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September 1, 2016

Via Hand Delivery
New Mexico Environment Department
Water Quality Control Commission
c/o Pam Castaneda, Administrator
1190 S. St. Francis Drive, S-2102
Santa Fe, New Mexico USA 87502

RE: Former Price's Valley Gold North Dairy, Bernalillo, Sandoval County, New Mexico
Intent to Present Technical Testimony – Alternative Abatement Standards
No. WQCC 16-02(A)

Dear Ms. Castaneda:

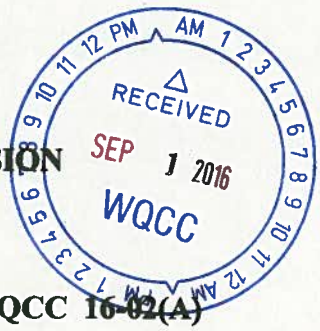
Enclosed please find an Original (unbound) with fifteen (15) copies (bound) of the Notice of Intent to Present Technical Testimony for the alternative abatement standards hearing scheduled for September 13, 2016.

Thank you for your attention.

Sincerely,

Jeanne Cameron Washburn, Esq.

JCW/2036
Encl.
cc: Lara Katz via email lara.katz@state.nm.us
John Price via email emailprice@q.net
Jay Snyder via email jsnyder@eaest.com



STATE OF NEW MEXICO
BEORE THE WATER QUALITY CONTROL COMMISSION

IN THE MATTER OF THE PETITION FOR ALTERNATIVE ABATEMENT STANDARDS FORMER PRICE'S VALLEY GOLD NORTH DAIRY) BERNALILLO, SANDOVAL COUNTY, NEW MEXICO DAIRY	**WQCC 16-02(A)**
D&G Price Limited Partnership	
Petitioner	

FORMER PRICE'S VALLEY GOLD NORTH DAIRY BERNALILLO, SANDOVAL COUNTY, NEW MEXICO DAIRY'S STATEMENT OF INTENT TO PRESENT TECHNICAL TESTIMONY

Pursuant to Subsection B of 20.1.4.300 NMAC, the Petitioner Former Price's Valley Gold North Dairy Bernalillo, Sandoval County, New Mexico Dairy hereby files a Statement of Intent to Present Technical Testimony for the above-entitled matter:

I. Identify of the person filing the statement:

Pete V. Domenici, Jr.
Attorney for Applicant Former Price's Valley Gold North Dairy
320 Gold Avenue SW, Suite 1000
Albuquerque, NM 87102
(505) 883-6250 Telephone
(505) 884-3424 Fax

II. Statement of Position: The undersigned on behalf of the Petitioner Former Price's Valley Gold North Dairy supports the petition.

III. Identity of Witnesses:

A. Jay Snyder, Senior Hydrogeologist, EA Engineering, Science and Technology, Inc.

Mr. Snyder's address is 320 Gold Avenue SW, Suite 1300, Albuquerque, New Mexico 87102. Mr. Snyder is a Senior Hydrogeologist and Operations Manager for EA Engineering, Science and Technology, Inc., a private engineering consultant for the Petitioner. The petition for AAS at the former

PVGND addresses the requirements of 20.6.2 NMAC Section 12010*Variance Petitions* and Section 4103.F *Alternative Abatement Standards*.

Mr. Snyder will provide testimony to all of the various efforts undertaken to meet the various aspects of the petition for alternative abatement standards for former Price's Valley Gold North Dairy, Bernalillo, Sandoval County, New Mexico. Mr. Snyder has provided groundwater services to the former Price's Valley Gold North Dairy ("PVGND") since 2012, focusing on closure of parts of the original dairy to technical infeasibility requirements of 20.6.2.4103.E. NMAC, designing and implementing a groundwater cleanup system for that remaining portion of the original dairy being considered in the hearing in accordance with the Settlement Agreement reached by PVGND and NMED.

Ms. Snyder's opinion that the petition meets regulatory compliance is based on his technical experience and the fact that he is the primary person responsible for completing and submitting the petition, together with his long time association and familiarity with the former Price's Valley Gold North Dairy.

Attached is Mr. Snyder's Pre-Filed Direct Testimony. Mr. Snyder will summarize in his live testimony.

Mr. Snyder's anticipated testimony is expected to last no more than forty-five (45) minutes.

B. John Price, D&G Price Limited Partnership ("D&G P") John Price is partner of D&G P, a New Mexico partnership and is successor in ownership to VG Farms, Inc. fka Price's Valley Gold North Dairy, Inc. The property of the former Price's Valley Gold North Dairy is located at 618 NM Highway 528, Bernalillo, New Mexico. Mr. Price's expected testimony will described how Applicant's application meets the regulations set forth under the Water Quality Control Commission to petition for Alternative Abatement Standards (AAS) for the former Price's Valley Gold North Dairy (PVGND) in Bernalillo County, New Mexico. PVGND has been in abatement under Title 20, Chapter 6, Part 2 of the New Mexico Administrative Code (20.6.2 NMAC) since 1997. Concentrations of nitrate, chloride, and total dissolved solids (TDS) exceed Water Quality Control Commission (WQCC) standards in a few monitoring wells in the Valley Fill Aquifer (VFA).

Background

Originally Ridge Dairy, a 200-cow dairy, was operated on the site from 1960 to 1973 and was owned by Stanley and Ron Ridge. In June 1973, Mr. Dudley Price purchased the Diary and renamed it Price's Valley Gold Dairy. Mr. Price increased the size of the dairy to 1,000 to 1,200 cows and subsequently

purchased 183 acres to the south to accommodate the increased discharge from the enlarged facility.

