED Exhibit 3223-8, p. 342) and are compatible with the monitoring environment (NMED Exhibit 3223-9, p. 325). The screen material requirements are consistent with the well construction rules issued by the Office of the State Engineer, Part 19.27.4 NMAC (NMED Exhibit 3223-5, p. 6). Because slot sizes are precisely controlled during manufacturing, only manufactured well screen may be used; hand-cut or hand-drilled screens should never be used. The well screen must prevent a large proportion of

the filter pack material from entering the well, therefore, the screen should be selected to retain (i.e., prevent from entering the well) 90 percent of the filter pack material. The screen must be installed to intersect the most shallow ground water to allow the position (i.e., depth) of the water table to be monitored and accommodate water table fluctuations (NMED Exhibit 3223-8, Pp. 345, 346, 349). Written Testimony of George Schuman, NMED NOI Attachment 8, Pp. 84-85.

269. Paragraph (9) of Subsection D of Section 2332 identifies acceptable joint types for joining well screen: commonly-used welded or threaded joints (NMED Exhibit 3223-7, p. 723); or newer mechanically locking joints (NMED Exhibit 3223-10). A cap must be installed on the bottom of the screen to prevent sediment from entering the screened interval during installation. Sumps (lengths of solid casing) are occasionally attached to the bottom of screens to allow volume within the well for sediment settling below the screened interval. However, the language of this paragraph prohibits the use of sumps in monitoring wells because sediment that accumulates in the sump may harbor organisms that can alter ground water chemistry (NMED Exhibit 3223-9, Pp. 325, 326). While this potential problem could be addressed by periodic removal of sediment from the sump, sediment removal will pose an unnecessary well maintenance cost and may be impractical to perform effectively, especially when a downhole sampling pump has been permanently installed and must be removed from the well to allow sediment removal. Further, monitoring wells constructed with a screen and filter pack selected in accordance with the requirements of this proposed rule will minimize the entry of sediment into the well, thereby negating the need for a sediment sump. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 85.

270. Paragraph (10) of Subsection D of Section 2332 requires that well screens be positioned to intersect the water table and limits the length of screen that may be installed below

the water table. Intersection of the water table allows for monitoring of the position of the water table (NMED Exhibit 3223-8, p. 349); such information is used to develop ground water elevation contour maps and determine ground water flow direction. The language of this paragraph allows the installation of up to 15 feet of screen below the water table, or up to 25 feet of screen below the water table if the most recent two years of ground water level data for the facility demonstrates a declining water level trend of at least two feet per year. These screen length requirements represent an appropriate balance of the issues of well longevity, sample integrity and quality, and aquifer protection. Written Testimony of George Schuman, NMED NOI Attachment 8, Pp. 85-87.

271. Paragraph (11) of Subsection D of Section 2332 requires the use of centralizers to ensure that well casing and screen are positioned in the center of the borehole, and are straight and plumb (i.e., vertical) (NMED Exhibit 3223-9, p. 328). The ability to place sampling equipment into wells may be affected in wells that are not straight and plumb, thereby compromising the collection of ground water samples. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 87.

272. Paragraph (12) of Subsection D of Section 2332 requires the installation of a filter pack around the well screen to stabilize the natural formation and minimize the movement of fine sand, silt, and clay into the monitoring well. The filter pack should be extended two feet over the top of the screen to allow for possible settlement of the filter pack during well development (NMED Exhibit 3223-8, Pp. 346, 347), although the requirement to surge or bail the well prior to placement of the bentonite seal above the filter pack is expected to minimize the potential for further settling during well development. With the exception of shallow wells (30 feet deep or less), use of a tremmie pipe for the placement of the filter pack is required to

minimize the potential for bridging of the filter pack material in the annular space (NMED Exhibit 3223-9, p. 330). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 87.

273. Paragraph (13) of Subsection D of Section 2332 requires the placement of a three-foot thick bentonite seal immediately above the filter pack. The bentonite seal is used to prevent grout seal (to be installed in the remaining annular space) from entering the underlying filter pack. After the dry bentonite materials are placed in the annular space, clean water must be added to cause hydration and expansion of the clay, thereby eliminating the voids in the bentonite material (NMED Exhibit 3223-9, p. 330). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 88.

274. Paragraph (14) of Subsection D of Section 2332 requires the placement of an annular seal in the annular space above the bentonite seal. Well construction rules issued by the Office of the State Engineer, Part 19.27.4 NMAC, require that annular seals be composed of cement grout or bentonite-based sealing materials. The sealing materials proposed in this paragraph are consistent with the sealing materials required by Part 19.27.4 NMAC (NMED Exhibit 3223-5, p. 7). Further, research has shown that bentonite grout, neat cement and bentonite-cement grouts provide good seals (NMED Exhibit 3223-17, p. 360), and field evaluations of high solids bentonite grout (20 percent solids or greater) demonstrated that the seals remained largely intact (NMED Exhibit 3223-18, p. 110). Sealing of the entire annular space is a common monitoring well construction practice (NMED Exhibit 3223-8, p. 347) and complete sealing of the annular space provides an even greater degree of borehole protection from contaminants potentially present on the land surface and in the sub-surface. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 88.

275. Paragraph (15) of Subsection D of Section 2332 requires the installation of a concrete pad around the protective shroud or well vault. The concrete pad is intended to ensure the integrity of the surface completion of the well and minimize the potential for contaminants to migrate through the wellbore. Rules issued by the Office of the State Engineer, Part 19.27.4 NMAC (NMED Exhibit 3223-5, p. 6) recommend the construction of a concrete pad around a wellhead. This paragraph is consistent with the requirement of Part 19.27.4 NMAC, but is more stringent than Part 19.27.4 NMAC in requiring the construction of a surface pad rather than simply recommending one. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 88.

276. Subsection E of Section 2332 requires the installation of monitoring wells pursuant to a permit issued by the Office of the State Engineer if a well permit is required. The Office of the State Engineer has issued rules and regulations governing the appropriation and use of ground water in New Mexico (NMED Exhibit 3223-21, Pp. 13-14). These rules and regulations require that an application be filed and a permit obtained for the installation or use of pollution plume control or pollution recovery wells. It is not clear if the current rules and regulations pertain to monitoring wells (the Department's experience is that some, but not all, Office of the State Engineer districts currently require permits for monitoring wells), or if the Office of the State Engineer will clarify the need for well permits for monitoring wells in the future. Therefore, should an Office of the State Engineer district require permits for monitoring wells, it is necessary that such a permit be obtained. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 89.

277. Subsection F of Section 2332 identifies the method to be used to accurately determine the depth-to-ground water in a monitoring well prior to purging and collection of a

ground water sample. Paragraph (1) of Subsection F requires use of an electronic water level indicator. Electronic water level indicators are commonly used equipment for the measurement of ground water depths in monitoring wells to 0.01 feet (NMED Exhibit 3223-24, p. 7). Further, in recent years it has come to the attention of the Department that some consultants have not used equipment capable of accurately and consistently measuring the depth-to-ground water to the degree of accuracy (0.01 feet) required (NMED Exhibit 3223-25). Therefore, the proposed rule provides detailed methodology that will produce depth-to-ground water measurements of the necessary accuracy. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 89.

278. Paragraph (2) of Subsection F of Section 2332 requires that monitoring wells be purged before sample collection and specifies purging requirements. Purging requires that the standing water in a monitoring well be removed prior to sample collection. The chemistry of standing water within a monitoring well may be altered by contact with atmospheric gases and the well screen materials. Thus, "purging" of the monitoring well is necessary to remove standing water from the well and induce ground water flow from the aquifer into the well. This paragraph allows the use of either two different accepted purging methods (three well volume removal or parameter stabilization). Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 90.

279. Paragraph (3) of Subsection F of Section 2332 requires the measurement and recording of pH, specific conductance, and temperature after purging and immediately prior to sample collection. These field parameters are routinely monitored during ground water investigations, and are easily collected with common field equipment. Field analysis of pH, prior to sample preservation, is necessary to evaluate the chemical conditions of ground water that may influence the analytical results of other constituents. In particular, pH in ground water

that is within a normal range (i.e., 6-8) gives validity to the analytical results for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, sulfate and total dissolved solids. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 90.

