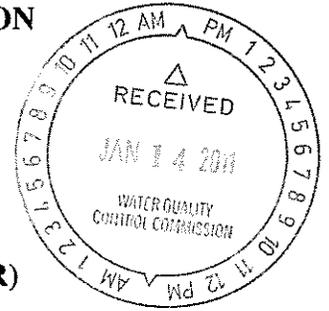


**STATE OF NEW MEXICO
BEFORE THE WATER QUALITY CONTROL COMMISSION**



_____)
In the Matter of:)
)
PROPOSED AMENDMENT)
TO 20.6.2 NMAC (Dairy Rule))
)
New Mexico Environment Department,)
Petitioner.)
)
_____)

No. WQCC 09-13(R)

PROPOSED STATEMENT OF REASONS AND ORDER

This matter comes before the Water Quality Control Commission ("Commission") upon a petition filed by the New Mexico Environment Department ("NMED" or "Petitioner"), proposing amendments to 20.6.2 NMAC – *Dairy Rule*. A public hearing was convened in Santa Fe, New Mexico on April 13, 2010 and continuing through April 16, 2010. Further hearings were conducted in Santa Fe, New Mexico on June 8, 2010 continuing through June 11, 2010. The Board heard technical testimony from Petitioner and other interested parties and admitted exhibits into the record. On December 11, 2010, the Board having familiarized itself with the Hearing Officer's Report, the record and the transcript of the proceedings, deliberated and adopted the proposed new regulations with several amendments as described in this order by a unanimous vote for the reasons that follow¹:

¹ 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).

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, 2010, DIGCE filed a Motion for Continuance of Deadlines in the Scheduling Order.
10. On March 25, 2010, the Hearing Officer issued his first amended Scheduling Order, rescheduling a prehearing conference.
11. On March 25, 2010, the Department filed a response to DIGCE's Motion for Continuance of Deadlines in the Scheduling Order.

12. On March 26, 2010, the Coalition filed a response to DIGCE's Motion for Continuance of Deadlines in the Scheduling Order.

13. On March 26, 2010, 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, 2010, 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. 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 8, 2010 and continuing through June 11, 2010, further public hearing was conducted on the petition.

28. On June 9, 2010, the Department filed a Notice of Revised NMED Rebuttal Attachment 2, June 8, 2010 version ("June 9 version").

29. On July 8, 2010, a Notice of Transcript was issued.

30. On July 20, 2010, the Hearing Officer issued the following Orders: (1) Order on the Coalition's Objections to Dr. Hagevoort's Pre-Filed Testimony; (2) Order on DIGCE's Request for Reconsideration of the Hearing Officer's Ruling on Alva Carter's Testimony; and (3) Order on NMED's Objections to Dr. Auvermann's Pre-Filed Testimony.

31. On August 23, 2010, the parties filed their closing arguments and proposed statements of reasons.

32. On October 7, 2010, the Hearing Officer issued his first Report.

33. On or around November 8, 2010, the parties filed their exceptions to the Hearing Officer's Report.

34. On December 10, 2010, the Hearing Officer filed his Final Report.

35. On December 14, 2010, the Hearing Officer filed a Proposed Statement of Reasons.

36. On December 11, 2010, the Commission met to consider the Hearing Officer Report and deliberated on the final rule.

LEGAL AUTHORITY

37. NMSA 1978, Section 74-6-4 (E) grants the Commission the authority to promulgate regulations to prevent or abate water pollution in the state.

38. 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.

39. The 2009 WQA amendments also require the Commission to "specify in regulations the measures to be taken to prevent water pollution and to monitor water quality." *See* NMSA 1978, § 74-6-4(K).

40. The 2009 WQA amendments also require the Commission to adopt regulations for the dairy industry. *See* NMSA 1978, § 74-6-4(K) ("The Commission shall adopt regulations for the dairy industry ...").

41. 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.

See NMSA 1978, § 74-6-4(K).

42. 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).

43. 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).

BACKGROUND

44. 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).

45. 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 at the request of the dairy industry (NMED Exhibit WO-8). NMED testified that the dairy industry boycotted the meetings.

Testimony of William Olson, NMED NOI Attachment 1, Pp.9-10.

46. 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.

47. 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.

48. 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.

49. 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.

50. 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.

51. 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.

52. On June 3, 2010, the Department filed a Notice of Proposed Language Changes, showing proposed changes to NMED Rebuttal Attachment 2.

53. On June 7, 2010, the Department filed a Supplemental Notice of Proposed Language Changes, and a Notice of Errata.

54. 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.

55. 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 made by the Commission to the Department's final proposed rule.

FINDINGS OF FACT

Section 20.6.2.3201 Purpose.

56. Section 20.6.2.3201² 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.

Section 20.6.2.3202 Definitions.

57. 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.

58. Section 20.6.2.3202(B)(18), the definition of "Impoundment," is amended to the to add the sentence, "A wastewater or stormwater transfer sump is not an impoundment." This clarification is 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.

59. Section 20.6.2.3202(B)(29), the definition of "Wastewater," is amended to delete the phrase "except overflow from the drinking water system and stormwater" in the first sentence, and to 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

² Section references contained herein are to the Department's Final Proposed Rule, filed concurrently with its Proposed Statement of Reasons on August 23, 2010, unless otherwise indicated.

indirectly used in facility operations." This language clarifies 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.

60. 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.

61. 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.

62. 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.

63. 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.

64. 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.

65. 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.

66. 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.

Section 20.6.2.3204 Fees.

67. Section 3204 addresses the permit application fees for dairy facilities.

68. 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.

69. 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.

70. 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.

71. 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. Any pollution prevention a monitoring program requires funds to operate and fees are reasonably related to this goal.

Section 20.6.2.3205 General Application Requirements For All Dairy Facilities.

72. 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.

73. 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.

74. 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.

75. 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.

76. The Coalition proposed that a closure plan and financial assurances should be submitted as part of an original permit application pointing to the testimony of Brian Shields as support for its proposal. Careful review of Shields' direct testimony reveals no comparative statistics or other evidence to support his contention that requiring financial assurance and closure plans during initial permit negotiations results in better permit compliance than the existing practice of requiring such assurances and plans at the facility closure stage. Pursuant to 20.6.2.3203(C) in the proposed rule, dairies would be subject to NMAC 20.6.3.3107(A)(11) NMAC, which provides that each discharge plan issued will include a closure plan including financial assurance. The Commission rejected the Coalition's proposal.

77. 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.

78. 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.

79. 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.

80. 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.

81. 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.

82. 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.

83. 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.

84. 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. Any concerns regarding application forms may be brought to the Department and Commission for review. *See* Tr. 772.

85. 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.

86. 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.

87. 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.

88. 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.

89. 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.

90. 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. DIGCE requested language to clarify that the Department has the burden of proof regarding additional permit conditions not specified in the rules. However, DIGCE believes that Section 74-6-5(D) adequately describes the Department's burden of proof. There is no need to further clarify the rule because of Section 74-6-5(D). *See* DIGCE's Proposal Statement of Reasons and Closing Legal Arguments, p. 21.

91. 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. The Coalition argued that 3205(I)(2) must provide NMED with sufficient regulatory flexibility to adequately protect state water quality in an emergency. The exclusion of 3109(C) from the Department's proposed rule eliminates "hazard to public health and undue risk to property". The WQA requires that the Commission consider the character and degree of injury to environment. *See* NMSA 1978, § 74-6-4(E)(1). Including the language regarding undue hazards and risk is consistent with that requirement. Therefore, the Commission amended this Subsection to read: "The secretary shall approve a discharge permit provided that it poses neither a hazard to public health nor undue risk to property, and ..."