The Dairy was closed in June 1998. The property was cleared of all structures by 2006. The Property, except for Lot 5-B, has been sold and redeveloped into various lots that contain commercial businesses, including Wal-Mart, Firestone Tires, a gasoline station, a strip mall and several fast food restaurants. There are undeveloped lots within the southeastern portion of the Property. D&G P retains ownership of Lot 5-B and only has limited use of the other surface that is part of the Site. The portion of the former dairy subject to this petition encompasses Lot 5-B, Lot 5-A6, Parcel 1, and contiguous portions Venada Plaza Drive. (Current Aerial and Plat Map)

Efforts Taken to Deal with Abatement

In February 1986, the New Mexico Environment Improvement Division notified PVGND that they were required to have a discharge plan. The dairy submitted an application in May 1986 and it was approved in July 1987. The initial samples collected from groundwater monitoring well MW-1, near the Dairy's east lagoon, had existing nitrate concentrations of 42.8 milligram per liter (mg/l) in November 1986, 93.4 mg/l in February 1987 and 61.8 mg/l in December 1987 (average 66 mg/l).

In June 1997, the New Mexico Environment Department (NMED) was advised that the Dairy was scheduled to be closed. As part of a site investigation conducted in June and August 1997, the NMED provided guidance on the type of Corrective Action Plan it would require under the discharge permit in connection with the closure of the Dairy. Initial work on the Corrective Action Plan began in August 1997.

The Dairy closed in June 1998. Beginning in October 1997, Glorieta Geoscience, Inc. and Faith Engineering, Inc. (2002 through 2008) conducted numerous investigations and studies and developed at least three corrective action and abatement plans.

In summer 2008 a nutrient injection system was operated at the site. Prior to operating the injection system, a liner was installed. As part of this pump test, a liner 150 feet in diameter was installed and a 48 hour pump test was conducted. The pumped water was discharged to NMED required a lined area of 150 feet lined area. The objective of the injection system was to create a treatment wall within the aquifer which would de-nitrify the groundwater as it passed through the wall. In November 2008, METRIC Corporation was retained to conduct an independent evaluation of the historic investigation and remediation efforts at the site.

In October 2010 METRIC submitted an amended Stage 2 Abatement Plan (S2AP) which specified groundwater pumping with irrigated agriculture (alfalfa production) as the end water use and nitrate treatment. The 2010 S2AP modified the original S2AP submitted in 2006 which also relied on groundwater pumping as the principal component of the remedy. The public notice requirement had been satisfied with this initial S2AP submission.

The PVGND has been fully characterized and the Stage 1 Abatement Plan completed. Continued monitoring has created a sufficient time-series of groundwater monitoring data to support evaluation of contaminants trends with confidence. The status of the Site pursuant to abatement regulations is summarized in the April 18, 2012 letter from NMED Ground Water Quality Bureau to Mr. Price, which indicates that,

"(t)o that end, we propose the following: PVG will Perform additional remedial activities within the Valley Fill Aquifer that include, at a minimum, the extraction, treatment and disposal of an agreed upon volume of ground water that is at a minimum, one pore volume of the contaminated plume…If abatement standards are not met for the Valley Fill Aquifer following extraction, treatment, and disposal, NMED will support a petition for alternative abatement standards pursuant to 20.6.2.4103(F) NMAC…". (Exhibit 11, John Price)

Between 2002 and 2006 with assertions of Faith Engineering, we accepted the following:

- The corrals were razed and removed.
- Solids from synthetically-lined lagoon were removed from property.
- Plastic lining was destroyed.

The asserted value of Parcel 5B was recently reduced by $1.1 million based on potential future remediation costs depending on the results of the AAS Petition. Thus the expected value, upon approval of the AAS is likely to be near the $1.3 million unadjusted amount. (Exhibit 12, John Price)

Geology/Hydrology

To facilitate surface redevelopment, PVGND North Area (86.2 acres) entered the NMED VRP (#53061004) for nitrogen compounds in soil. The application was submitted on November 21, 2005, final eligibility granted June 28, 2006, Certificate of Completion issued on November 28, 2006 and Covenants Not to Sue (CNS) issued on January 17, 2008 and April 9, 2008. These actions close out soil pathways and complete soil remedies.

Based on the entire record of LTM, relatively high nitrate concentration levels have been observed in VFA monitoring wells. However, the plume has remained relatively constant in size, as it tends to move to the west or east with high or low river flow conditions (METRIC Corp) and shift in hydraulic gradient.

With respect to the Upper Santa Fe Aquifer groundwater, on March 27, 2013, D&G P submitted an Abatement Completion Report to NMED that demonstrated abatement was complete for the entire original Abatement Plan Area, with the exception of two areas that remain in abatement because groundwater standards have not yet been achieved.

The two areas still in abatement were Lot 5-A9 (MW-11R) for impacts related to the Upper Santa Fe aquifer groundwater, and Lot 5-B, Lot 5-A6, Parcel 1, and contiguous portions of Venada Plaza Drive for impacts to VFA groundwater.

Lot 5-B, Lot 5-A6, Parcel 1 and contiguous portions of Venada Plaza Drive overlie the VFA. A series of 3 waste water lagoons operated along Venada Arroyo, and lowest in elevation, or east lagoon, was centered over the VFA in Lot 5-B. The lagoons ceased receiving waste water circa 1998, it is assumed that drainage out of the vadose zone is complete and sourcing of contaminants to the VFA is completed.

The central lagoon is the suspected source of groundwater contamination in the VFA. The perched nature of the VFA, along with observed gradient reversals based on river stage (METRIC 2010) has "stranded" the impacts on the confining layer, and dispersion via discharge out of the VFA to the Rio Grande flood plan alluvium has not occurred. This isolation in concert with gradient reversals has resulted in highly variable contaminant concentrations in some areas.

The groundwater pumping and discharge system was operated from October 2013 until July 2015 and a total of one pore volume (14,600,000 gallons), which was agreed upon with NMED concurrence, had been pumped from the VFA.
(Exhibit 13, John Price. Venada Plaza Plat Map 2009.)