280. Paragraph (4) of Subsection F of Section 2332 requires that flow-through cells be disconnected or bypassed during collection of ground water samples. When well purging and sample collection are accomplished with pumps, flow-through cells are often used to simultaneously measure field parameters (pH, specific conductance, and temperature) during purging. When the sample is collected after well purging, the flow-through cell must be disconnected or bypassed in order to minimize the potential for the sample chemistry to be altered to ensure that the sample is representative of aquifer water quality conditions. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 91.

281. Paragraph (5) of Subsection F of Section 2332 requires that ground water samples be prepared, preserved, and transported in accordance with the requirements of the methods reference by Subsection B of Section 3224 of this proposed rule. Following such requirements is necessary to ensure that the quality of the samples will be preserved, thereby allowing reliable results to be obtained regarding chemical constituent concentrations in ground water. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 91.

282. Subsection G of Section 3223 of Section 2332 requires the permittee to collect quarterly ground water samples and have them analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, sulfate and total dissolved solids, and submit the results to the Department. Quarterly ground water quality sampling is a standard environmental industry and regulatory practice necessary to evaluate ground water quality and potential seasonal variations in ground water quality. Nitrate, TDS, and chloride are the major water contaminants of concern in dairy

wastewater with the potential to impact ground water quality. These three water contaminant constituents have associated WQCC ground water standards listed in 20.6.2.3103 NMAC, and been required to be monitored in Discharge Permits since the program began regulating the dairy industry. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 91-92. The Department's proposed Dairy Rule requires monitoring for sulfate because sulfate is a constituent of concern at dairy facilities. The Department has measured sulfate concentrations above WQCC standards in ground water at certain dairy monitoring wells. Given these results, an evaluation was required to determine if dairy waste contributed and/or caused sulfate ground water exceedances. Based on the Department's research and review of site specific data (NMED Exhibit 3223-27), monitoring of ground water under discharge plans must include sulfate analysis to assure that standards are not exceeded. Written Testimony of Bart Faris, NMED NOI Attachment 8, Pp. 92-93.

283. Subsection H of Section 3223 requires that the initial ground water samples collected from newly installed monitoring wells at new dairy facilities be collected prior to placing livestock at the facility. In the June 9 version this required collection prior to discharge, but as discussed in regard to Paragraphs (1) and (2) of Subsection A of this section, Commissioner Jones noted an inconsistency that this change resolves. See, Tr. 8, Pp. 1764-1772. This requirement is necessary to establish existing ground water quality conditions at the facility prior to any possible effect on ground water quality due to the facility. In addition, this subsection requires that initial ground water samples collected from newly installed monitoring wells at existing dairy facilities be collected within 150 days of the effective date of the discharge permit. This timeframe is necessary to allow ample time for a dairy facility to install monitoring wells after a discharge permit becomes effective and collect initial samples from the

wells. Lastly, this subsection also requires that new monitoring wells installed during the term of a permit, upon construction of a new impoundment, or as a result of corrective actions be sampled within 30 days of completion. This timeframe is necessary to allow a dairy facility ample time after well completion for the collection of initial samples. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 93-94. The change to this Subsection is reasonable and should be accepted.

284. Subsection I of Section 3223 requires that all monitoring wells be surveyed to establish horizontal positioning and top of casing elevations. Determination of horizontal positioning is necessary to determine accurately the location of wells relative to the features they are intended to monitor and their locations relative to other monitoring wells. Top of casing elevations are needed in order to calculate water level elevations in monitoring wells. This information is necessary to develop ground water elevation contour maps and identify ground water flow direction per Subsection L of this section, and to ascertain that each potential contaminant source at the dairy facility is properly monitored for impacts to ground water quality. The language of this subsection requires that newly installed monitoring wells at new dairy facilities be surveyed prior to placement of livestock at the facility. In its June 9 version this required collection prior to discharge, but as discussed in regard to Paragraphs (1) and (2) of Subsection A of this section, Commissioner Jones noted an inconsistency that this change resolves. See, Tr. 8, Pp. 1764-1772. This requirement allows for the establishment of existing ground water flow conditions at the facility prior to any possible influence due to the facility discharge. The language of this subsection requires that newly installed monitoring wells at existing dairy facilities be surveyed within 150 days of the effective date of the renewed discharge permit (see 20.6.2.3235). This timeframe provides ample time for a dairy facility to

contract with a qualified surveyor and a period of at least 30 days following monitoring well installation for performance of the well survey. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 94. The change to this Subsection is reasonable and should be accepted.

285. Subsection J of Section 2332 requires the submittal of a monitoring well completion report after the installation of monitoring wells at a dairy facility to provide all of the pertinent information related to monitoring well installation. The language of this subsection requires that the report be submitted prior to placement of livestock at the facility. In the June 9 version this required submittal of the report prior to discharge, but as discussed in regard to Paragraphs (1) and (2) of Subsection A of this section, Commissioner Jones noted an inconsistency that this change resolves. See, Tr. 8, Pp. 1764-1772. Monitoring well construction and lithologic logs are necessary to document well construction details and sub-surface geology at the dairy facility. Depth-to-ground water measurements and monitoring well survey data are necessary to prepare the ground water elevation contour map, which enables an evaluation of the direction of ground water flow at the facility upon the installation of new monitoring wells; submittal of the water level and survey data is necessary for the Department to evaluate the accuracy of the ground water elevation contour map. Submittal of analytical results is necessary for the Department to assess compliance with WQCC ground water standards at the location of the new monitoring wells. Submittal of the laboratory quality assurance/quality control report is necessary to ensure that laboratory analytical performance was within appropriate limits for the data to be valid. In addition, this subsection requires that a monitoring well completion report be submitted to the Department within 180 days of the effective date of the discharge permit which provides a period of at least 30 days following the monitoring well survey for the preparation of the report. This timeframe allows for completion of the work elements and submission of the

information in a manner that is not overly burdensome on the operator while ensuring that the Department can receive and evaluate this information in a timely manner. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 95. The change to this Subsection is reasonable and should be accepted.

286. Subsection K of Section 2332 requires the submittal of a monitoring well survey report in the event that the locations and top-of-casing elevations of existing monitoring wells need to be determined. Submittal of the surveyed map is necessary to document the accurate locations of the monitoring wells and the surveyed top-of-casing elevations. Depth-to-ground water measurements and the information contained on the surveyed map are needed to determine the direction of ground water flow at the facility upon completion of the survey. Submittal of the water level and survey data is necessary for the Department to evaluate the accuracy of the ground water flow direction determination. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 96.

287. Subsection L of Section 2332 requires the preparation and submittal of quarterly ground water elevation contour maps. Advection (the movement of solutes with flowing ground water) is the primary mechanism by which contaminants are transported in ground water (NMED Exhibit 3223-8, pp. 47, 109). Therefore, knowledge of ground water flow direction is essential to determine if monitoring wells are properly located to detect contaminant releases from sources. Ground water flows from areas of high potential energy (head) to areas of low potential energy, and its direction is perpendicular to lines of equal water table elevation (NMED Exhibit 3223-7, Pp. 79, 80). Thus, development of ground water elevation contour maps is necessary to determine and document ground water flow direction. Ground water flow direction should be evaluated throughout the year to assess potential seasonal variations due to changes in

recharge and discharge patterns (e.g., ground water pumping for irrigation); ground water flow evaluation on a quarterly basis is a reasonable and commonly used frequency. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 96.

288. Subsection M of Section 2332 allows the Department to inspect monitoring wells to determine if construction (specifically, screen type and length of screen below the water table) meets the requirements of this proposed rule. Well construction records may not be available for existing wells, or, as experienced by the Department, available records may be unreliable. For example, NMED Exhibit 3223-19 demonstrates that monitoring well information submitted on behalf of the permittee regarding well screen type, depth of top of well screen, and well depth do not represent the conditions observed by Department staff with a downhole camera. The use of downhole cameras allows the Department to determine if proper well screen has been used, if the screen interval is of an acceptable length, and if the screen is appropriately positioned relative to the water table. Knowledge regarding the length of screen below the water table is particularly important. The proposed language requires that the Department provide ample advance notice of the scheduled well inspection date to allow for the temporary removal of pumps and piping that may be installed in the well. In its June 9 version of this subsection, and in its final proposed rule, the Department modified the language to allow a permittee to use a third party to make the video camera inspection, and specifies the conditions for the third party inspection. Tr. 5, Pp. 984-985.

289. Section 20.6.2.3223 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3224 Monitoring Requirements For All Dairy Facilities.