92. Section 3205 as proposed in the Department's Final Proposed rule and amended by the Commission 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.

93. Subsection A of Section 3206 states that an application for a new discharge permit must include the information described in the section. The Coalition proposed that a closure plan and financial assurances should be submitted as part of an original permit application pointing to the testimony of Brian Shields as support for its proposal. Careful

review of Shields' direct testimony reveals no comparative statistics or other evidence to support his contention that requiring financial assurance and closure plans during initial permit negotiations results in better permit compliance than the existing practice of requiring such assurances and plans at the facility closure stage. Pursuant to 20.6.2.3203(C) in the proposed rule, dairies would be subject to NMAC 20.6.3.3107(A)(11) NMAC, which provides that each discharge plan issued will include a closure plan including financial assurance.

94. 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.

95. 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 is accepted.

96. 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, NMED re-instated the language in the rule, because officers and directors may change without notification to the Public Regulation Commission. Tr. 3, Pp. 520-522. The Commission in consultation with counsel decided to adopt the March 29, 2010 version of rule with regard to this portion.

97. 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.

98. 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. DIGCE recommended replacing the sentence referencing 3220(Z) (now (Y)) with "from an onsite boring or well in or near the production area" so that an onsite test boring is not always required. NMED's proposed changes resolve this issue.

99. 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.

100. DIGCE objected to the inclusion in Subsection I of sulfur because there is no groundwater standard and no supporting testimony. There is no groundwater standard for total sulfur in 20.6.2.3103 NMAC. Originally, the Hearing Officer noted that NMED's Proposed Statement of Reasons No. 282 provided persuasive evidence for requiring *sulfate* (not sulfur) monitoring, for which there is a groundwater standard. However, the Hearing Officer changed his recommendation after reading the exceptions. Sulfur is known to oxidize to sulfate and therefore, sulfur testing requirements should remain despite the absence of a groundwater standard. *See* Faris NOI Attachment 8, p. 93. In addition, although there is no Kjeldahl N groundwater standard, there is required testing for total Kjeldahl N. NMED's argument regarding Kjeldahl N testing requirements and sulfur oxidation are persuasive. Therefore, the Commission agreed with the Hearing Officer and will leave the sulfur testing requirements in the rule.

101. DIGCE recommended changes to Subsection K from DIGCE Ex 8. Specifically, DIGCE recommends replacing "metering" with "flow measuring" and adding a staff gauge option. DIGCE provided no credible evidence that staff gauges measure flow. NMED and the Coalition contend that flow meters are the only devices with sufficient accuracy. DIGCE Exhibit 71 establishes that certain flow meter types are accurate and reliable in a dairy environment, but require larger investment and power source. The Commission rejected DIGCE's suggestion to add language allowing other flow metering devices as it believes the definition of "flow meter" is broad enough to encompass other devices.

102. 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. DIGCE recommended the insertion of "or wells referenced" after "boring" to conform to changes proposed for 3220(Z) (now 3220(Y)). After NMED's proposed changes there is no occurrence of "boring" in 3206(L). NMED's changes address DIGCE's objections and are accepted.

103. 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.

104. Subsection R of 3206 deals with required land application area information in applications. DIGCE recommended deletion of "between the manure solids separator(s) and wastewater impoundment(s)" in Subsection R on the basis of redundancy. The Commission finds the requirement is sound and sees no reason for its deletion.

105. Cross-references in Section 3206 are changed to be consistent with changed subsection lettering in the Department's Final Proposed Rule.

106. 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.

Section 20.6.2.3207 Application Requirements For Discharge Permit Renewal or Modification.

107. 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.

108. The Coalition proposed that a closure plan and financial assurances should be submitted as part of an original permit application pointing to the testimony of Brian Shields as support for its proposal. Careful review of Shields' direct testimony reveals no comparative statistics or other evidence in support his contention that requiring financial assurance and closure plans during initial permit negotiations results in better permit compliance than the existing practice of requiring such assurances and plans at the facility closure stage. Pursuant to 20.6.2.3203(C) in the proposed rule, dairies would be subject to NMAC 20.6.3.3107(A)(11) NMAC, which provides that each discharge plan issued will include a closure plan including financial assurance.

109. 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 is accepted.

110. 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, NMED re-inserted the language in the rule, because officers and directors may change without notification to the Public Regulation Commission. Tr. 3, Pp. 520-522. DIGCE argued that a requirement to identify individual directors, officers, members, or shareholders in a corporation is not consistent with New Mexico corporate law. Information on directors and officers can be obtained from the Public Regulations Commission if they are needed for some purpose. This information changes over time, and since the liability rests with the corporation itself, there is no justification for requiring submission of this information. The Commission, in consultation with counsel, decided to adopt the March 29, 2010 version of the rule with regard to this portion.

111. 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 is accepted. Tr. 3, p. 594.

112. Subsection E sets forth the public notice requirement.

113. Subsection F sets forth the requirement for pre-discharge total dissolved solids concentration in ground water. In its Final Proposed Rule, the Department added 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.

114. Subsection G sets forth the requirement that an application include the proposed maximum daily discharge volume and other information related to discharge volumes.

115. 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 Department's Final Proposed Rule also corrects a cross-reference to conform to changes in the final proposal, and is accepted.

116. 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. DIGCE recommends incorporating its proposed changes to 3207(I) contained in DIGCE Ex 8. These changes include replacing "metering" with "flow measuring" and adding a staff gauge option. DIGCE provided no evidence that staff gauges measure flow. NMED contends that flow meters are the only devices with sufficient accuracy. The Commission rejected DIGCE's changes as the definition of "flow meter" is broad enough to encompass other devices.

117. 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. DIGCE proposed to adopt Subsection J to conform to the revisions to 3220(Z) (now 3220(Y)). In Paragraph 1, DIGCE proposed inserting "or wells referenced" after "boring". In NMED's Proposed Final Rule, there is no occurrence of "boring" in 3207(J). NMED's changes resolve DIGCE's complaint and are accepted.

118. Subsection K states that an application must include well construction logs for existing monitoring wells and an identification of monitoring well locations.

119. 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.

120. Subsection M requires applications to include a topographic location map, showing surface contours.

121. Subsection N requires applications to include a flood zone map.

122. Subsection O requires applications to include engineering and surveying plans for proposed structures and liners.

123. Subsection P requires dairies which are planning on using land application areas to include specific information about those areas. DIGCE recommended adopting Subsection P with the changes proposed in DIGCE Ex. 8 for consistency purposes. Specifically, DIGCE

sought the deletion of “between the manure solids separator(s) and wastewater impoundment(s)”. The Commission rejects this proposed change as it is not needed.

124. 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.

125. 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 is adopted.

Section 20.6.2.3209 Additional Public Notice Requirements for Applications for A New Discharge Permit.

126. 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.

127. DIGCE opposed the adoption of 3209. According to DIGCE, the Commission is not required to adopt additional public notice requirements for dairies because notice is not a measure to prevent ground water contamination or a monitoring measure. Also, DIGCE argued that there are no differences between dairies and other dischargers to justify different notice requirements. However, pursuant to NMSA 1978, Section 74-6-4(K) the Commission may adopt regulations specifically for the dairy industry which sets dairies apart from other dischargers. In addition, notice is reasonably related to the WQCC's mission of protecting the

public. *See* NMSA 1978, Section 74-6-4(D) (“The standards shall at a minimum protect the public health or welfare ...”). Section 3209 of the Department's Final Proposed Rule is reasonable and is adopted.

128. The Coalition argued that public notice should include map of facility. The Commission amended Subsection B to read: “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 and a copy of the map referenced in Subsection O of 20.6.2.3206 NMAC 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.”