Settlement

The Valley Fill Aquifer (VFA) is a wedge-shaped perched aquifer of limited extent which has gone through two abatement demonstrations: (1) an extensive field scale in situ denitrification demonstration, and (2) full-scale groundwater pumping with discharge to the Rio Rancho sanitary sewer. Both of these actions were approved by the Ground Water Quality Bureau (GWQB) of the New Mexico Environment Department. The second abatement action

(groundwater pumping and discharge) was performed as part of a settlement agreement between D&GP and NMED to address impacts to the VFA. Despite these interim abatement actions, groundwater concentrations in isolated areas of the VFA still exceed WQCC standards.

The settlement agreement allows for Alternative Abatement Standards (AAS) petition in the event the groundwater pumping did not achieve WQCC standards. Since WQCC standards are still exceeded, AAS are sought that are both achievable and protective such that planned development of the property can proceed unencumbered by environmental concerns.

Mr. Price's opinion that the petition meets regulatory compliance is based on his experience and history with the closure the former Price's Valley Gold North Dairy.

Mr. Price's anticipated testimony is expected to last no more than twenty (20) minutes.

IV. Identification of exhibits: Applicant identifies the petition itself as a source of all exhibits it intends to present or make reference to.

Respectfully submitted by,

DOMENICI LAW FIRM, P.C.

Pete V. Domenici, Jr.
Attorney for Petitioner the former Price's Valley Gold North Dairy
320 Gold Avenue SW, Suite 1000
Albuquerque, New Mexico 87102
(505) 883-6250

On this 2nd day of September, 2016, I hereby certify that an original and fifteen (15) true and correct copies of the foregoing were hand delivered to:

Pam Castaneda, Commission Administrator
Water Quality Control Commission
Reynolds Building, 2nd Floor, Room South 2100
1190 South St. Francis Drive
Santa Fe, New Mexico 87502
(505) 827-2425

Pre-Filed Testimony
Jay T. Snyder
Former Price's Valley Gold North Dairy Petition for Alternative Abatement Standards
August 30, 2016

QUALIFICATIONS

I am a senior hydrogeologist, licensed professional engineer in Colorado, licensed professional geologist in the states of Arkansas, Arizona, California, Idaho, Louisiana, Nebraska, Oregon, Texas, Utah and Wisconsin, a Certified Hydrogeologist in the state of California, Professional Groundwater Hydrologist (American Institute of Hydrology), and a licensed soil and groundwater remediation contractor in the state of New Mexico. I have over 25 years of professional experience in the environmental industry, serving a variety of federal, state, and commercial clients. My experience includes permitting numerous remediation systems, Class V injection wells, discharge plans, air quality permits, and expert testimony and opinions regarding contamination of soil and groundwater. I have Bachelor of Science in Geology from the University of Wisconsin-Platteville (1982), Bachelor of Science in Meteorology from Texas A&M University (1988), a Master of Science in Geology and Geophysics from New Mexico State University (1986), and a Master of Science in Geological Engineering from the University of Idaho (2014).

I have served as Program Manager for State-Lead Contracts with New Mexico Environment Department ("NMED"), New Mexico Department of Transportation ("NMDOT"), and Texas Commission on Environmental Quality ("TCEQ") for investigation and cleanup at leaking underground storage tank ("LUST") sites, Voluntary Cleanup Sites, Brownfields Sites, and Superfund Sites. I have served as lead Hydrogeologist for investigation and cleanup activities at Naval Air Station Fallon, Nevada, Hunters Point Naval Shipyard, San Francisco, China Lake Naval Weapons Center, Ridgecrest, California, Titanium Metals Corporation Plant Site, Henderson, Nevada, and at National Priorities List ("NPL") Sites throughout Region 6 for Tetra Tech's EPA Response Action Contract. I was Corrective Action Project Manager ("CAPM") of record for over 100 responsible party LUST sites in West Texas for investigation, risk-based corrective action, feasibility testing, and cleanup.

I am currently Lead Hydrogeologist for (1) Stage 1 and Stage 2 Abatement Plan Activities, Dona Ana Dairies, Mesquite, New Mexico, (2) Stage 1 Abatement for Rockview, High Lonesome, and Tom Visser Dairies, (3) EA Engineering's USEPA Region 6 Response Action Contract for Remedial Investigation, Feasibility Study, Remedial Design, Remedial Action, and Long Term Remedial Action for groundwater assessment and cleanup at Superfund Sites in USEPA Region 6, (4) Remedial Investigations, Feasibility Studies, and site cleanups at Hill Air Force Base, Utah, King Salmon Air Force Station, Alaska, and Bulk Fuel Farm Kirtland AFB, New Mexico and (5) over 50 leaking petroleum storage tank sites in New Mexico.

I have consulted in Alaska, California, Nebraska, Nevada, Arizona, New Mexico, Texas, Oklahoma, Arkansas, and Louisiana at literally hundreds of sites, and have assessed and/or cleaned up sites with fuel hydrocarbon, chlorinated solvents, creosote and other wood preservatives, chromium, lead, arsenic, radionuclide, perchlorate, and septic/animal waste contamination.

I participated in the NMED Petroleum Storage Tank Bureau ("PSTB") Risk-Based Corrective Action working group for LUST contaminated sites, NMED PSTB Scientist Certification working group, TCEQ

Standardized Assessment Report Format working group, and Langley Air Force Base, Virginia Installation Restoration Program ("IRP") Committee.

I have extensive experience with regulatory requirements and interpretation of rules including: (1) review of Applicable, Relevant, and Appropriate Requirements ("ARAR") for Superfund Sites, in which cleanup standards, whether promulgated or guidance, are reviewed and established, including Federal Maximum contaminant levels, ("MCLs"), New Mexico Water Quality Control Commission ("WQCC") standards found in Title 20, Chapter 6, Part 2, and Section 3103 of the New Mexico Administrative Code ("20.6.2.3103 NMAC"), NMED Soil Screening Guidelines, EPA Risk Screening Levels, and other Risk-Based Corrective Action goals; (2) preparation of air quality permit applications for cleanup, including evaluation of applicability and requirements for New Source Review and Source Registration; (3) preparation of discharge plans including Class V Injection Wells; (4) review and implementation of construction code and Construction Industries Division rules; and (5) Office of State Engineer ("OSE") rules for well construction, plugging and abandonment, and for appropriation of underground water of the State.