290. Section 3224 sets forth the monitoring and reporting requirements for dairy facilities. Subsection A sets forth the date each quarterly report must be submitted when quarterly reports are required by other provisions in the rule. Reporting of dairy facility monitoring on a routine basis is necessary to effectively and efficiently determine that a dairy facility is operating in conformance with the operational and monitoring requirements of its permit, and to evaluate the impacts of the facility operations on ground water. Monitoring reports need to be submitted quarterly such that the Department has the opportunity to address operational issues that could have the potential to impact ground water quality in a timely manner. Under this schedule it will be possible to efficiently detect and address trends in ground water contamination and save permittees the cleanup costs of abatement of extensive pollution. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 97.

291. Subsection B of Section 3224 sets forth the acceptable methods of sampling and analysis. A requirement to use the analytical methods identified in Subsection B of 20.6.2.3107 NMAC and as described in Subsection B of Section 3224 (NMED Exhibits 3224-1 and 3224-2) is necessary to provide specificity and standardize the method used to analyze water samples, and for consistency with sampling requirements for discharge permits pursuant to Part 3 of the WQCC regulations. Furthermore, in this subsection, it is necessary to provide specificity and standardize the analytical methods to be used for soil analyses so that there can be a level of confidence that the results are repeatable and accurately represent the soil conditions (NMED Exhibit 3224-3). As discussed in the findings for Subsection G of Section 3223, and Subsection D of Section 3224 below, the proposed rule requires sampling and analysis for "total sulfur" when analyzing wastewater or stormwater samples.

292. Subsection C of 3224 requires the permittee to measure the volume of all wastewater discharged to wastewater impoundments using a flow meter, and to record the meter readings at intervals not to exceed seven days. The Department originally proposed a frequency of daily readings (NMED NOI Attachment 3) but modified this in its June 9 version and in its Final Proposed Rule based on concerns raised by DIGCE. Tr. 6, Pp. 1304-1308. Because this requirement applies to wastewater and combination wastewater/stormwater impoundments, the Department modified the language in its Final Proposed Rule to make clear that it applies to both. The changes are reasonable and should be accepted. The volumes measurements are necessary to allow the Department to assess a facility's compliance with the permitted maximum daily discharge volume, and subsequent compliance with the impoundment capacity and nutrient management requirements of the discharge permit and the rules. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 98-99.

293. The requirement to read a meter and record measurements on a daily basis is intended to be consistent with the requirement to inspect flow meters on a weekly basis (see Subsection O of Section 20.6.2.3220 NMAC), as both can be performed by the same person (for efficiency) and both serve as a method of verifying proper function of the meter.

294. Subsection D of Section 3224 requires a permittee to collect stormwater samples from stormwater impoundments quarterly and sets forth the analytes. The quality of stormwater runoff collected in stormwater impoundments will vary depending on the contaminant source (i.e., main corrals, calf raising areas, silage-feed storage areas, etc.) from which it was generated prior to collection and containment. Therefore the quality of the collected stormwater needs to be determined from each stormwater impoundment. Water contaminants present in a ground water sample collected from a monitoring well associated with a stormwater impoundment may

be attributed to stormwater quality specific to that impoundment. In this circumstance it will be necessary to compare the quality of stormwater in the impoundment to that observed in the monitoring well associated with the impoundment in order to evaluate whether a particular stormwater impoundment is responsible for causing impacts on ground water quality or an exceedance of water quality standards. In the case of the land application of stormwater, stormwater quality data is required to be used in a nutrient management plan to determine the proper land application of the stormwater in relation to all other nitrogen inputs covered within the nutrient management plan. A regular determination of the quality of the stormwater is necessary to meet this requirement. As discussed in the findings for Subsection G of Section 3223, the contaminated water should be analyzed for "total sulfur." Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 99-100.

295. Subsection E of Section 3224 requires annual flow meter calibration and reporting. Field calibration is important for these devices to ensure that gross inaccuracy is identified and eliminated and that reasonably accurate flow measurement is verifiable for each facility. Subsection E requires that field calibrations be accurate to ± 10% and performed upon installation and annually thereafter by an individual knowledgeable in flow measurement and the particular device in use. ± 10% accuracy represents a typical industry standard and is reasonable and achievable. Calibration following installation and annually thereafter is appropriate to ensure that flow metering devices are consistently functioning within the allowable calibration limits. These requirements match those included by the USEPA in NPDES permits (NMED Exhibit 3224-4, Pp. 6-3 and 6-4). Subsection E also requires that permittees submit a flow meter calibration report each May 1 along with their monitoring report and sets forth the required contents of the calibration report. Calibration reports are necessary to demonstrate that the flow

meters at dairy facilities are achieving the required level of accuracy. Written Testimony of Robert George, NMED NOI Attachment 8, Pp. 100-101.

296. Subsection F of Section 3224 requires that a permittee who is required to use a double synthetic liner with a leak detection system to monitor and report on the leachates in the system. The intent of a dual liner system with leak detection is to prevent ground water contamination in shallow ground water areas by providing a leak detection system for the collection of leachate from leaks in the primary liner and minimizing hydraulic head on the secondary liner; thus minimizing potential leakage from the impoundment system and impacts to ground water quality. In order to effectively minimize leakage from the dual-lined impoundment it is necessary that the components of the leachate removal system must be operational and monitored to ensure that there is no accumulation of leachate in the interstitial space between the liners creating hydraulic head on the secondary liner, or if leachate does accumulate the leak detection system can be managed to effectively minimize the hydraulic head on the secondary liner. In order to evaluate whether the removal of accumulated leachate in the leak detection system is minimizing the hydraulic head on the secondary liner, the volumes that are pumped and the time it took to accumulate with the capacity of the space between the liners will need to be compared. It is also necessary to evaluate whether the accumulated leachate is in fact leakage from the primary liner or an accumulation of condensation; thus it is necessary to collect and analyze samples of the leachate from the leak detection system to accomplish this purpose. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 101-102.

297. Section 20.6.2.3224 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3225 Additional Monitoring Requirements For Dairy Facilities With A Land Application Area.

298. Section 3225 sets forth the additional monitoring requirements required of a dairy that uses land application as a treatment system. Subsections A and B require the measurement and reporting of wastewater and stormwater being applied to the land application area using flow meters. Those facilities proposing to land apply wastewater and/or stormwater are ultimately proposing to use crop production as the nutrient "treatment and removal" system for their wastewater and/or stormwater. Knowing the amount of wastewater and/or stormwater applied as well as the quality of that wastewater/stormwater are key elements to determining if a crop's nutrient needs have been met or exceeded. It is important to meet both the water consumptive and nutrient needs of a crop to ensure a viable treatment system for the removal of nitrogen as well as other nutrients. However, it is just as important to not exceed the nutrient needs of a crop, causing buildup of nutrients in the soil profile, which has the potential of leaching to ground water. Therefore, it is important to accurately measure the volume of wastewater and stormwater that is applied to each crop to be able to determine the amount of nutrients applied. Without this information it is not possible to manage the nutrients applied effectively, nor is it possible to appropriately develop and utilize a nutrient management plan or assess compliance with such a plan. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 102-103.

299. Subsection C of Section 3225 sets forth the wastewater analytes that must be sampled and reported from a location between the manure solids separator and the impoundment. A representative wastewater quality sample is necessary for determining nutrient loading to fields within the land application area as well as for characterizing contaminants being stored in

the impoundment. This data is also necessary to develop an effective NMP. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 103.

300. The collection must be done before the waste water reaches the impoundment due to the complex hydraulic behavior of impoundments, natural flow patterns such as stagnant zones and recirculation, creating a non-uniform mix in these impoundments (NMED Exhibits 3225-5 and 3225-5A). Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 103-104.

301. Subsection D of Section 3225 states that the nitrogen content of the manure solids applied to each field within the land application area shall be estimated at 25 pounds of nitrogen per ton. This subsection is necessary to account for the nutrient content of manure solids to be land applied in the development of a nutrient management plan. This provision allows for the use of an estimated nitrogen content value (25 lbs N/ton) or actual sampling data from the facility. Both the estimated nitrogen content value and the procedure for collecting actual samples were derived from research specific to New Mexico dairies and conducted and published by Dr. Robert P. Flynn, Associate Professor, Cooperative Extension Service, New Mexico State University (NMED Exhibit 3225-6). Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 102-103.