Section 20.6.2.3215 Procedures For Requesting Public Hearings On Permitting Actions For Dairy Facilities.

129. 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.

130. DIGCE opposed the adoption of Section 3215 for reasons given in DIGCE Exhibit 8. DIGCE argues that there are no differences between dairies and other dischargers that justify different procedures for public hearings. In addition, it claims Subsection B is not sufficiently clear on what permit conditions are specified in the rules to require denial of a request for hearing. Nevertheless, the WQA requires that the Commission promulgate dairy specific regulations and different procedures for public hearings are permitted. In addition, all requirements in this Rule apply to all dairies, except where specifically exempted. Section 3215 of the Department's Final Proposed Rule is reasonable and is adopted.

Section 20.6.2.3216 Setback Requirements For Dairy Facilities Applying For A new Discharge Permit.

131. 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.

132. 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.

133. 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 is accepted.

134. The Coalition proposed that setback requirements should be at least one (1) mile between the dairy and the nearest occupied residence. DIGCE opposed the adoption of these changes for the reasons stated in its rebuttal testimony particularly that it is not fair to retroactively impose setback conditions on existing facilities that already have obtained permits and invested in plans, designs, land and other components of a dairy. The expertise and experience of NMED with other regulations is persuasive on this issue and supports denying the Coalition's proposal. *See Olson Direct, Ex. 8, p. 24.* The Coalition proposed 1-mile

setbacks only for new dairy discharge permits. *See* Martin Direct, p. 16; Ex C-2 p. 2 (suggesting modification of section 3206 and requesting new section 3217).

135. DIGCE proposed to amend Subsection D(2) [now E(2)] to delete the phrase “and are located on the dairy facility.” DIGCE proposed to insert "downgradient" before "springs" and "wells" in 3216(E). However, groundwater flow direction can be affected, even reversed, by pumping from upgradient wells. In addition, Schuman testified that groundwater direction can change depending upon season. NMED Rebuttal Attachment 3 pp. 88-89; Schuman Tr. V. 8 pp. 1742-1744.

136. DIGCE proposed to adopt Subsection E [Now F] with the changes proposed in DIGCE Ex. 8. Specifically, DIGCE wanted to add the language “established unless berms or other control features are constructed” to Subsection (1)(a). DIGCE argues that this will provide a waiver for setbacks if berms or filters are installed, consistent with EPA CAFO rule (DIGCE Ex. 60-62). Section 3219(F) addresses surface water protection, regulation of which is limited to the provisions of 20.6.2.2101 (prohibiting discharges of effluents with excessive concentrations of 5 parameters only). Surface water setback provisions are needed for smaller dairies not covered by the federal CAFO rule. Also, setback requirements must be based on groundwater protection. State regulations for groundwater protection do not have to correlate with the federal CAFO rules. Waivers for berms and dikes suggested by DIGCE are improper because surface berms and dikes do not improve groundwater protection. Berms and dikes are not protective because of the inability of berms and dikes to control pollutant migration in groundwater.

137. DIGCE proposed to adopt Subsection F (would be G if adopted) from DIGCE Ex. 8. This Section was not included in the Department’s Final Rule. DIGCE proposes to add the

following: "... an applicant may submit a proposal for implementation of engineered features, buffers, or physical conditions such as topography, in lieu of the setback limits, along with a demonstration that the proposal would provide equivalent or better protection than would be achieved by the setback limits specified in this section. The department may issue a permit requiring implementation of the proposal in lieu of the setback limit if it finds that the proposal would provide equivalent or better protection of water quality than would be achieved by the setback limits." DIGCE argues that this added subsection provides flexibility for consideration of alternative measures to provide the same protection as setback distances, which could be approved in NMED's discretion. This is consistent with the approach in the EPA CAFO requirements. (DIGCE Ex 8 p. 30). The Commission rejected this proposal because the dairy rule is limited to groundwater protection and surface engineered features such as berms and dikes will not prevent infiltration of water into the ground as noted by Commissioner Jones. (Deliberation Tr., vol. 2 at 267:17).

Section 20.6.2.3217 Engineering and Surveying Requirements for All Dairy Facilities.

138. 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.

139. 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.

140. 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.

141. 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.

142. 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.

143. 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.

144. 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.

145. 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.

146. 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.

147. 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.

148. 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).

149. 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.

150. 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.

151. 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.

152. 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.

153. 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. Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 32.

154. 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.

155. 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.

156. 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. DIGCE requested a waiver for certification by a registered professional engineer in 3217(C)(7), because a flow meter's performance is warranted by manufacturers. However, the installation of a flow meter is not warranted by the meter manufacturer. DIGCE also recommended incorporating changes to 3217(C)(7) from DIGCE Ex 8. These changes include adding "or volume measurement device" after "meter(s)". The Commission rejected DIGCE's proposal because the Commission believes that the definition of "flow meter" is broad enough to encompass other measuring devices.

157. 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.

158. 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.

159. 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.

160. 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 are accepted.

161. 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.

162. 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.

163. 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.

164. 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.

165. 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. DIGCE recommended replacing 95% in Paragraph (4)(c) with 90%, based on NMED's engineer's recommendation. *See* Tr. 1005-1007. The Commission adopts said change.

166. 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.

167. 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. 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).

168. NMED supported double liners while DIGCE opposed double liners. Mr. Olson stated that double liners offer the best protection available, but did not present scientific evidence that double liners perform better than single liners (NMED NOI Ex. 8 p.40, NMED Closing p.18, Tr. 1425). NMED did not present scientific studies of groundwater contamination from clay-lined lagoons (Tr. 1073). NMED did not present scientific evidence

comparing 40 mil and 60 mil liner performance (Tr. 1010), but did provide citations to one other NMED design specification that require 60-mil liners (NMED Rebuttal Attachment 3, p. 41, NMED NOI Ex. 3217-10). Commission Jones's cross established that DIGCE provided no scientific justification for 40 mil over 60 mil (Tr. 2008 p.24; Tr. 2397 p.1). Olson Rebuttal Attachment 3, p. 41 refers to his direct testimony in which he described the protective functions of a double liner and referenced EPA liner construction guidelines, but did not offer any scientific studies establishing that double liners are more effective than single liners. In response to concerns from Commissioner Tso about the lack of a direct scientific study to confirm groundwater contamination from leakage of clay-lined impoundments, Olson stated "we did not do that analysis." *See* Tr. v5 p. 1088. NMED Ex. 3217-10, pp. 130-154 is the Construction Program Bureau recommendations for situations in which clay liners are not appropriate. However, there is no reference to any scientific studies establishing that double liners are more protective than single liners. Thomas Rebuttal Attachment 3, p. 41 discussed several impoundment construction specifications and liner material specifications, but did not offer any scientific studies establishing that double liners are more effective than single liners. Thomas discussed the relative strength of 40 mil vs. 60 mil liners, but did not offer any scientific studies establishing that double liners are more effective than single liners. Thomas Tr. v5 p. 1054. NMED Ex. 3217-14 contains procedures for testing the integrity of synthetic liner materials. However, there is no reference to any scientific studies establishing that double liners are more protective than single liners. DIGCE Ex. 8 p. 40 includes only struck regulatory text, and no reference to any scientific studies establishing that double liners are more effective than single liners. Considering this evidence, the Commission voted to strike

the requirement for double-liners. Therefore, the Commission struck text related to double liners and voted to only require a single 60 mil HDPE synthetic liner.

169. 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. DIGCE proposed adoption of Subsection (7) as proposed in its Exhibit 8 which deletes reference to 60-mil HDPE. The Commission rejected this suggestion.

170. 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.