I am currently employed by EA Engineering, Science, and Technology, Inc. as a Senior Hydrogeologist and Operations Manager of EA's Albuquerque, New Mexico office.

COMPENSATION

My compensation for this opinion, testimony and other support is $173/hour which is my normal fee schedule rate for Principal Scientist.

EXPERT TESTIMONY/WITNESS/DEPOSTIONS

A summary of expert opinions, testimony, and deposition of Mr. Snyder is provided below.

	Case	Date	Description
Hobbs, NM	State of New Mexico vs. Keeling Petroleum	1993	Deposition. Cost recovery for cleanup of soil and groundwater contamination from leaking underground storage tanks. Prepared expert opinion and was deposed by defendant's attorney.
Albuquerque, NM	Schwartzman Inc. versus multiple parties	1994	Analysis of nature and extent of trespassing soil and groundwater contamination from fuel terminals and industrial plants. Supported depositions of defendant's consultants.
Grants, NM	Appeal before Mining Commission	2009	Provided direct testimony in hearing before New Mexico Mining Commission. Appeal of Notice of Violation regarding general permit requirements and plugging abandoned mine boreholes; potential impacts to water bearing strata, technical limits of General Mining Permit.

Mesquite, NM	Appeal before Water Quality Control Commission	2010	Provided direct testimony in hearings before WQCC regarding dairy wastes, seepage through soils, impacts to groundwater, and requirements under Stage 1 and Stage 2 Abatement under Water Quality Control Regulations
Albuquerque, NM	Martinez v. Garcia Cigarette Smoke Nuisance Case, Albuquerque Metropolitan Court	2010	Provided trial testimony on potential cause for air quality degradation created by confined-area cigarette smoking.
Hobbs, NM	Kitty Pearson, et. al., Plaintiffs vs. Rockview Dairy, Rick Schapp, High Lonesome Dairy, Eddie Schapp	2014	Provided pre-trial testimony and deposition in Complaint for Temporary Nuisance
Anthony, NM	Public Hearing, Stage 2 Abatement Plan, Dona Ana Dairies	2015	Provided testimony regarding technical elements of Stage 2 Abatement Plan and addressed public comments received during Public Notice period to local citizen groups in Public Hearing.

I have provided groundwater services to the former Price's Valley Gold North Dairy ("PVGND") since 2012, focusing on closure of parts of the original dairy to technical infeasibility requirements of 20.6.2.4103.E. NMAC, designing and implementing a groundwater cleanup system for that remaining portion of the original dairy being considered in this hearing in accordance with the Settlement Agreement reached by PVGND and NMED (Exhibit 1), and filing the petition for alternative abatement standards (Exhibit 2) being discussed in this hearing in accordance with Exhibit 1. I base my opinions on basic hydrogeologic data collected by several hydrogeologists and engineers over the course of abatement activities at the former dairy, guidance regarding selection of cleanup approaches available to the general public, and the WQCC Regulations 20.6.2 NMAC "*Ground and Surface Water Protection*" (Exhibit 3) and 20.6.6 NMAC "*Ground Water Protection – Supplemental Permitting Requirements for Dairy Facilities*" (Exhibit 4).

SUMMARY OF OPINIONS

Introduction

The former PVGND is located on the east side of New Mexico Highway 528 in Bernalillo, New Mexico. It is bound on the south by Venada Arroyo. The northern portion of the original dairy has been closed since 1998 and is occupied by Walmart and other commercial businesses (Figure1 Exhibit 2). The portion of the former dairy subject to the petition for Alternative Abatement Standards ("AAS") is depicted on Figure 2, Exhibit 2, and encompasses Lot 5-B, Lot 5-A6, Parcel 1, and contiguous portions of Venada Plaza Drive. An aerial photograph of the dairy circa 1996 is provided as Exhibit 5 for reference

prior to dismantling the facilities. PVGND has been in abatement under 20.6.2 NMAC since 1997. Concentrations of nitrate, chloride, and total dissolved solids (TDS) exceed WQCC standards in a few monitoring wells in the Valley Fill Aquifer ("VFA"). The VFA is a wedge-shaped, perched aquifer of limited extent as described by Dr. John Hawley (Appendix A in Appendix D in Exhibit 2) which has gone through two abatement demonstrations: (1) an extensive field scale in situ denitrification demonstration (Appendix F Exhibit 2), and (2) full-scale groundwater pumping with discharge to the Rio Rancho sanitary sewer (Appendix B Exhibit 2). Both of these actions were approved by the Ground Water Quality Bureau ("GWQB") of the NMED. PVGND and its successor D&G Price Limited Partnership ("D&GP") agreed to these recommended actions and implemented them under GWQB oversight. Groundwater pumping and discharge was performed as part of a settlement agreement (Exhibit 1) between D&GP and NMED to address impacts to the VFA. Despite these interim abatement actions, groundwater concentrations in isolated areas of the VFA still exceed WQCC standards.

Regulatory History of PVGND

The PVGND closed in June 1998. Abatement Plan activities were initiated by Glorieta Geosciences, Inc. and Faith Engineering in October 1997. The abatement activities included soil and groundwater testing to map the nature and extent of sources and impacts to groundwater contamination. Two aquifers were identified at the site: the regional Upper Santa Fe Aquifer, and the perched VFA (Appendix A in Appendix D of Exhibit 2). The Upper Santa Fe Aquifer has been closed with the exception of an isolated area near MW-11R. This was accomplished through Technical Infeasibility Demonstration (Exhibit 6) and NMED concurrence (Exhibit 7), and follow-on submittal of an Abatement Completion Report (Exhibit 8) and NMED Partial Abatement Plan Termination (Exhibit 9). The VFA remains in abatement after completion of the two unsuccessful attempts discussed above. The VFA is perched on the Upper Santa Fe Aquifer, and is separated by a confining clay layer.