302. Subsection E of Section 3225 requires a permittee to monitor irrigation wells used to supply water to land application fields to account for additional potential nitrogen supplied to the land application area. Because land application of wastewater and/or stormwater is a treatment and removal system, it is important and necessary to account for all nitrogen inputs being applied to a crop for the treatment and removal system to be effective. This subsection identifies irrigation water as another potential nitrogen input and requires that it be sampled,

analyzed and reported to the Department. This subsection also requires an estimate of the volume of irrigation water applied to account for the amount of nitrogen applied from irrigation water. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 105.

303. Subsection F of Section 3225 requires a permittee to keep a log of additional fertilizer applied to a land application field. This subsection is necessary to account for nutrients applied from additional fertilizer sources (commercial, inorganic, etc.) to each field in the land application area and to require the submission of a quarterly log to the Department. The Department will be able to compare the information contained within the log with the nutrient management plan to verify compliance and will be incorporated within the Land Application Data Sheets which documents all nutrient applications made to each field within the land application area pursuant to Subsection G of 20.6.2.3225 NMAC. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 105-106.

304. Subsection G of Section 3225 requires a permittee to complete and submit land application data sheets for each field in the land application area. Land application data sheets ("LADS") are used to document the nutrients available from each nutrient source to each crop grown on each field within the land application area. LADS summarize for an individual field within the land application area the crops grown, nutrients applied from different sources, and nutrients available from the soil or prior leguminous crops. Not only is it necessary to develop a plan for managing crop nutrients, but it is equally as important to then take the next step to determine what was actually applied and from what sources. This type of accounting will indicate the potential over-application (or under-application) that may have occurred to a given field and to which crop. It also documents the overall timing of nutrient applications, thus providing a recent history of what has occurred to a crop and/or field and may identify problems

which need to be corrected in the future. Written Testimony of William Pearson, NMED NOI Attachment 8, Pp. 106-107.

305. Subsections H, I and J of Section 3224 require reporting of crop yields, nitrogen content and crop nitrogen removal. These subsections work together to verify crop production and nutrient removal from fields within the land application area. With harvest yield data and nitrogen concentration of the harvested crop, the nitrogen taken up and removed by the harvested crop can be determined. When the nitrogen removal summary is compared to the LADS, which documents the nitrogen applied to the crop, an assessment can be made of whether nitrogen was under or over-applied. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 107.

306. Subsections K and L of Section 3225 require a permittee to collect composite soil samples from fields within a land application area, and set forth the analytes and procedures for collection. These subsections, taken together, establish the necessary soil sampling to develop, revise and update an effective NMP. The collection of soil samples to a depth of three feet will assess the effectiveness of the previous year's NMP and assist in developing a revised and current NMP for the coming year for each field within the land application area. Nutrient management planning must account for all nutrient inputs being applied to a crop for the "treatment and removal" system to be effective. Soil sampling analytical results are a key element in the development of an NMP. In order to develop the nutrient application rates and timing recommendations for the coming year's cropping season, it is necessary to understand the current nutrient availability in the soil for crop growth. Soil analysis assists in identifying areas of concern within a field and planning for the maintenance or improvement of the physical,

chemical and biological condition of the soil. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 109.

307. Section 20.6.2.3225 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3226 Additional Monitoring Requirements For Dairy Facilities Discharging To An Evaporative Wastewater Disposal System.

308. Section 3226 requires semi-annual sampling and reporting of wastewater in evaporative impoundments. As wastewater or wastewater/stormwater evaporates in these types of impoundments the contaminants become more concentrated. According to NMED Exhibit 3225-3 associated with the testimony of William Pearson, facilities that dispose of wastewater by evaporation have an average total TKN concentration in wastewater of 619 mg/l. This concentration is considerably higher than the average TKN concentration in wastewater that is land applied (281 mg/l). Samples from evaporative systems are necessary to assess the change in concentration of the contaminants in the impoundment. Like stormwater impoundments it is necessary to know the concentration of the contaminants in the wastewater or wastewater/stormwater being stored for evaporation so as to compare the analytical results to those of ground water samples obtained from adjacent monitoring wells associated with such impoundments, and thereby assess the impoundments impact on ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 111.

309. Section 20.6.2.3226 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3227 Contingency Requirements For All Dairy Facilities.

310. Section 3227 sets forth the actions a dairy must take if certain conditions occur, including exceedances of ground water standards at a monitoring well. This section was revised in the Department's Rebuttal Attachment 3, submitted March 29, 2010, (See, Written Testimony of George Schuman, NMED Rebuttal Attachment 3, Pp. 98- 100), again in its June 9 version (See, Tr. 5, p. 986), and also in its Final Proposed Rule, all in response to issues raised by DIGCE. See, Tr. 8, Pp. 1721-1724. In addition, in its Final Proposed Rule, the Department proposes to change the time periods for approval of corrective action plans and submission of revised corrective action plans from 30 days to 60 days. The proposed rule also changes the requirement that repairs to liners be completed within 180 days to within 240 days. These proposed changes were requested by the Department and agreed to by DIGCE in a post-hearing telephone call between counsel. The Coalition neither supports nor opposes the changes. These changes are reasonable and should be accepted.

311. Subsection A of Section 3227 applies to a situation where exceedances occur in a monitoring well other than one intended to monitor an impoundment. It requires that specific actions be taken if any two ground water samples from the monitoring well show exceedances of both WQCC ground water standards and contaminant concentrations in the upgradient monitoring well. The upgradient and downgradient samples must be taken within 2 days of each other. If ground water quality data from an upgradient well is not submitted, the standards of 20.6.2.3103 are applicable. Specifically, the permittee must either submit a corrective action plan within 120 days after the second exceedance, or submit a petition for variance and demonstrate to the Commission that the source of the contamination is not the source monitored

by the well. The permittee may be required to submit an abatement plan proposal pursuant to 20.6.2.4106 within 60 days after notice by the Department. In addition, in its Final Proposed Rule, the Department proposes to change the time periods for approval of corrective action plans and submission of revised corrective action plans from 30 days to 60 days. The proposed rule also changes the requirement that repairs to liners be completed within 180 days to within 240 days. These proposed time period changes were requested by the Department and agreed to by DIGCE in a post-hearing telephone call between counsel. The Coalition neither supports nor opposes these proposed changes. In its Final Proposed Rule, the Department also added a provision that will "reset" the contingencies in this subsection once the requirements of the subsection have been complied with and ground water monitoring shows no exceedances for 8 consecutive quarters, and the total nitrogen concentration in ground water is less than or equal to 10 mg/L. This change is based on a discussion at hearing between DIGCE and Mr. Schuman, suggesting that such a provision is needed. Tr. 8, p. 1723. This change is reasonable and should be accepted.

312. Subsection B of Section 3227 applies to exceedances at monitoring wells associated with impoundments. 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. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 112. Subsection B also requires that specific actions be taken if any two ground water samples from the monitoring well show exceedances of both WQCC ground water

standards and contaminant concentrations in the upgradient monitoring well. The upgradient and downgradient samples must be taken within 2 days of each other. If ground water quality data from an upgradient well is not submitted, the standards of 20.6.2.3103 are applicable. Specifically, if the impoundment is not synthetically lined, the permittee must submit a corrective action plan within 120 days after the second exceedance, or submit a petition for variance and demonstrate to the Commission that the source of the contamination is not the impoundment. The corrective action plan must include relining the impoundment or building a new impoundment with a synthetic liner. If the impoundment is already synthetically lined with a liner that is 40-mil unreinforced HDPE or 30-mil reinforced HDPE greater, the corrective action plan must propose to repair the liner using equivalent materials, or replace the liner using 60-mil HDPE or equivalent in accordance with Section 3217. Repairs must be completed within 240 days after the second exceedance analysis date. A replacement or reconstruction with a new synthetic liner must be completed within one-year after the second exceedance analysis date. An abatement plan may also be required. Department's Final Proposed Rule, Section 3227.B. As with Subsection A, the Department added a provision that will "reset" the contingencies in this subsection once the requirements of the subsection have been complied with and ground water monitoring shows no exceedances for 8 consecutive quarters, and the total nitrogen concentration in ground water is less than or equal to 10 mg/L. This change is based on a discussion at hearing between DIGCE and Mr. Schuman, suggesting that such a provision is needed. Tr. 8, p. 1723. This change is reasonable and should be accepted.