171. 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.

172. 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 wastewater only. 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.

173. Section 20.6.2.3217 as proposed in the Department's Final Proposed Rule and amended by the Commission is reasonable and necessary to adequately prevent water pollution and monitor water quality and should be adopted.

Section 20.6.2.3218

The Commission amended this Section to delete the title and to read: “[RESERVED]”

Section 20.6.2.3219

The Commission amended this Section to delete the title and to read: “[RESERVED]”

Section 20.6.2.3220 Operational Requirements For All Dairy Facilities.

174. 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 manure contaminated 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.

175. DIGCE requested that 3220 be redrafted to identify provisions as permit conditions. NMED objected arguing that the added phrase could leave the impression that only the requirements in 3220 pertains to discharge permits, although required "conditions" also occur in numerous other sections of the Rule. DIGCE provided no evidence in support of the requested change. Added conditions, after adequate review, are allowed at 3205(H).

176. 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.

177. 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.

178. 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. DIGCE recommended adopting this Subsection but striking the sentence "For the purpose of this subsection ... within two days of each other." DIGCE argued that there is no relationship between the two day requirement and groundwater travel. Shuman acknowledged the lack of connection between the two-day requirement and groundwater flow. *See* Tr. v8, p. 1735. However, DIGCE did not provide any evidence against the time limit. The Commission accepted the Department's requirement.

179. 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 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.

180. 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 accepted. Tr. 5, Pp. 981-982.

181. 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.

182. 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.

183. 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.

184. DIGCE recommended adopting 3220(D) from DIGCE Ex 8. In particular, for methods identified as ways to measure thickness of settled solids, DIGCE proposes to add the following subsection - "For impoundments with staff gages or equivalent measuring gauges, the permittee shall pump the fluid level down to the top of the settled solids surface and record the gage height or other measurement device height to the nearest 0.5 foot and estimate the total volume of settled solids 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." DIGCE's proposal is flawed as 3220(D)(4) and (5) are required, even if an alternative procedure is adopted.

185. 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.

186. 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.

187. 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.

188. DIGCE proposed adopting 3220(E) as proposed in DIGCE Ex 8. Specifically, it wants to add combination impoundments to 3220(E)(1)(a) and to delete 3220(E)(1)(b). NMED deleted 3220(E)(1)(c) to avoid regulating stormwater pond impoundments. DIGCE's Statement of Reasons nor Exhibit 8 provides any reasoning for combining 3220(E)(1)(a) and (b).

189. 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.

190. DIGCE recommended adopting the language for 3220(F) from DIGCE Ex 8. Specifically it wants a waiver option for existing dairies. It proposed to add to Paragraph (2) the following: "The department may waive the requirement for a solids separator for an existing dairy upon a showing that the dairy has sufficient impoundment capacity to contain wastewater without solids removal for at least five years, considering any plan for solids

removal, and that the configuration of the existing dairy makes installation of a manure solids separator infeasible or the cost of installing a solids separator would affect the dairy's ability to remain in business." DIGCE provided no reference to the record in support of their proposal for a waiver of requirement for solids separator. Discussion occurred between Mr. Moellenberg and Mr. Olson about the requirement for existing dairy to seek a waiver if there is insufficient room to install a manure separator. *See* Tr. 1114 et seq.

191. 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.

192. 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.

193. 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 and is accepted. Tr. 5, Pp. 981-982.

194. DIGCE recommended deleting the phrase "and to restore the free capacity required by Subsection D of 20.6.2.3217 NMAC", but this phrase removed by NMED in its Final Rule.

195. 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 and is accepted. Tr. 5, Pp. 981-982.

196. 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.

197. DIGCE recommended adopting Subsection K (now J) language from DIGCE Ex. 8 which would allow other approved measuring devices. *See* NMED Closing p.31. NMED provided circumstantial scientific evidence that flow meters work in wastewater environments, without specifics regarding applicability to dairies. NMED Exhibit 3220-5 provides persuasive scientific arguments against the use of staff gauges to measure flow rates. DIGCE provided opinion testimony, but no scientific evidence, that flow meters are inferior to staff gauges for flow measurement at dairies. DIGCE Ex. 71 summarizes research showing that some flow meters work very well for measuring manure pond discharges. DIGCE's testimony established

that use of flow meters is a best management practice (Testimony of Norman Mullin, Hearing Tr. Vol. 11, P. 2337). DIGCE states that Mullin's testimony at Tr v11 p. 2337 identified flow metering as a best management practice only for discharges from an impoundment to irrigation fields area. The Commission rejected DIGCE's suggestion.

198. 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.

199. 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.

200. 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.

201. 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.

202. 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.

203. 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.

204. DIGCE recommended changing the language of renumbered Subsections (L) through (N) to allow for other measuring devices. The Commission rejected DIGCE's suggestion because the definition of "flow meter" is broad enough to encompass other measuring devices. Also, the Commission was persuaded by the Department's argument about the potential for extensive negotiations between dairies and the Department regarding approvable flow-measuring devices which would prevent a streamlined permit issuance process.

205. 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.

206. 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 is accepted.

207. DIGCE recommended the adoption of 3220(P) (now O) from DIGCE Ex 8. DIGCE's changes would allow other measuring devices, and add "as soon as practicable" for failed meter replacement. The Commission rejected this proposal because it wanted a hard and fast rule. It would also add a sentence requiring inspection of measuring device including staff gauges before measurement is taken. The staff gauges portion is denied based upon NMED Ex: 3220-5. The added sentence regarding inspection of measuring devices as noted in DIGCE Ex. 8 for 3220(P) is denied because the Commission rejected previous proposed amendments regarding other flow-measuring devices making the issue moot.

208. 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.

209. 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.

210. Subsection Q of Section 3220 applies to dairies that have double liners with a leak detection system. This section was deleted because the Commission decided against double liners. The remaining sections are renumbered for filing with State Records.

211. 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.

212. 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.

213. 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.

214. 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. DIGCE recommended deleting the second sentence in 3220(V) (now U). NMED has stated that it is fine with stormwater leachate being directed to a stormwater

pond, but objects to ponding of any leachate at the silage storage area. *See* Tr. 1122. The Commission amends this section to insert "or the stormwater impoundment" after "impervious surface".

215. 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.

216. 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 are accepted.

217. 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.

218. 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.

219. DIGCE recommended adopting Paragraph 1 but not 2 of 3220(Z) (now Y) of NMED's June 3, 2010 submittal. According to DIGCE paragraph 2 is tied to the need for a more precise depth-to-groundwater requirements. Depth to groundwater is only needed if double liners are adopted. Although the double liner requirement has been removed, the

Commission felt these requirements were still important because the lithologic log provides information about the geology underlying the dairy and rejected DIGCE's proposal.

220. 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.

221. 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.

222. 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 are accepted.

223. Section 20.6.2.3220 as proposed in the Department's Final Proposed Rule as amended by the Commission is reasonable and necessary to adequately implement the dairy

rule and to prevent water pollution and monitor water quality and is adopted with the foregoing changes.

Section 20.6.2.3221 Additional Operational Requirements For Dairy Facilities With A Land Application Area.

224. 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.

225. Subsection B of Section 3221 prohibits the introduction of irrigation water into any impoundment authorized for the storage of wastewater or stormwater.

226. DIGCE recommended the adoption 3221(B) language from DIGCE Ex 8. DIGCE wants to change the Subsection title from "Prohibition of" to "Limitations on", and allow irrigation water in impoundment as long as it is drained within 48 hours. NMED provided persuasive scientific evidence that adding irrigation water to a wastewater impoundment causes unpredictable effects on nutrient concentrations across the impoundment

volume, undermining proper implementation of the nutrient management plan. *See* NMED closing argument p.41.