Development of the property began after this time, and in order to facilitate the development, soil pathways were closed via the Voluntary Remediation Program ("VRP"), identification #53061004 with a Certificate of Completion issued November 28, 2006. Covenants Not to Sue were issued on January 17, 2008 and April 9, 2008 (Exhibit 10). These actions closed out soil pathways and completed soil remedies.

Following soil pathway closure, abatement of groundwater impacts was initiated. The field scale in situ denitrification demonstration consisted of injection of acetate, sucrose, and nutrients, and was conducted in 2008. Details regarding the in situ denitrification abatement are provided in the *Amended Stage II Abatement Plan at the Former Price's Bernalillo Dairy* (Faith Engineering 2008; Appendix F Exhibit 2). Figure 2 of this report shows the alignment of nine total injection wells spanning from just upgradient and west of MW-20R on the south to just east of MW-19R on the north. The line of injection was to provide a subsurface treatment barrier to denitrify groundwater as is passed to the southeast; the total volume of amendment was reportedly over 1.5 million gallons (John Price, personal communication 2016). The second attempt at abatement was completed from October 2013 to July 2015 in accordance with the settlement agreement (Exhibit 1). D&GP completed pumping of one pore volume (14,600,000 gallons) of groundwater (Appendix B Exhibit 2), which resulted in reduced concentrations and a somewhat

reduced aerial extent of the solute plume (Appendix C of Exhibit 2). However, rebound appeared in wells MW-19R and MW-23 (in the northern portion of the plume where the VFA has been demonstrated to thin and vanish, and where pumping rates were low. A complete accounting of the groundwater pumping and discharge abatement activity is provided in the final *Quarterly Groundwater Monitoring, and System Operation Report* (Appendix B Exhibit 2).

The results these two active abatements are summarized below:

In Situ Denitrification

The results of the injection of groundwater amendments showed initial success as measured in select downgradient monitoring wells; however, Section 3103 standards contained in 20.6.2 NMAC were not achieved, and after two years, significant rebound to well above standards was observed. In concept, the injection technology relied on groundwater movement to the southeast, through the line of injection wells. However, the groundwater flow oscillates between east to west, then back to west to east, depending on the water levels in the river bed aquifer. This renders the VFA groundwater mostly stagnant, and not flowing in a direction (southeast and subparallel to the Rio Grande) as predicted by regional consideration. Hence, affected groundwater did not flow through the line of injection wells, and was not treated for nitrate. Moreover, the injection technology provides no means of treatment for chloride and TDS. Another matter apparently not considered at the time the injections were performed is that the injection of acetate and sucrose can lower the dissolved oxygen in the VFA, and dissolve deleterious metals such as arsenic, manganese, and iron. All of these metals are regulated by NMED, and so cleaning up the nitrate may have resulted in a plume with additional, regulated constituents above standards. On these grounds, the injection technology is considered technically infeasible.

Groundwater Pumping and Discharge

One pore volume of groundwater was pumped and discharged with the groundwater pumping remedy. Post groundwater pumping sampling has indicated the hydraulic has reverted to its west-east fluctuating pattern, and monitoring wells positively affected by the groundwater pumping have reverted to high nitrate, chloride and TDS concentrations advected from zones not affected by the pumping. The high concentrations returned to areas of the VFA where it is thin and difficult to hydraulically affect via pumping. This renders hydraulic recovery of groundwater via pumping technically infeasible.

Regulatory Framework

A discussion of the PVGND discharge plan ("DP") history and Alternative Abatement Standards, as pertains to PVGND, follows.

Discharge Plan

In February 1986, the New Mexico Environmental Improvement Division notified the PVGND that they were required to have a DP. The dairy submitted an application in May 1986, and it was approved in July 1987. The initial samples collected from groundwater monitoring well MW-1, near the Dairy's east

lagoon, had existing nitrate concentrations of 43.8 milligrams per liter ("mg/l") in November 1986, 93.4 mg/l in February 1987 and 61.8 mg/l in December 1987 (average of 66 mg/l).

In June 1997, the NMED was advised that the Dairy was scheduled to be closed. As part of a site investigation conducted in June and August 1997, the NMED provided guidance on the type of Corrective Action Plan it would require under the discharge permit in connection with the closure of the Dairy. Initial work on the Corrective Action Plan began in August 1997; these correction actions are discussed above.

To date, the PVGND has been fully characterized, and the Stage 1 Abatement Plan completed. The site is currently in Stage 2 Abatement according to NMED records, and is in Long Term Monitoring ("LTM"). The LTM has created a sufficient time-series of groundwater monitoring data to support evaluation of contaminants trends with confidence.

Abatement Standards

The abatement standards are promulgated at 20.6.2.3103 NMAC. For nitrate the standard is 10 mg/L, for chloride, 250 mg/L, and for TDS the standard is 1,000 mg/L. The settlement agreement (Exhibit 1) was referenced above in regard to the unsuccessful groundwater pumping and discharge conducted as the second attempt at abatement at PVGND. This agreement allows for AAS petition in the event that WQCC standards were not achieved as a result of groundwater pumping. Since WQCC standards are still exceeded, AAS are sought that are both achievable and protective such that planned development of the property can proceed unencumbered by environmental concerns.

AAS Petition

This petition for AAS at the former PVGND must address the requirements of 20.6.2 NMAC Section 1210 *Variance Petitions* and Section 4103.F *Alternative Abatement Standards*. The responses to these requirements are discussed below.

Variance Petition

Section 1210.A requires that "Any person seeking a variance pursuant to Section 74-6-4 (G) NMSA 1978, shall do so by filing a written petition with the commission. Petitions shall:

1. *"State the petitioner's name and address."*

D&G Price Limited Partnership, PO Box 850, Bernalillo, New Mexico 87004.