313. If the liner being repaired or replaced is the initial liner for the impoundment, the corrective action plan must be submitted within 120 days after the second exceedance. Any repairs must be completed within 240 days after the second exceedance. If a replacement is

needed, the dairy has a year to replace the liner or construct a new impoundment. Department's Final Proposed Rule, Section 3227.B.(2)(a).

314. If the liner at the impoundment where the exceedance occurred was installed because of a previous exceedance and was installed as a source control measure, the dairy may continue using the impoundment. Department's Final Proposed Rule, Section 3227.B.(2)(b).

315. Abatement plans can be required after two exceedances, but the dairy is given an opportunity to obtain a variance from the Commission if it can show that the impoundment is not the source of the exceedance. Department's Final Proposed Rule, Sections 3227.A(2); 3227.B(1)(c); 3227.B(2)(a)(iii).

316. Subsection C of Section 3227 provides that if information available to the Department indicates that a monitoring well is not located hydrologically downgradient of the contamination source it is intended to monitor, is not properly constructed, or contains insufficient water, a permittee must install a new monitoring well in compliance with the rule. Advection (the movement of solutes with flowing ground water) is the primary mechanism by which contaminants are transported in ground water (NMED Exhibit 3227-1, Pp. 47, 109). Therefore, a monitoring well must be located hydrologically downgradient of a contamination source to have the greatest probability of intercepting ground water that is most likely to be impacted by the source. A monitoring well must be replaced if it is not completed in accordance with the requirements of the proposed rule. The monitoring well completion requirements are necessary to ensure the use of monitoring wells that allow the collection of ground water quality data that are appropriate for comparison with ground water quality standards. A monitoring well must be replaced if it does not contain sufficient water to allow for sample collection. Because the proposed rule requires the collection of ground water samples at specific locations at a dairy

facility; monitoring wells that cannot be sampled prevent compliance with this requirement. Written Testimony of George Schuman, NMED NOI Attachment 8, p. 115. In its Final Proposed Rule, the Department added the word "to", so that it now says, "intended to monitor", fixing a typographical error.

317. Subsection D of Section 3227 provides specificity to the permittee of the actions to be taken when encountering exceedances of the permitted maximum daily discharge volume, based on the actual measured volume of wastewater discharged to an impoundment (see Subsection O of Section 20.6.2.3220 NMAC). This provision is necessary to provide flexibility, while taking into consideration the magnitude and the duration of potential exceedances and its effect on the proper function of the containment and treatment or disposal system. In the case where repeated exceedances of the maximum daily discharge volume occur, a corrective action plan is necessary to address acute issues that the facility has the ability to correct without the need to modify the permitted maximum daily discharge volume, whereas chronic issues may require the problem to be addressed through modification of the discharge permit. If the discharge permit is modified, the permit will need to reflect the revised maximum daily discharge volume, in addition to the impoundment capacities and nutrient management requirements of the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 115.

318. Subsection E of Section 3227 requires corrective action when an impoundment is not capable of meeting the required capacities. This contingency requirement is necessary to give specific direction and provide options to the permittee on what corrective actions may be taken. Corrective action in these circumstances is necessary to prevent unauthorized discharges and to eliminate the need to request emergency relief from the Department in the form of

temporary permission to discharge. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 116.

319. Subsection F of Section 3227 states that if a minimum of two feet of freeboard cannot be maintained at an impoundment, a corrective action plan must be submitted to the Department. Two-feet of freeboard is necessary to be maintained in wastewater and combination wastewater/stormwater impoundments in order accommodate fluctuating water levels due to wave action and prevent overtopping of the berms. Overtopping of the berms could threaten the structural integrity of the berms and potentially result in a catastrophic release from the impoundment. There are multiple scenarios for why two feet of freeboard may not be able to be preserved in an impoundment, which include acute and chronic issues. This subsection provides specific direction to the permittee of the actions to take in this circumstance, but allows the permittee options to assess the site-specific problem and propose site-specific solutions to address the problem through a Department approved corrective action plan. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 117.

320. Subsection G of Section 3227 requires a permittee to report damage to a berm, liner or structural integrity of a liner within 24 hours of discovery, and submit a corrective action plan within 15 days. Due to the potential impacts associated with impoundment failure, it is necessary for the permittee to provide immediate notification to the Department of conditions that could affect the structural integrity of an impoundment so that corrective actions may be initiated. Depending on the magnitude and scope of the activities to be completed, it is reasonable to allow up to one year for completion of these actions. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 117.

321. Subsection H of Section 3227 sets forth contingencies if a primary liner leaks in a double lined impoundment. Should monitoring data concerning leakage measurement of the primary liner (Subsection F of 20.6.2.3224 NMAC) indicate that the interstitial space between the primary and secondary liner cannot be kept free of fluids, a corrective action plan is necessary to address this situation. When the interstitial space between the liners is filled with fluid the double lined system begins to behave as a single liner system, because of the hydraulic head now placed on the secondary liner; defeating the purpose of a dual lined system. Because these dual-lined systems are required where ground water is at a depth of less than 50 feet and may be readily impacted by leakage from an impoundment, it is important that actions be taken to return the dual-lined system to proper working order. Thus, it is reasonable and necessary to require that a corrective action plan be submitted to the Department within 30 days of the discovered failure and that the permittee complete corrective actions within a year of that failure. This timeframe provides sufficient time for planning, design, and repair or construction/reconstruction activities to occur. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 117. In its Final Proposed Rule, the Department added language to Subsection H to address concerns raised by Commissioners at the hearing. Tr. 7, Pp. 1544-1556. The section now requires that the corrective action plan be submitted within 30 days of the date of discovery that the leakage rate detected in the leak detecting system is increasing or that the pump is unable to keep the interstitial space free of fluids. The corrective action plan must address how the leak will be assessed, how the liner will be repaired or replaced, and how wastewater or stormwater will be managed during the corrective action. This language is reasonable and should be accepted.

322. Subsection I of Section 3227 sets forth the actions that must be taken in the event of a spill or unauthorized release. This subsection is necessary to direct the permittees to Section 20.6.2.1203 NMAC for addressing unauthorized discharges in a general sense, while providing specificity in the form of immediate corrective actions that need to occur at a dairy facility for these types of events. For those facilities with a permitted land application area, wastewater or stormwater from unauthorized discharges may be applied only to the permitted land application area and documented (for the purpose of nutrient management) in accordance with the dairy rule. Written Testimony of William C. Olson, NMED Rebuttal Attachment 3, p. 118.

323. Section 20.6.2.3227 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3228 Additional Contingency Requirements For Dairy Facilities With A Land Application Area [Reserved].

324. Section 3228 was deleted by the Department in its June 9 version and in its Final Proposed Rule.

Section 20.6.2.3229 Additional Contingency Requirements For Dairy Facilities Discharging To An Evaporative Wastewater Disposal System.

325. This section requires a permittee who discharges to an evaporative wastewater impoundment to submit a corrective action plan if he cannot maintain two feet of freeboard at the impoundment, within two weeks of the discovery. Two-feet of freeboard is necessary to be maintained in wastewater and combination wastewater/stormwater impoundments in order to accommodate fluctuating water levels due to wave action and prevent overtopping of the berms.

Overtopping of the berms could threaten the structural integrity of the berms and potentially result in a catastrophic release from the impoundment. There are multiple scenarios for why two feet of freeboard may not be able to be preserved in an impoundment, which include acute and chronic issues. Unlike a facility that is authorized to land apply wastewater, a facility that disposes of wastewater or wastewater/stormwater by evaporation has more limited options to correct this problem. This section provides direction to the permittee, but allows the permittee options to assess the site-specific problem and propose site-specific solutions to address the problem through a Department approved corrective action plan. A prompt deadline of seven days is required because the facility does not have a permitted land application area for the discharge of wastewater, thus aggressive planning on the part of the permittee (in the form of a corrective action plan, which may include a request for temporary permission to discharge) is necessary to attempt to prevent unauthorized releases, and responsive oversight by the Department is imperative. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 119.

326. Section 20.6.2.3229 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3230 Closure Requirements For All Dairy Facilities.