227. 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.

228. 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.

229. 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.

230. 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.

231. 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.

232. 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.

233. 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.

234. DIGCE recommended adopting 3221(D) language from DIGCE Ex 8. DIGCE argues that water rights are needed only while permit is in effect, and "a dairy previously permitted for land application to non-irrigated fields may be permitted to continue to do so as long as no exceedances of ground water standards are evident." There is no testimony in the transcript that addresses DIGCE's suggestions for 3221(D). Limiting water rights requirement to permit life is acceptable. However, grandfathering land application in existing permits will

perpetuate an unacceptable practice that has a strong likelihood to contaminate groundwater.

The Commission accepted NMED's proposed language:

235. 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.

236. 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.

237. 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.

238. 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.

239. 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.

240. 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.

241. 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.

242. 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.

243. 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 is adopted.

244. 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. Written Testimony of William Pearson, NMED NOI Attachment 8, p. 65.

245. DIGCE recommends adopting 3221(J) language from DIGCE Ex 8 which would allow other measuring devices. NMED provided circumstantial scientific evidence that flow meters work in wastewater environments, without specifics regarding applicability to dairies. *See* NMED Closing p.31. NMED Ex 3220-5 provides persuasive scientific arguments against the use of staff gauges to measure flow rates. DIGCE provided opinion testimony, but no scientific evidence, that flow meters are inferior to staff gauges for flow measurement at dairies. DIGCE Ex. 71 summarizes research showing that some flow meters work very well for measuring manure pond discharges. DIGCE testimony established that use of flow meters is a best management practice (Testimony of Norman Mullin, Hearing Tr. Vol. 11, P. 2337). The Commission rejected DIGCE's request.

246. 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.

247. DIGCE argues that 3221(K) should allow certification by any one of the listed professionals "based on testimony at the hearing." Pearson's testimony clarifies that CCA/CPAg and CNMP certifications represent different areas of knowledge, so that both signatures are necessary. *See* NMED Rebuttal Attachment 3, p69; Tr. v6 p. 1222. Pearson's rebuttal testimony is not clear about the difference between the two certifications.

Nevertheless, the Commission supports the requirement for both signatures on each Nutrient Management Plan.

248. 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.

249. 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.

250. 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.

251. 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.

252. 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.

253. 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.

254. 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.

255. 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.

256. 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.

257. 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).

258. 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.

259. 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.

260. 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.

261. DIGCE recommends inserting "For new dairies" after "Backflow Prevention" so that total disconnect or RP methods apply only to new dairies. NMED could not cite a case of contamination caused by failure of a chemigation valve. Tr. 1233. NMED provided evidence that total disconnect is recommended by national plumbing organizations (NMED Ex. 3221-20 and 3221-21). DIGCE's suggested language would exempt all existing dairies from requirements to update backflow protection to industry standards. The Commission rejected DIGCE's proposal.

262. 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.

263. Subsection Q of Section 3221 requires that supply wells located within the land application 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.

264. Section 3221 of the Department's Final Proposed Rule contains cross-reference corrections to conform to relettered subsections. These changes should be accepted.

265. Section 20.6.2.3221 as proposed in the Department's Final Proposed Rule and amended by the Commission 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.

266. 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.

267. 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.

268. DIGCE proposed eliminating the language "including but not limited to" because the only pollution sources identified in the regulations are ponds and land application areas. The phrase "source of groundwater contamination" is not defined. Therefore, NMED will have carte blanche to define sources not already discussed in the rule. That situation is untenable for the dairies. NMED contended that dairies must be responsible for all contamination sources. NMED states that no evidence was provided regarding dairies' untenable position. DIGCE witness Auvermann's Exhibit 64 questioned the validity of monitoring wells as a contamination source apportionment tool. While impoundments and land application areas are addressed specifically in the Rule, no limitation is established for potential "sources of groundwater contamination". The language proposed by NMED requires a monitoring well downgradient of each "source" (not "potential source") of groundwater contamination, suggesting that actual contamination must be established before a monitoring well can be required. It appears an untenable situation for dairies if an NMED inspector can simply declare an area as a source (or

potential source) of groundwater contamination and require the installation of a downgradient monitoring well. Some criteria are needed to define such sources before new monitoring wells are required. The Commission hereby strikes "including but not limited to" language.

269. DIGCE questioned the use of monitoring wells through the testimony of Sweeten. Sweeten testified regarding the risks of monitoring wells (Tr. v9 pp. 1916-17 & 1967) and cost-effectiveness of monitoring wells (Tr. v9 pp. 1869-70 & 1899-1900), especially for situations with deep groundwater and low contamination potential. According to DIGCE, the real issue is whether a monitoring well is required for every potential source of contamination. *See* Sweeten Tr. v9, p. 1903. Vadose zone monitoring can more quickly detect if a discharge is occurring. *See* Sweeten Tr. v9, p. 1905-09. Why install a monitoring well if there is no evidence of a discharge? Sweeten Tr v9, pp. 1919-20. DIGCE's proposal allows a monitoring well if contamination discharge is detected. Sweeten Tr v9, pp. 1983-84. Sweeten testified that improperly sealed and improperly completed wells can provide conduits to groundwater, but provided no scientific evidence. Tr. v9 pp. 1916-17. He also testified that poking holes every so many feet around the perimeter of an impoundment invites groundwater contamination, but provided no scientific evidence. Tr. v9 p. 1967. Sweeten also opined that a monitoring well may miss a contaminant plume, so vadose zone monitoring is better. Tr. v9 p. 869-70. Monitoring wells can yield false-negative and false positive results. A large array of wells is required to ensure that a plume is detected. Tr. v9 pp. 1899-1900. A dairy can have numerous features that could be considered potential discharge points. Sweeten opined that requiring a monitoring well for each one without targeting the approach can become pointless. Tr. v9 p. 1903. Vadose zone monitoring and mass-balance methods provide an earlier indication of contamination movement than can monitoring groundwater in a well. Tr. v9 pp.

1905-09. Monitoring wells can establish compliance with groundwater standards on an instantaneous basis, but cannot project what contaminants may be approaching groundwater like vadose zone monitoring can. Tr. v9 pp. 1919-1920. DIGCE Ex. 8, p. 72 proposed Subsection (3) provides that NMED may require a monitoring well if alternative monitoring indicates likely adverse impact to groundwater. Tr. v9 pp. 1983-1984. The Commission does not agree with this proposal because if groundwater has been adversely impacted, the damage has already been done.

270. 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 additional 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.

271. 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. DIGCE recommended adopting 3223(A)(1)(b) language from DIGCE Ex 8 to read: "For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit, provided that NMED may grant an extension of time for good cause shown, such as the lack of availability of well drillers." NMED opposed unlimited extensions proposing a limited one-time extension of 60 days to avoid repeated requests by dairies for extensions. The Commission therefore amends this section to allow for a limited one-time extension of 60 days for good cause shown.

272. 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 additional 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.

273. 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. DIGCE recommended adopting 3223(A)(2)(b) from DIGCE Ex. 8 to read "For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit, *provided that NMED may grant an extension of time for good cause shown, such as the lack of availability of well drillers.*" NMED responded that 120 days after permit issuance is adequate for monitoring well installation, especially given that dairies have notice prior to permit issuance. If extensions are allowed, they should be limited to a one-time extension of 60 days to avoid repeated requests

by dairies for extensions. Therefore, the Commission amends this section to allow a single 60-day extension with "good cause shown".

274. 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 are accepted.

275. 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.