2. *"State the date of the petition"*

January 15, 2016.

3. *"Describe the facility or activity for which the variance is sought"*

VFA water quality standards at the former PVGND, Bernalillo County, New Mexico.

4. *"State the address or description of the property upon which the facility is located"*

The former PVGND is located on the east side of New Mexico Highway 528 in Bernalillo, New Mexico. The parcel of land where VFA is impacted is legally described as Lot 5-B, Lot 5-A6, Parcel 1, and contiguous portions of Venada Plaza Drive for impacts to VFA groundwater.

5. *"Describe the water body or watercourse affected by the discharge"*

The affected water body is the VFA as described above. That portion of VFA aquifer subject to this variance petition is bound on the east by the Venada Arroyo, on the north and west it pinches out on the underlying confining clay, and to the south it mingles with the Upper Santa Fe aquifer as the confining clay pinches out. In plan-view, the VFA nitrate impacts are shown on Figure 2, Exhibit 2. In cross section, the VFA is depicted as the perched water levels along sections G-G' and H-H' at match points with J-J'. To the north, at the match points of G-G' and H-H' with D-D', the VFA is absent and the water levels are in the Upper Santa Fe aquifer (Appendix A in Appendix D of Exhibit 2).

6. *"Identify the regulation of the commission from which the variance is sought"*

Sections A and B of 20.6.2.3103 NMAC as provided in Subsection F of 20.6.2.4103 NMAC.

7. *"State in detail the extent to which the petitioner wishes to vary from the regulation"*

The AAS sought under this petition are 220 mg/L for nitrate, 350 mg/L for chloride, and 3,310 mg/L total dissolved solids TDS.

8. *"State why the petitioner believes that compliance with the regulation will impose an unreasonable burden upon his activity"*

Both of the interim abatement actions performed to date—in situ denitrification and groundwater pumping—have failed to achieve standards. The VFA is wedged shaped (Appendix A in Appendix D of Exhibit 2), and to the north and west where it pinches out, the ability to hydraulically capture the thin aquifer is technically infeasible.

9. *"State the period of time for which the variance is desired"*

The AAS are requested in perpetuity to facilitate site closure and property development.

Alternative Abatement Standards

The demonstration requirements codified in Subpart F of 20.6.2.3103 NMAC include the following three items:

1. *"Compliance with the abatement standard(s) is/are not feasible, by the maximum use of technology within the economic capability of the responsible person; OR there is no reasonable relationship between the economic and social costs and benefits (including attainment of the standard(s) set forth in Section 20.6.2.4103 NMAC) to be obtained"*

The use of in situ denitrification for cleanup of the plume is not feasible, both on economic and technical grounds, for the following reasons:

- The line of injection wells requires that all groundwater pass through the treatment zone in order to be denitrified; however, it is known from decades of well gauging that groundwater in the VFA reverses gradient typically from east to west and vice versa based on communication with water levels in river bed alluvium and is therefore somewhat stagnant with respect to ultimate discharge point. This phenomenon was described by METRIC (Appendix D Exhibit 2) as "in a manner analogous to an estuary." Therefore, downgradient is a transient concept, groundwater flows to and fro, and reliance on groundwater passing through a treatment barrier in a downgradient sense will not result in cleanup in a timely manner;

- This technology does nothing to treat chloride and TDS, so that even if nitrate vanished, AAS for chloride and TDS would be required in order to terminate abatement and close the site;

- The addition of sodium acetate and sucrose will cause the groundwater to become reducing, or anaerobic, in nature. This has the potential to cause dissolution of metals subject to oxidation and reduction reactions: arsenic, iron, and manganese. Robust application of this technology may reduce nitrate only to create an alternate groundwater problem and the site would continue in abatement indefinitely;

- Regarding groundwater pump and discharge, D&GP just completed pumping one pore volume of groundwater (Appendix B Exhibit 2) in accordance with the settlement agreement (Exhibit 1) as discussed above. The pumped groundwater was discharged to the Rio Rancho sanitary sewer as per agreement between Rio Rancho and D&GP to discharge one pore volume (44 acre feet) of groundwater. This resulted in reduced concentrations and a somewhat reduced aerial extent of the solute plume (Appendix C Exhibit 2). However, rebound is already appearing in MW-19R and MW-23 (in the northern portion of the plume where the VFA thins and vanishes), and where pumping rates were low. The results of post-pumping monitoring indicate that since the hydraulic stress of pumping in the line of EW-1 through EW-4 was ceased, the hydraulic gradients reverted to the east to west, and presumably west to east, "estuary" behavior described by METRIC (Appendix D Exhibit 2). This aquifer behavior effectively "strands" impacted groundwater from significant movement for hydraulic capture. As soon as the gradient reverted to natural conditions, nitrate advected into MW-19R and MW-23 and elevated to considerably above standard for nitrate, and to levels that are representative of the plume before cleanup attempts;

- Furthermore, the ability to directly discharge pumped groundwater to the Rio Rancho sanitary sewer was a temporary arrangement that facilitated pumping the agreed upon pore volume of

groundwater. Pumping groundwater over a considerable period would require treatment. Since chloride and TDS would need to be removed, treatment by reverse osmosis ("RO") would be required. RO is a proven desalinization technology that can remove salts from water. It is, however, an expensive technology that requires high pressure pumps to force water across a selective semipermeable membrane. In reverse osmosis, an applied pressure is used to overcome osmotic pressure, which can remove many types of molecules and ions from solutions. The result is that the solute containing undesirable ions is retained on the pressurized side of the membrane, and pure water is allowed to pass to the other side. To be "selective", this membrane should not allow ions to be removed through the pores. The "solute" retained is referred to as "concentrate" or "waste stream" and is very high in TDS. When sea water is being treated by RO, the concentrate may be returned to the sea. However, Professor Kerry Howe at UNM has pointed out the problems with disposal of concentrate in inland areas, since it is toxic to plants and renders fresh water saline, creating great regulatory challenges. For the reasons of high energy expenditure, and no known means of economical disposal of this waste stream, treatment by RO is considered not economically feasible; and