327. Subsection A of Section 3230 sets forth the actions a dairy must take for closure of an impoundment or the facility. Paragraph (1) sets forth the required actions for permanent closure of the facility, including notification of the Department, installation of monitoring wells and emptying of impoundments. Manure solids must be removed from the facility or applied to

the land application area. Impoundment liners must be perforated or removed regraded to prevent ponding. The purpose of Paragraph (1) is to address the actions necessary for the permanent closure of a dairy facility to remove or mitigate all sources of water contaminants from the site prior to termination of the discharge permit. These requirements are necessary so that the dairy facility is properly cleaned up after operations have ceased. This will ensure that upon termination of the permit that there are not areas of the dairy facility that may pose a future threat to ground water quality. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 120. Paragraph (2) of Subsection A sets forth the requirements for closure of an impoundment. This paragraph is necessary to address the permanent closure of specific impoundments that are being replaced at dairy facilities that are not undergoing permanent closure of all operations. The closure requirements for these individual impoundments are consistent with the impoundment closure requirements for facilities that are in permanent closure. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 122.

328. Subsection B of Section 3230 sets forth requirements applicable once all the requirements of Subsection A are completed and confirmed. It requires continued ground water monitoring until at least eight consecutive sampling events confirm that the standards of Section 3103 are met. Once this occurs, ground water monitoring wells must be properly abandoned. The need to demonstrate compliance with ground water quality requirements over a period of eight consecutive sampling events (i.e., quarterly sampling events) is consistent with the requirements of Subsection D of 20.6.2.4103 NMAC. A water quality requirement for total nitrogen in ground water is included in the proposed closure language because nitrogen species other than nitrate (i.e., reduced forms of nitrogen) may be present in ground water. The presence of these nitrogen species indicates that reducing conditions exist in the portion of the aquifer

from which the sample was obtained. As the nitrogen species are transported by ground water flow, it is plausible that more oxygen-rich conditions would be encountered, thereby facilitating the conversion of the reduced forms of nitrogen to nitrate (NMED Exhibit 3230-1, p. 272). The conversion of reduced nitrogen species to nitrate could cause the WQCC nitrate ground water standard of 10 milligrams per liter to be exceeded, therefore the requirement to demonstrate total nitrogen concentrations of 10 milligrams per liter or less is appropriate. Written Testimony of George Schuman, NMED NOI Attachment 8, pp. 122-123.

329. Subsection C of Section 3230 sets forth the applicable abandonment procedures for a monitoring well. Well construction and abandonment rules issued by the Office of the State Engineer, Part 19.27.4 NMAC, require the proper abandonment of unused wells (NMED Exhibit 3230-2, p. 8). The language of this subsection requires the abandonment of monitoring wells following completion of post-closure ground water monitoring in accordance with the OSE rules and the requirements (i.e., casing removal and submittal of abandonment report to the Department) specified in this subsection. The abandonment report submittal timeframe of 60 days provides ample time for submittal of a copy of the report to the Department following submittal of the original report to the Office of the State Engineer (due no later than 20 days after completion of well abandonment activities). Written Testimony of George Schuman, NMED NOI Attachment 8, p. 123.

330. Subsection D of Section 3230 sets forth the conditions for discontinuance of ground water monitoring at an impoundment that has been closed. The requirements for continuation and conditions for discontinuation are substantially the same as for closure of the facility, and are required for the same reasons, but are only applicable to the particular monitoring wells.

331. Subsection E of Section 3230 sets forth the conditions for discontinuance of ground water monitoring at a land application area where use has been discontinued. The requirements for continuation and conditions for discontinuation of ground water monitoring are substantially the same as for closure of the facility, and are required for the same reasons, but are only applicable to the particular monitoring wells.

332. Section 20.6.2.3230 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3233 Record Retention Requirements For All Dairy Facilities.

333. Section 3233 sets forth the requirement that a dairy facility must retain written records of all data and information related to field measurements, sampling and analysis conductions pursuant to the dairy rule, and made available to the Department upon request. The records must be maintained for a period of 10 years after the date of the sample collection, measurement, report or application. It is important for the permittee to maintain records of various operational, maintenance and monitoring activities for a period of time such that the permittee can demonstrate that the dairy facility is performing in accordance with the dairy rules and permit requirements. This section has been included as a condition of discharge permits issued to all types of facilities for years. This section is necessary to provide clarity to the records provisions of Subsection A of 20.6.2.3107 NMAC by specifying the types of detailed information on what records must to be maintained. This subsection also specifies that these records be maintained for a period of 10 years. This record retention time period is necessary in

order for this information to be available to the Department through successive 5 year permit terms. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 124.

334. Section 20.6.2.3233 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3234 Transfer of Dairy Discharge Permits.

335. Subsection A of Section 3234 states that transfers are subject to Section 20.6.2.3111. Subsection B of Section 3234 states that the transferor must also provide contact information for the new owner pursuant to Sections 3206 and 32078 within 30 days of the ownership transfer. This section links the transfer of discharge permits for dairies with the existing requirements of Section 20.6.2.3111 NMAC. However, the existing requirements of Subsection A of Section 20.6.2.3111 NMAC are such that the transfer of a permit does not necessarily denote change of ownership of the facility and vice versa. Therefore, Subsection B of this section is necessary in order to obtain more detailed information on transfer of ownership of a dairy facility, when it occurs. By requiring the submittal of this information, the Department will be better informed of the person responsible for the discharge at the facility. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 125.

336. Section 20.6.2.3234 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3235 Continuing Effect of Prior Actions During Transition.

337. Subsection A of Section 3235 states that a discharge permit that has not expired before the effective date of the dairy rule shall remain in effect and enforceable pursuant to the terms and conditions of the permit. Subsection D of NMSA 1978, Section 74-6-5 of the recently amended Water Quality Act states, "[a]fter regulations have been adopted for a particular industry, permits for facilities in that industry shall be subject to conditions contained in the regulations." The purpose of this provision is to establish a smooth transition to the new dairy rule by allowing a valid discharge permit issued under the current rules to remain in effect until its expiration date. This approach will give permittees with existing, valid discharge permits falling under this provision, the time and opportunity to prepare for any new requirements under the dairy rule. Upon renewal of a discharge permit under the dairy rule, as mandated by the statute, these renewed discharge permits would be subject to the conditions contained in the dairy rule. This approach is necessary to provide dairy facilities with an existing discharge permit a smooth transition to new requirements in the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, Pp. 125-126.

338. At hearing, Commissioner Jones noted a concern that if an existing permit contains a provision that a renewal be submitted 120 days prior to expiration, whether that would be superceded by the new rule. Tr. 7, Pp. 1564 - 1565. In its Final Proposed Rule, the Department added language to Subsection A making clear that if an existing permit contains a condition that the permit renewal application must be submitted 120 days prior to the expiration date, that would supercede the one-year requirement of Subsection A of Section 3205 for a period of two years after these rules are effective.

339. Subsection B of Section 3235 states that an application for a new, renewed or modified permit submitted before the effective date of the dairy rule will be processed if it has

been deemed administratively complete and the requirements of Subsection D of 20.6.2.3108 have been met. As noted in Subsection A above, the amended Water Quality Act makes discharge permits subject to the conditions contained in the dairy rule. The purpose of this subsection is to manage discharge permit applications that are submitted before the effective date of the dairy rule. Those applications received before the effective date of the dairy rule will not likely provide all of the information required in an application under the dairy rule, nor will they likely include half of the applicable permit fee as required under the dairy rule. This subsection, in conjunction with Subsection D below, establishes that the Department will accept and process administratively complete applications that have been previously noticed under Subsection D of 20.6.2.3108 NMAC. Further, this subsection gives the applicant 90 days from the effective date of the dairy rule to pay the applicable permit fee. This subsection is necessary to reduce the burden of the new dairy rule upon dairy facilities with an existing discharge permit and provide a smooth transition from the current discharge permit rule to the new dairy rule for prior permit applications already submitted to the Department. Written Testimony of William C. Olson, NMED NOI Attachment 8, pp. 125-126.

340. Subsection C of Section 3235 sets forth requirements for dairies whose permits have expired as of the effective date of the dairy rule, and an application for a renewed permit has not been submitted. This subsection requires the permittee, owner of record of the dairy facility or the holder of the expired discharge permit to either submit an application for a discharge permit under the dairy rule, or, if the dairy facility has not been constructed or operated, submit a certification stating that the facility has not been constructed or operated and that no discharges have occurred. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 127.

341. There are 21 dairy facilities with expired discharge permits for which the Department has not received an application for renewal of the discharge permit (NMED Exhibit 3235-1). These facilities are currently in violation of Section 20.6.2.3104 NMAC because they are discharging without a discharge permit. The purpose of this requirement is to allow a reasonable and necessary amount of time for these facilities to achieve compliance with Section 20.6.2.3104 NMAC (by submitting an application for renewal of a discharge permit) and with the dairy rule (by submitting an application completed in accordance with Sections 20.6.2.3205 NMAC through 20.6.2.3208 NMAC of the dairy rule). Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 127.