276. DIGCE proposed adding to the end of 3223(A)(3), "A dairy that has multiple stormwater impoundments constructed and operated in the same manner may use a single monitoring well located downgradient of one impoundment as representative of discharges from the other impoundments.." DIGCE's contention as explained in Ex. 8 is that stormwater is of relatively good quality and is therefore less of a threat to groundwater. DIGCE provided no testimony or evidence that stormwater at a dairy presents a reduced threat to groundwater. In fact, stormwater leaving a cattle pen is likely to be contaminated with feces and urine. Moreover, monitoring only one of several stormwater impoundments eliminates the possibility of detecting leaks from the unmonitored ones. The Commission denies DIGCE's proposed language.

277. 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. DIGCE recommends adopting 3223(A)(3)(b) language from DIGCE Ex 8. With the changes, it would read: "For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit, provided that NMED may grant an extension of time for good cause shown, such as the lack of availability of well drillers." NMED responded that 120 days after permit issuance is adequate for monitoring well installation, especially given that dairies have notice prior to permit issuance. If extensions are allowed, they should be limited to a one-time extension of 60 days to avoid repeated requests by dairies for extensions. The Commission amends this Section to allow a single 60-day extension with "good cause shown".

278. 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.

279. DIGCE recommended adopting 3223(A)(4)(a) language from DIGCE Ex 8. DIGCE wants a caveat for monitoring groundwater under fields on which flood irrigation has ceased, such that groundwater monitoring is only required if groundwater standards have been exceeded. NMED, in its final draft, removed the language requiring groundwater monitoring under fields on which flood irrigation has ceased, and replaced it with the last sentence in the paragraph. Continued groundwater monitoring under former application areas is prudent.

280. 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.

281. DIGCE recommended adopting 3223(A)(4)(a)(ii) language from DIGCE Ex 8 so that it reads: "For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit, provided that NMED may grant an extension of time for good cause shown, such as the lack of availability of well drillers." NMED responded that 120 days after permit issuance is adequate for monitoring well installation, especially given that dairies have notice prior to permit issuance. If extensions are allowed, they should be limited to a one-time extension of 60 days to avoid repeated requests by dairies for extensions. The Commission amends this section to allow a single 60-day extension with "good cause shown".

282. 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.

283. DIGCE recommended adopting 3223(A)(4)(b) language from DIGCE Ex 8. DIGCE wants a caveat for monitoring groundwater under fields on which irrigation has ceased, such that groundwater monitoring is only required if groundwater standards have been exceeded. NMED, in its final draft, removed the language requiring groundwater monitoring under fields on which flood irrigation has ceased, and replaced it with the last sentence in the paragraph. Continued groundwater monitoring under former application areas seems prudent.

284. 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.

285. DIGCE recommended adopting 3223(A)(4)(b)(ii) language from DIGCE Ex 8. The provision would read: "For an existing dairy facility, monitoring wells shall be installed

within 120 days of the effective date of the discharge permit, provided that NMED may grant an extension of time for good cause shown, such as the lack of availability of well drillers."

NMED responds that 120 days after permit issuance is adequate for monitoring well installation, especially given that dairies have notice prior to permit issuance. If extensions are allowed, they should be limited to a one-time extension of 60 days to avoid repeated requests by dairies for extensions. The Commission amends this Section to allow a single 60-day extension with "good cause shown".

286. 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.

287. 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.

288. 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.

289. DIGCE recommends adopting 3223(A)(5)(b) language from DIGCE Ex 8 to read: "For an existing dairy facility, monitoring wells shall be installed within 120 days of the effective date of the discharge permit, provided that NMED may grant an extension of time for good cause shown, such as the lack of availability of well drillers. " NMED responded that 120 days after permit issuance is adequate for monitoring well installation, especially given that dairies have notice prior to permit issuance. If extensions are allowed, they should be limited to a one-time extension of 60 days to avoid repeated requests by dairies for extensions. The Commission amends this Section to allow a single 60-day extension with "good cause shown".

290. 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.

291. DIGCE recommended adopting 3223(A)(6) language from DIGCE Ex 8 to read: "Use of Existing Monitoring Wells: A monitoring well in existence before the effective date of the dairy rules and was constructed in accordance with Department policies or guidelines in effect at the time of installation shall be approved for ground water monitoring at a dairy facility provided all of the following requirements are met." DIGCE hopes to avoid the requirement for dairies to re-drill monitoring wells to current specifications. NMED intends to be flexible in allowing continued use of existing monitoring wells. *See* NMED Statement of Reasons #256. The Commission finds that an existing monitoring well, even if constructed to previous NMED specifications, cannot be accepted if it fails to adequately monitor groundwater quality in accordance with current knowledge about monitoring wells.

292. 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 are accepted.

293. DIGCE recommended adopting 3223(A)(7)(c) from Ex. 8. DIGCE claims the 300 foot trigger is not apparent in NMED's evidence or testimony. NMED Statement of Reasons cites Olson testimony in NOI Ex. 8, p. 80. Olson refers to "appreciable depth to groundwater" condition without further citation. "Appreciable depth to groundwater" is a significant condition allowing a waiver, so some trigger depth is needed. Striking the phrase as requested by DIGCE would allow waivers in inappropriate situations. In addition, NMED proposed new language allowing determination of groundwater depth in accordance with 3220(Y) if monitoring wells are not present.

294. 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.

295. DIGCE proposed adding Section 3223(A)(9) from DIGCE Ex 8, allowing alternative monitoring systems proposed by discharger and approved by NMED (such as vadose zone monitoring). The proposal does not allow alternative monitoring to replace monitoring wells needed to establish groundwater flow direction, and authorizes NMED to require monitoring wells if alternative monitoring indicates impoundment leakage or impacts to groundwater. In NMED Rebuttal Attachment 3 (p. 75), Olson notes that the WQA requires WQCC to develop dairy rules that "monitor water quality". Olson further notes that vadose zone monitoring of any kind, as suggested by DIGCE, by definition monitors the unsaturated zone above groundwater and not the quality of the groundwater underneath. The Commission denies DIGCE's request.

296. Subsection B of Section 3223 requires an applicant 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.

297. Subsection C of Section 3223 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.

298. Subsection D of Section 3223 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.

299. Paragraph (2) of Subsection D of Section 3223 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.

300. Paragraph (3) of Subsection D of Section 3223 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.

301. Paragraph (4) of Subsection D of Section 3223 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.

302. Paragraph (5) of Subsection D of Section 3223 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.

303. Paragraph (6) of Subsection D of Section 3223 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.

304. Paragraph (7) of Subsection D of Section 3223 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.

305. Paragraph (8) of Subsection D of Section 3223 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.

306. Paragraph (9) of Subsection D of Section 3223 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.

307. Paragraph (10) of Subsection D of Section 3223 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.

308. Paragraph (11) of Subsection D of Section 3223 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.

309. Paragraph (12) of Subsection D of Section 3223 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.

310. Paragraph (13) of Subsection D of Section 3223 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.

311. Paragraph (14) of Subsection D of Section 3223 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.

312. Paragraph (15) of Subsection D of Section 3223 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.

313. Subsection E of Section 3223 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.

314. Subsection F of Section 3223 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 an accuracy of 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.

315. Paragraph (2) of Subsection F of Section 3223 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.

316. Paragraph (3) of Subsection F of Section 3223 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.

317. DIGCE recommends striking 3223(F)(3) because field data is not accepted for reporting purposes. In NMED NOI Ex. 8 p. 90, Mr. Olson states that field data must be reported to lend validity to other parameters analyzed in the lab (e.g. nitrate), but provides no scientific citation to confirm his statement. The Commission denies DIGCE's request because the importance of field parameters is widely understood by the scientific community. See Testimony of William C. Olson, NMED NOI Attachment 8, p. 91-92.