- A last form of treatment to consider is monitored natural attenuation ("MNA"). The VFA has been in some form of groundwater monitoring for a couple decades now, and the rebound observed in wells MW-19R and MW-23 are to levels indicative of the plume prior to the in situ injection test and the groundwater pumping of one pore volume. In other words, neither natural processes nor engineered approaches have significantly reduced nitrate concentrations in the stagnant and stranded VFA groundwater. Nitrate can be recalcitrant in aerobic groundwater, and in the VFA this appears to be the case (see concentration trend graphs in Appendix D of Appendix C in Exhibit 2). So MNA does not look viable, future concentrations can be reasonable predicted as significantly over standard base on past trend data, and long-term MNA monitoring is likely academic.

There is no reasonable relationship between continuing abatement and social costs. In fact, continuing abatement has an adverse social cost as the land will sit idle rather than completing development. The following points can be made regarding social impacts:

- A number of administrative controls will be in place to ensure the VFA is never used as a potable water supply, including:
    - Deed restriction prohibiting construction of a well in the VFA;
    - Public water supply is in place and required by Bernalillo;
    - Well Drillers rules prohibit completing a water well in impacted groundwater. Moreover, it is unfathomable that a water well would be completed in the VFA when the prolific Upper Santa Fe aquifer resides 20 feet below the VFA; and
    - An OSE Order will be placed that prohibits construction of a water well on the property.

- Because of the nature of the VFA, it is apparent that no effort and no cost are likely to achieve to the standards at Section 3103. Therefore, an arrangement whereby the administrative controls are fully in place and fully documented, attached to the title to the property so that use of and exposure to VFA is prevented, is both protective of human health and beneficial to intended future land use.

- The AAS will allow the NMED to "clear" the property and administratively close out abatement, freeing the property for final development. This is considered a "positive" social impact.

- Conversely, failure to approve the AAS will result in the property remaining in a state of partial development as groundwater monitoring continues ad infinitum. The technical infeasibility of an engineered cleanup approach to achieve Section 3103 standards has been demonstrated via two different abatement activities.

2. *"The proposed alternative abatement standard(s) is/are technically achievable and cost-benefit justifiable"*

The proposed AAS have already been achieved and will result in immediate submission of an Abatement Completion Report and termination of abatement. The cost for this activity is nominal relative to the money spent on the two abatement activities. The ability to complete development of this parcel, which presently lies idle in a partial state of development, is beneficial to the Town of Bernalillo. The cost-benefit evaluation discussed herein is based on that portion of the VFA in Lot 5-B and contiguous portions of Venada Plaza Drive. Lot 5-A6 and Parcel 1 are below standards based on well MW-13-RR and will not require AAS.

3. *"Compliance with the proposed alternative abatement standard(s) will not create a present or future hazard to public health or undue damage to property"*

Exposure to nitrate impacted groundwater will be prevented by the administrative controls described above. These administrative controls will eliminate the potential human exposure pathways and render the solution protective of public health. Chloride and TDS are not human health concerns by rule since they are not Section 3103.A. contaminants. Finally, freeing the property so that development can be completed will enhance the property, and will not cause undue harm thereto.

CONCLUSION

The proposed AAS are based on the last several years groundwater monitoring data. As a result, the AAS are technically achievable. Acceptance of the AAS will allow D&GP to proceed with submitting an Abatement Completion Report, which in turn allows the Secretary NMED to terminate abatement. Once these actions are completed, the property development can continue to completion, thereby benefitting all involved parties. The administrative controls described above will ensure this action is protective of human health, and causes no undue damage to the property. In fact, approving the AAS will allow the development to proceed as planned and benefit the property.

List of Exhibits for Testimonies of Jay Snyder and John Price

Exhibit	Title
1	Settlement Agreement between the New Mexico Environment Department and D&G Price Limited Partnership
2	EA 2016. *Petition for Alternative Abatement Standards, Former Price's Valley Gold Dairy, Bernalillo, Sandoval County, New Mexico.* January, 2016.
3	New Mexico Administrative Code, Title 20, Chapter 6, Part 2 (20.6.2 NMAC)*Ground and Surface Water Protection*
4	20.6.6 NMAC Ground Water Protection – *Supplemental Permitting Requirements for Dairy Facilities*
5	Aerial Photograph of Price's Valley Gold Dairy circa 1996 prior to dismantling facilities
6	EA, 2012. *Technical Infeasibility Demonstration Former Price's Valley Gold Dairy, Sandoval County, New Mexico* . October 29.
7	Dave Martin, Secretary. Abatement Plan Technical Infeasibility Demonstration Approval, Upper Santa Fe Aquifer, Prices Valley Gold North Dairy. January 31, 2013.
8	EA, 2013. Abatement Completion Report, Former Price's Valley Gold Dairy, Bernalillo, NM. March 27.
9	Jerry Schoeppner, Bureau Chief. Partial Abatement Plan Termination, Price's Valley Gold North Dairy. December 13, 2013.
10	Voluntary Remediation Program Covenants not to Sue
11	Historical Summary of Expenditures
12	Sandoval County Assessor Protest Petition
13	Final Plat Map of Divided Dairy

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ENVIRONMENT DEPARTMENT

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Cabinet Secretary-Designate
BUTCH TONGATE
Deputy Secretary

August 26, 2013

Pete Domenici, Jr.
Domenici Law Firm, P.C.
320 Gold Ave. SW, Suite 1000
Albuquerque, NM 87102-3328

Dear Pete,

Enclosed you will find a fully executed copy of the Price's Dairy Settlement Agreement. Please note that the finalized Work Plan is also part of the Settlement Agreement and both documents should be kept together for further reference. If you have any questions, please feel free to contact me at (505) 222-9550.