342. Subsection D of Section 3235 sets forth the schedule under which applications will be processed beginning with the effective date of the dairy rule. Under Subsection B above, the Department proposes to accept and process applications already filed with the Department even though filed before the effective date of the dairy rule. Under Subsection C above, applications for renewal are required to be submitted to the Department for expired discharge permits if an application for renewal has not been received prior to the effective date of the dairy rule. The purpose of Subsection D is to manage the timely and efficient processing of all of those applications while transitioning to the requirements of the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 128.

343. The Department acknowledges that those applications falling under Subsection B above will not satisfy the requirements of Section 20.6.2.3205 through 20.6.2.3208 NMAC. This subsection manages the transition to the dairy rule by requiring the submission of the required information within 90 days of the effective date of a discharge permit. In the Department's experience, proceeding with issuance of a discharge permit that includes a requirement for

additional information, in this case to fulfill the requirements of Sections 20.6.2.3205 NMAC though 20.6.2.3208 NMAC, is more efficient than requiring an applicant who has submitted an administratively complete application and publicly noticed the application under the current rule to start the process over. It is in the best interest of the public, the dairy industry and the Department to have dairy facilities covered by discharge permits. Alternately, there would be significant delays in the renewal of these permits (NMED Exhibit 3235-2) if the Department had to request the information required by this rule prior to issuance of the draft permits. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 128.

344. The purpose of requiring the submission of the complete application information required by the dairy rule is so that Department has a complete written record as soon as possible after the effective date of the discharge permit and provide for the transition to the requirements of the dairy rule. It is important that the written record be available for the public's review and for the Department's evaluation of the dairy facility. Not requiring the submission of the information specified by the dairy rule would result in an information gap until the next discharge permit renewal application (approximately 5 years). Such a gap in the submission of information is not in the best interest of the public or the Department. In Paragraphs (1) through (6), the Department proposes a timeline, based on the prior discharge permit expiration dates, in which to propose approval of discharge permits (i.e., a draft discharge permit) or disapproval of an application. NMED Exhibit 3235-1 provides a breakdown of the number of expired permits for each year, which corresponds to the paragraphs in this requirement. The Department intends to process the applications as quickly as possible, but in the context of limited staff and state resources the Department cannot process all of the applications all at once. The timeline imposes challenging deadlines, but they are attainable because they are based on the actual number of

discharge permits that expired in each of those years. The Department needs a reasonable and manageable timeline to implement the transition to the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 128.

345. Subsection E of Section 3235 states that any dairy facility discharging, capable of recommencing discharging, or that has ceased during its most recent permit period must continue all monitoring and submittal of monitoring information as prescribed in its permit until a renewed permit is issued. Monitoring requirements are included in discharge permits to evaluate whether operations at a facility are occurring in a manner that is protective of ground water quality and consistent with the requirements of the discharge permit. Many monitoring requirements are independent of a facility's discharge status (i.e., active or inactive) and most are a function of time (e.g., ground water sampling from monitoring wells). This requirement is necessary to obtain a continuous and up-to-date record of monitoring data for the dairy facility regardless of permit expiration that will enable the Department to develop a discharge permit. Because 53.5 percent of active dairy facilities (77 of 144 active facilities) currently hold expired discharge permits (NMED Exhibit 3235-1), this requirement is intended for use during transition to the new dairy rule until dairy facilities are issued discharge permit renewals under the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 129.

346. Subsection F of Section 3235 states that any discharge permit proposed for approval (draft permit) under 20.6.2.3109 but not made final before the effective date of the dairy rule is withdrawn, and the permit fee will be applied toward the permit fee for the permit issued pursuant to the dairy rule. As noted above, the Water Quality Act makes discharge permits subject to the conditions contained in the dairy rule. The purpose of this subsection is to withdraw any proposed discharge permit approvals made before the effective date of the dairy

rule that are not final. By withdrawing these proposed approvals, the Department can issue a new proposed approval under the dairy rule and thereby facilitate a smooth transition to the dairy rule. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 130.

347. Section 20.6.2.3235 as proposed in the Department's Final Proposed Rule is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and should be adopted.

Statutory Criteria for Adoption of Proposed Rule.

348. NMSA 1978, Section 74-6-4(E) states that in adopting regulations to prevent or abate water pollution, the Commission shall give weight it deems appropriate to all relevant facts and circumstances, including the following:

349. (1) character and degree of injury to or interference with health, welfare, environment and property. In New Mexico, ground water is public property, and belongs to the state. Dairies pose a high potential risk of ground water contamination if wastewater effluent and stormwater is not stored and handled properly, and due to waste products associated with having many cows in a small area. The Department has numerous documented cases of dairy facilities in New Mexico that have contaminated ground water with nitrates, total dissolved solids, chloride, and sulfate. In fact, a majority of dairies in New Mexico have already contaminated ground water in excess of ground water standards. Contamination in excess of the water quality standards promulgated by the Commission presents a risk to health, welfare, the environment and property. Written Testimony of William C. Olson, NMED NOI Attachment 1, Pp. 17-18.

350. (2) the public interest, including the social and economic value of the sources of water contaminants. The Supreme Court has characterized water as "our greatest natural resource." *State ex.rel. Ericson v. McLean*, 62 N.M. 264, 272, 308 P.2d 983 (1957). Ground water is a public resource and approximately 90 percent of the population of New Mexico depends on ground water as a drinking water source. There is a strong public interest in maintaining clean, uncontaminated ground water in New Mexico. Testimony of William C. Olson, NMED NOI Attachment 1, p. 18.

351. Dairies also have a social and economic value as they provide jobs and a source of income for some New Mexicans. One source has estimated the economic value of dairy production in New Mexico to be approximately $2.7 billion a year. Written Testimony of William C. Olson, NMED NOI Attachment 1, p. 18.

352. The dairy rule proposed by the Department is intended to assure that ground water is not contaminated. The alternative to prevention of contamination is to remediate contamination after it occurs. While there is undoubtedly a cost to industry of taking the steps called for in the regulations to prevent and monitor ground water contamination, it is far less than the cost of remediating ground water contamination once it has occurred, which helps preserve the economic viability of the industry. Moreover, good prevention practices assure that costs are borne by the person or business responsible for the contamination, rather than creating the potential that the public or others will bear the cost of remediation for contamination. Written Testimony of William C. Olson, NMED NOI Attachment 1, p. 18.

353. The Department's proposed rule strikes a fair balance between the interests of the state and public in maintaining uncontaminated ground water, and the economic value of the

industrial source of the water contaminants. Written Testimony of William C. Olson, NMED NOI Attachment 1, Pp. 18-19.

354. (3) technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved. The ground water contamination prevention measures called for in the Department's proposed dairy rule are technically practical and economically reasonable. Section 74-6-4(E) states that "[r]egulations may specify a standard of performance for new sources that reflects the greatest reduction in the concentration of water contaminants that the commission determines to be achievable through application of the best available demonstrated control technology, processes, operating methods or other alternatives, including where practicable a standard permitting no discharge of pollutants". Prevention of ground water contamination at dairies is achievable through available control technologies and proper operating methods. None of the prevention and monitoring practices called for in the Department's proposal are novel or technically impractical. While there is a cost associated with the monitoring and prevention measures, the cost is far less than the cost of remediation, which will have to be undertaken if contamination does occur. Written Testimony of William C. Olson, NMED NOI Attachment 1, p. 19.

355. (4) successive uses, including but not limited to domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses. The primary concern of the Department's proposed dairy rule is to prevent ground water contamination, and to monitor ground water to assure that it remains uncontaminated. Successive uses for the public ground water potentially include domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses. These potential future uses make preservation of the resource important to the state and its

citizens. This is why the Commission's water quality regulations require that contaminated ground water be abated to applicable water quality standards. Written Testimony of William C. Olson, NMED NOI Attachment 1, Pp. 19-20.

356. (5) feasibility of a user or a subsequent user treating the water before a subsequent use. Should ground water become contaminated by a dairy, it is possible that users or subsequent users of the ground water could treat the water before use. This is not a preferred alternative to prevention, and the costs likely would be much higher than prevention. In addition, it could shift the costs of the contamination from those who caused the contamination to the public or future generations. The Commission's water quality regulations require abatement of contaminated water by the responsible party, rather than requiring treatment of water by subsequent users. Written Testimony of William C. Olson, NMED NOI Attachment 1, p. 20.