318. Paragraph (4) of Subsection F of Section 3223 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.

319. Paragraph (5) of Subsection F of Section 3223 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.

320. 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 Paris, NMED NOI Attachment 8, Pp. 92-93.

321. The Coalition proposes that groundwater analyses should include total water chemistry, total coliform bacteria and E. coli. Rule must allow NMED to require monitoring of other constituents of concern. WQCC Regulations do not include groundwater criteria for total water chemistry, total coliforms or E. coli. However, the WQCC recommended adding E. coli in groundwater monitoring for Parasol Dairy because of the potential for contamination of surface water in nearby Percha Creek by seeping groundwater. It will be difficult to justify generalizing the Parasol Dairy situation to all dairies. The Coalition refers to Starmer testimony (Tr v2) that its proposed constituents fall under the Act's definition of "water pollution" and impact water quality and health, so that regulation is appropriate (p. 306). The Coalition states that pathogens from fecal matter can reach groundwater, especially for shallow groundwater (2006 EPA literature review) (p. 275). Therefore, testing for proposed chemical constituents is necessary to determine groundwater quality and the impacts of dairies on groundwater (p. 274). The Coalition notes that other states require testing for many of the proposed constituents in groundwater near dairies (p. 373) and that the cost of testing for the additional contaminants is affordable (p.409, 411 & 414) and negligible (p. 379). Starmer's testimony is well-founded in the scientific literature, and she accurately characterized water contaminants that can leach into groundwater from a dairy operation. While the Commission

has accepted monitoring requirements for sulfur and Kjeldahl nitrogen in the Dairy Rule, neither of which has a Commission groundwater criterion (see ¶ 21), the situation of E. Coli is different. Kjeldahl nitrogen and sulfur are precursors to chemicals for which groundwater criteria do exist, no similar relationship exists for E. coli. The Commission rejects the Coalition's propose for required testing for total coliforms (which are ubiquitous in the soil environment, with or without dairy manure impacts) or for total water chemistry. While Starmer is correct that the added laboratory costs are not great (~\$125, Tr. v2, p. 380), she fails to account for the added costs to dairies for sample collection, sample shipping and data management. The monitoring constituents proposed by NMED are "the major water contaminants of concern in dairy wastewater" and "field water quality sampling [is] necessary to provide information on any potential general water quality changes." *See* Olson NMED Ex. 8, p. 92. Therefore, the NMED-proposed required constituents appear adequate for determining if dairy waste is contaminating groundwater, and the additional costs incurred by dairies to test groundwater for total coliforms and total water chemistry cannot be justified in a regulatory compliance context.

322. 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.

323. 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 is accepted.

324. Subsection J of Section 3223 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 subsurface 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.

325. Subsection K of Section 3223 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.

326. Subsection L of Section 3223 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.

327. DIGCE recommended the adoption of 3223(L) changes from DIGCE Ex 8. Specifically, it seeks to add to end of the paragraph "Upon a showing that ground water elevation contours have been stable over a period of two years of quarterly monitoring, a permittee may, following notice to the department, reduce the preparation and submission of ground water contours to an annual basis. The department may require, by written notice, resumption of quarterly contour mapping if significant changes in contours are shown." Shuman (NMED NOI Exhibit 8, p. 96) notes that groundwater flow direction can change based on a number of factors and should therefore be monitored frequently. DIGCE provided no evidence to support its decision. According to NMED, groundwater direction can change depending upon season. *See* NMED Rebuttal Attachment 3, pp. 88-89; Schumann Tr. v8, pp. 1742-1744. The Commission denies DIGCE's request.

328. Subsection M of Section 3223 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.

329. Section 20.6.2.3223 as proposed in the Department's Final Proposed Rule with the changes made by the Commission is reasonable and necessary to adequately implement the dairy rule and to prevent water pollution and monitor water quality and is adopted.

Section 20.6.2.3224 Monitoring Requirements For All Dairy Facilities.

330. 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.

331. 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.

332. DIGCE recommended deleting the reference to total sulfur analysis consistent with deletions of sulfur testing elsewhere in the regulations. The WQCC groundwater regulations have no criterion for total sulfur but for sulfate. Sulfur is known to oxidize to sulfate. *See* Faris NOI Attachment 8, p. 93. Therefore, sulfur testing requirements should remain despite the absence of a groundwater standard. There is already required testing for total Kjeldahl nitrogen, for which there is no groundwater standard, because Kjeldahl is known to oxidize to nitrate.

333. 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.

334. DIGCE proposes adoption of the 3224(C) language from DIGCE Ex 8, allowing alternative measuring devices and 180-day averaging. NMED, in their final draft rule, changed daily monitoring requirement to weekly. DIGCE in their Exhibit 8 (p. 81) provided no justification for suggested 180-day averaging for wastewater discharge reporting. The Commission denies DIGCE's request.

335. The requirement to read a meter and record measurements on in seven day intervals 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.

336. 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.

337. The Coalition says stormwater must be monitored for conductivity, pH, dissolved oxygen, ammonia nitrogen, total coliform bacteria and E. coli. Sampling and reporting for monitoring wells must be done at least quarterly. The Commission regulations have no criteria for total coliforms or E. coli or any other proposed chemical parameters in groundwater. The Coalition's request is denied.

338. 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 $\pm 10\%$ and performed upon installation and annually thereafter by an individual knowledgeable in flow measurement and the particular device in use. $\pm 10\%$ 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.

339. 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 Commission denied the requirement for double liners.

340. Section 20.6.2.3224 as proposed in the Department's Final Proposed Rule and amended by the Commission is reasonable and necessary to adequately implement the dairy rule to prevent water pollution and monitor water quality and should be adopted as amended by the Commission.

Section 20.6.2.3225 Additional Monitoring Requirements For Dairy Facilities With A Land Application Area.

341. 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.

342. DIGCE recommends for Subsection A that the Commission adopt language from Ex. 8 allowing other measuring devices. The Commission rejected this suggestion.

343. 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.

344. DIGCE recommended adopting changes to Subsection C from DIGCE Ex. 8. DIGCE argues that total sulfur has no criterion, and the other language is redundant to requirement for sampling as stipulated in the permit. The other language noted by DIGCE, even if redundant, is within NMED's authority. The Commission denies DIGCE's request to strike. Sulfur is known to oxidize to sulfate. *See* Faris NOI Attachment 8, p. 93. Therefore, sulfur testing requirements should remain despite the absence of a groundwater standard. Another example is required testing for total Kjeldahl nitrogen, for which there is no groundwater standard.

345. 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.

346. 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.

347. 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.

348. 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.

349. 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.

350. 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.

351. 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.

352. DIGCE recommended replacing struck sentence with "An annual soil sampling is not required for a field that has not received wastewater for the preceding or current calendar year, provided that soil sampling shall be conducted before such a field again receives wastewater." In NMED NOI Attachment 8, p. 109, Pearson notes that soil sampling is required to maintain a nutrient management plan for determining wastewater application rates. Continued irrigation of an application field with fresh water, even if no wastewater is applied, will alter the soil nutrient distribution, justifying continued annual sampling. DIGCE contends that sampling before restarting wastewater irrigation will provide the necessary information. However, it is important to track contaminant migration regularly, not just before wastewater irrigation restarts, because proper implementation of a NMP requires regular soil analysis. *See* Pearson NOI Attachment 8.

353. 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 as amended by the Commission.

Section 20.6.2.3226 Additional Monitoring Requirements For Dairy Facilities Discharging To An Evaporative Wastewater Disposal System.

354. 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.