357. (6) property rights and accustomed uses. The New Mexico Dairy Industry had a 33 percent growth rate during the period 2001-2006. This indicates that the dairy industry on the scale it is practiced today is not an accustomed use in New Mexico, and was historically much smaller than it currently is. In addressing property rights, it is important to note that a person does not have the right to contaminate ground water in excess of an applicable ground water quality standard. Again, ground water is public property, and is protected as a public resource. Written Testimony of William C. Olson, NMED NOI Attachment 1, p. 20.

358. (7) federal water quality requirements. The Department's proposed regulations recognize that stormwater is regulated by the Environmental Protection Agency, because New Mexico is one of five states that does not have primacy over surface water discharges. As a result, the Department's proposed regulations refer to the federal Environmental Protection

Agency CAFO rules for stormwater discharges. Written Testimony of William C. Olson, NMED NOI Attachment 1, p. 21.

359. NMSA 1978, Section 74-6-4(K) requires that the Commission must consider the "best available scientific information." In developing and proposing this rule, the Department has relied upon the best scientific information available to it. The Department's proposal is scientifically sound and relies on overwhelming data in prescribing the most effective and reliable methods available to prevent ground water pollution and monitor water quality. The Department researched each of the measures proposed to prevent ground water pollution and to monitor water quality. As evidenced by the Department's exhibits submitted in support of its direct testimony, the Department's proposal is well supported by the best available scientific information. Testimony of William C. Olson, NMED Rebuttal Attachment 1, Pp. 3, 8-9.

CONCLUSIONS OF LAW

1. This case is to consider the adoption of Title 20, Chapter 6, Part 6, Rules Governing Ground Water Protection - Supplemental Permitting Requirements For Dairy Facilities, as proposed by the New Mexico Environment Department.

2. The Commission has authority to adopt the rule pursuant to NMSA 1978, Section 74-6-4(D).

3. The decisions of this Commission with regard to adoption of Title 20, Chapter 6, Part 6 in this proceeding shall not be (1) arbitrary, capricious or an abuse of discretion, (2) unsupported by substantial evidence in the record, or (3) otherwise not in accordance with the law. NMSA 1978, Section 74-6-7(B).

4. The notice in this proceeding encompasses the adoption of new rules for the dairy industry. The actions taken by the Commission to adopt regulations in this proceeding are within the scope set forth in the public notice, or are a "logical outgrowth" of the proposed rule. *Small Refiner Lead Phase-Down Task Force v. United States Environmental Protection Agency*, 705 F.2d 506 (D.C. Cir. 1983).

5. This case is to consider the adoption of new rules for the dairy industry to prevent water pollution. NMSA 1978, Section 74-6-4(E) sets forth the duties of the Commission and matters to be considered in the adoption of regulations to prevent or abate water pollution.

6. NMSA 1978, Section 74-6-4(E) states that in adopting regulations to prevent or abate water pollution, the Commission shall give weight it deems appropriate to all relevant facts and circumstances, including:

(1) character and degree of injury to or interference with health, welfare, environment and property;
(2) the public interest, including the social and economic value of the sources of water contaminants;
(3) technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved;
(4) successive uses, including but not limited to domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses;
(5) feasibility of a user or a subsequent user treating the water before a subsequent use;
(6) property rights and accustomed uses; and
(7) federal water quality requirements.

7. NMSA 1978, Section 74-6-4(K), states that the Commission "shall specify in regulations the measures to be taken to prevent water pollution and to monitor water quality. The commission may adopt regulations for particular industries. The commission shall adopt regulations for the dairy industry and the copper industry. The commission shall consider, in addition to the factors listed in Subsection E of this section, the best available scientific

information. The regulations may include variations in requirements based on site-specific factors, such as depth and distance to ground water and geological and hydrological conditions. The constituent agency shall establish an advisory committee composed of persons with knowledge and expertise particular to the industry category and other interested stakeholders to advise the constituent agency on appropriate regulations to be proposed for adoption by the commission. The regulations shall be developed and adopted in accordance with a schedule approved by the commission. The schedule shall incorporate an opportunity for public input and stakeholder negotiations."

8. Substantial evidence in this proceeding supports adopting the Department's Final Proposed Rule.

9. Credible scientific data in this proceeding supports adopting the Department's Final Proposed Rule.

10. The Department's Final Proposed Rule is based on the best available scientific information.

11. The Department's Final Proposed Rule specifies the measures to be taken to prevent water pollution and to monitor water quality.

12. The Department's Final Proposed Rule will institute ground water protections and monitoring that will prevent water pollution. Specifically, the rule will: require synthetic lining of all new and retrofitted wastewater and combination wastewater/stormwater impoundments; where the depth to ground water is less than or equal to 50 feet, require a primary and secondary liner with leak detection; require the use of flow meters to measure the volume of wastewater discharged a the dairy facility; provide enhanced public notice to property owners in the vicinity of a dairy facility; require setbacks for production and land application areas; specify

requirements for leachate management and backflow prevention; protect against ground water contamination from land application areas by requiring a nutrient management plan; and require dairy facilities to install a minimum of one ground water monitoring well hydrologically downgradient of each source of ground water contamination and one monitoring well hydrologically upgradient of all ground water contamination sources.

13. The Department's Final Proposed Rule is in the public interest, considering the social and economic value of the sources of water contaminants.

14. Adoption of the Department's Final Proposed Rule to add industry-specific rules for the dairy industry will ensure that discharges from dairies will not injure or interfere with health, welfare, environment and property.

15. Contamination in excess of the water quality standards promulgated by the Commission presents a risk to health, welfare, the environment and property.

16. Compliance with the Department's Final Proposed Rule will not unreasonably impair the social and economic value of the sources of the water contaminants.

17. The Department's Final Proposed Rule will help assure that ground water is not contaminated beyond allowable standards. The alternative to prevention of contamination is to remediate contamination after it occurs. The proposed rule strikes a fair balance between the interests of the state and public in maintaining uncontaminated ground water, and the social and economic value of the industrial source of the water contaminants.

18. Compliance with the Department's Final Proposed Rule is technically practical and economically reasonable for pollution prevention. Prevention of ground water contamination at dairies is achievable through available control technologies and proper

operating methods. On a site specific basis, permittees have the opportunity to petition for a variance from the requirements of the proposed amendments.

19. The Department's Final Proposed Rule will limit contaminant concentrations to levels which still allow for all successive future uses of groundwater resources. Potential future uses make preservation of the resource important to the state and its citizens.

20. Should ground water become contaminated by a dairy, it is possible that users or subsequent users of the ground water could treat the water before use. This is not a preferred alternative to prevention, and the costs likely would be much higher than prevention. The Commission's water quality regulations require abatement of contaminated water by the responsible party, rather than requiring treatment of water by subsequent users.

21. The Department's Final Proposed Rule will help prevent ground water pollution, thereby protecting property rights and allow for accustomed uses of ground-water resources. A person does not have the right to contaminate ground water in excess of the water quality standards promulgated by the Commission. Ground water is public property, and is protected as a public resource.

22. The Department's Final Proposed Rule is consistent with federal water quality requirements. The proposed rule recognizes that stormwater is regulated by the Environmental Protection Agency. The Department's Final Proposed Rule refers to the federal CAFO rules for stormwater discharges.

23. The Department's Final Proposed Rule meets all statutory criteria.

24. In administrative hearings under the Water Quality Act, the standard of proof is a preponderance of the evidence. See, *Matter of D'Angelo*, 105 N.M. 391 (1986) ("absent an allegation of fraud or a statute or court rule requiring the higher standard, the standard of proof in

administrative hearings is a preponderance of the evidence."); See also, *Foster v. Board of Dentistry*, 103 N.M. 776 (1986) ("In New Mexico the standard of proof applied in administrative proceedings, with few exceptions, is a preponderance of the evidence.").

25. The preponderance of the evidence demonstrates that the Department's Final Proposed Rule should be approved.

THE COMMISSION HEREBY ORDERS:

The Department's Final Proposed Rule, including any non-substantive amendments necessary for reformatting and filing with the State Records Center, is hereby adopted.

Respectfully submitted,

NEW MEXICO
ENVIRONMENT DEPARTMENT

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