355. DIGCE recommends incorporating the changes in Ex: 8 striking sulfur testing, change sampling frequency to annual and require reporting in quarter following the sample event. Sampling in evaporation ponds is needed to compare with groundwater monitoring results to detect pond leakage and potential groundwater contamination (Written Testimony of William C. Olson, NMED NOI Attachment 8, p. 111.). NMED backed off from quarterly to semiannual. NMED's language is adopted.

356. 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.

357. 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.

358. 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.

359. DIGCE recommended removing the two-day sampling requirement from 3227(A) because there is no connection with groundwater travel. Shuman confirmed that there was no consideration given to groundwater flow when the two day sample separation requirement was drafted. *See* Tr. 1735. NMED argues that it established the need for a time limit between samples to ensure that samples are taken "in the same time period" and requests that the 2-day requirement remain. NMED argues that DIGCE provided no evidence about why the 2-day requirement is problematic. The Coalition supports NMED's argument. The Commission adopted NMED's two day requirement.

360. 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.

361. DIGCE recommends removing two-day sampling requirement from 3227(B) because there is no connection with groundwater travel. Shuman agreed that two-day sample separation requirement had no linkage to groundwater travel time. *See* Tr. 1735. NMED responds that it established the need for a time limit between samples to ensure that samples are taken "in the same time period" and requests that the 2-day requirement remain. NMED argues that DIGCE provided no evidence about why the 2-day requirement is problematic. The Commission adopted NMED's two day requirement.

362. 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).

363. 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).

364. 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).

365. References to “primary” liner were removed in Subsection (B).

366. 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.

367. 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.

368. DIGCE recommended adopting changes to this Subsection from its Ex. 8 including 180-day averaging, adding condition that required freeboard has not been maintained. DIGCE's suggestion is based on proposed change in definition in "maximum daily discharge." In its closing argument, DIGCE stated that its issue with the definition has been resolved by NMED's final draft. No other justification for the 180-day averaging or maintenance of freeboard is offered in DIGCE Ex. 8 (p. 93).

369. 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.

370. DIGCE recommended adopting changes to 3227(E) in DIGCE Ex 8, including reducing "average daily" discharge volume, and striking advanced treatment system. DIGCE Exhibit 8 p. 97 addresses inadequacy of advanced treatment systems for dairy waste. There is no discussion of advanced treatment systems in the hearing transcript. In DIGCE Exhibit 8, no evidence is provided for the statement that "advanced treatment systems have proven infeasible for dairies" (p. 97). DIGCE's request is denied.

371. 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.

372. DIGCE proposed adopting language from Ex. 8 including reducing "average daily" discharge volume and striking advanced water treatment system. There is no discussion of advanced treatment systems in the hearing transcript. In DIGCE Exhibit 8, no evidence is

provided for the statement that "advanced treatment systems have proven infeasible for dairies" (p. 97). DIGCE's request is denied.

373. 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.

374. Subsection H of Section 3227 sets forth contingencies if a primary liner leaks in a double lined impoundment. This section was deleted due to the Commission's decision to require only a single liner.

375. 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. DIGCE recommends replacing "possible" in 3227(I) with "practicable, with the exercise

of due diligence under the circumstances". DIGCE's suggested is more specific, without significantly changing the meaning of the sentence and is adopted.

376. 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 as amended by the Commission.

Section 20.6.2.3228 Additional Contingency Requirements For Dairy Facilities With A Land Application Area [Reserved].

377. Section 3228 was deleted by the Department in its June 9 version and in its Final Proposed Rule. DIGCE recommends not adopting it since it is "Reserved." The Commission deleted the title leaving only "[RESERVED]"

Section 20.6.2.3229 Additional Contingency Requirements For Dairy Facilities Discharging To An Evaporative Wastewater Disposal System.

378. 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.

379. DIGCE recommends striking the language “or installing an advanced treatment system” because it thinks they are not feasible for dairies. The Commission denies this request for the reasons previously discussed.

380. 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 is adopted.

Section 20.6.2.3230 Closure Requirements For All Dairy Facilities.

381. 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.

382. DIGCE recommended striking the last sentence of paragraph (1), subparagraph (e). There is no discussion in the hearing transcript of potential threats to groundwater from disposal of manure solids on application fields. DIGCE provides no scientific backing for the opinion expressed in DIGCE Exhibit 8 (p. 98) that manure solids disposal poses no threat to groundwater. In fact, manure solids contain nutrients that can leach to groundwater. Olson (NMED Exhibit 8 p. 121) states that removal and disposal of remaining manure solids must be addressed, without providing specific reasons. The Commission denies DIGCE's requested change.

383. 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.

384. DIGCE recommended striking subparagraph (b) as described in DIGCE Ex 8. DIGCE Exhibit 8 p. 98 states: "manure solids have been applied to agricultural fields from various sources for years, and there is no need to regulate disposal of manure solids under these dairy rules. We are not aware of any evidence that application of manure solids consistent with good agricultural practices poses any threat to ground water." There is no discussion in the hearing transcript of potential threats to groundwater from disposal of manure solids on application fields. DIGCE provides no scientific backing for the opinion expressed in DIGCE Exhibit 8 (p. 98) that manure solids disposal poses no threat to groundwater. In fact, manure solids contain nutrients that can leach to groundwater. Olson (NMED Exhibit 8 p. 121) states

that removal and disposal of remaining manure solids must be addressed, without providing specific reasons. The Commission denies DIGCE's requested change.

385. 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.

386. 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.

387. 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.

388. 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 as amended by the Commission.

20.6.2.3231

Section 20.6.2.3231 was amended to remove the title and state “[RESERVED]”

20.6.2.3232

Section 20.6.2.3232 was amended to remove the title and state “[RESERVED]”

Section 20.6.2.3233 Record Retention Requirements For All Dairy Facilities.

389. 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.

390. 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.

391. 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.

392. 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.

393. 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.

394. 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.

395. 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.

396. 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.

397. 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.

398. 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.

399. 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 through 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.

400. 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.

401. 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.

402. 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.

403. 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.

404. 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:

405. “(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.

406. “(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.

407. 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.

408. 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.

409. “(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.

410. “(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.

411. “(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.

412. “(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.

413. “(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.

414. 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:

- (8) character and degree of injury to or interference with health, welfare, environment and property;
- (9) the public interest, including the social and economic value of the sources of water contaminants;
- (10) 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;
- (11) successive uses, including but not limited to domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses;
- (12) feasibility of a user or a subsequent user treating the water before a subsequent use;
- (13) property rights and accustomed uses; and
- (14) 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 as amended by the Commission

9. Credible scientific data in this proceeding supports adopting the Department's Final Proposed Rule as amended by the Commission.

10. The Department's Final Proposed Rule as amended by the Commission is based on the best available scientific information.

11. The Department's Final Proposed Rule as amended by the Commission specifies the measures to be taken to prevent water pollution and to monitor water quality.

12. The Department's Final Proposed Rule as amended by the Commission will institute ground water protections and monitoring that will prevent water pollution.

13. The Department's Final Proposed Rule as amended by the Commission 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 as amended by the Commission 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 as amended by the Commission will not unreasonably impair the social and economic value of the sources of the water contaminants.

17. The Department's Final Proposed Rule as amended by the Commission 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 as amended by the Commission 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 as amended by the Commission 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 as amended by the Commission 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 as amended by the Commission 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 as amended by the Commission 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 as amended by the Commission.

ORDER

The Commission, by a unanimous vote, hereby adopts the Department's Final Proposed Rule, with the foregoing changes and amendments, including any non-substantive amendments necessary for reformatting and filing with the State Records Center, to be effective in accordance with applicable State Records Center procedures.



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