Sincerely,

Jennifer L. Hower
Deputy General Counsel

Encl.

SETTLEMENT AGREEMENT

This Settlement Agreement ("Agreement") is made between the New Mexico Environment Department ("Department") and D&G Price Limited Partnership, a NM limited partnership, ("D&G P") to resolve the Notice of Deficiency ("NOD") issued by the Department on March 28, 2011 in response to the Modified Stage 2 Abatement Plan submitted on October 28, 2010.

I. BACKGROUND

A. PARTIES

1. The New Mexico Environment Department was created pursuant to NMSA 1978, § 9-7A-6.B(3), and is an executive agency within the government of the State of New Mexico charged with administering and enforcing various laws relating to the environment. NMSA 1978, § 9-7A-4, NMSA 1978, § 74-1-6 and § 74-1-7.

2. D&G P is a New Mexico limited partnership and is the successor in ownership to VG Farms, Inc., fka Price's Valley Gold Dairy, Inc.

3. The Property is the former Price's Valley Gold North Dairy located at 618 NM Highway 528, Bernalillo, New Mexico.

4. The Site subject to the terms of this Settlement Agreement is the Valley Fill (VF) groundwater within its historical impacted domain in Lot 5-B, Lot 5-A6, Parcel 1 and portions of Venada Plaza Drive between and contiguous to these lots (Attachment A, Work Plan for Groundwater Extraction, Figure 1, Abatement Plan Area Valley Fill Aquifer) and well MW-11R, located in lot 5-A9.

B. INTRODUCTION

5. Pursuant to the New Mexico Water Quality Act ("Act"), NMSA 1978, §§ 74-6-1 to 74-6-17 (1967), and the New Mexico Water Quality Control Commission Regulations, 20.6.2

NMAC - *Ground and Surface Water Protection* ("WQCC Regulations"), the Department may require responsible persons to abate ground water pollution.

6. D&G P, as the successor in ownership to VG Farms, fka Price's Valley Gold Dairy, Inc., is the responsible party for the abatement of ground water pollution resulting from the former dairy operations on the Property.

7. The former dairy operation was established on the Property by Stanley and Ron Ridge in 1960 and operated as Ridge Dairy until 1973. In June, 1973, Mr. Dudley Price purchased the dairy and renamed it Price's Valley Gold North Dairy (the Dairy). Mr. Price increased the size of the Dairy to 1,000 to 1,200 cows and subsequently purchased 183 acres to the south to accommodate the increased discharge from the enlarged facility. All dairy operations ceased in 1998 when the Dairy was closed and all cattle and manure were removed from the Property. The Property was cleared of all structures by 2006.

8. The Property, except for Lot 5-B, has been sold and redeveloped into various lots that contain commercial businesses, including Wal-Mart, Firestone Tires, a gasoline station, a strip mall and several fast food restaurants. There are undeveloped lots within the southeastern portion of the Property.

9. The Property includes two aquifers, the Upper Santa Fe Aquifer and the Valley Fill Aquifer. Ground water monitoring has shown that both aquifers were contaminated in excess of the WQCC ground water quality standards for nitrate, sulfate, chloride, and total dissolved solids ("TDS") in 20.6.2.3103 NMAC.

10. In 1986, the Department required the Dairy to apply for a groundwater discharge permit and DP-437 was approved and issued in July, 1987. DP-437 approval allowed for a maximum discharge of 9,073 gallons per day of wastewater generated in the milking parlor to be discharged to two manure lined lagoons, and then land applied to crops and pasture on the

Property.

11. DP-437 was approved and modified in May, 1994 for a maximum discharge of 70,000 gallons per day of wastewater generated in the milking parlor to be discharged through a manure separator, conveyed to a synthetically lined lagoon ("Lagoon") with 11.17 acre feet of operational capacity and an additional 4.36 acre-feet of freeboard capacity and then land applied to crops and pasture on the Property.

12. In 1997, the Department was notified that the dairy operation on the Property was scheduled to be closed. The Department conducted site inspections in June and August, 1997 and required the submission of a Corrective Action Plan, pursuant to the terms of DP-437, as part of the closure of such dairy operations on the Property.

13. Initial work on the Corrective Action Plan began in August, 1997. The dairy operations on the Property ceased in 1998.

14. DP-437 was renewed and modified on November 16, 2001 to facilitate groundwater monitoring and closure activity on the Property. The permit renewal and modification required a site investigation of the facility because Water Quality Control Commission ground water standards were exceeded and soil was contaminated on portions of the Property at the time of closure.

15. The required site investigation and groundwater monitoring data demonstrated that all closure plan requirements were satisfied in full for a south portion of the Property containing approximately 156 acres ("South Parcel"). The South Parcel was removed from DP-437 on September 27, 2002 and was not subject to any further discharge plan requirements.

16. On April 3, 2003, a Supplemental Site Investigation Report to evaluate the possible withdrawal of a portion of the remainder of the Property ("North Parcel") from DP-437 was submitted to the Department. The request was denied by the Department on May 27, 2003.

17. On July 22, 2005, the Dairy requested that DP-437 be voluntarily terminated and that remediation proceed pursuant to the WQCC abatement regulations, 20.6.2.4100 – 4115 NMAC.

18. On August 10, 2005, the Department responded and requested that a site characterization report be submitted to the Department prior to the termination of DP-437.

19. On January 11, 2006, a Stage 1 Abatement Plan and Site Characterization Report for Termination of DP-437 was submitted to the Department.

20. On March 3, 2006, the Department provided notice that DP-437 was terminated and that further groundwater investigation and remediation would take place pursuant to WQCC Regulations Sections 20.6.2.4000 through 20.6.2.4115 NMAC.

21. The Stage 1 Abatement Plan was approved by the Department on April 3, 2006.

22. On November 21, 2005, a Voluntary Remediation Program (VRP) application for soil remediation on the North Parcel was submitted to the Department. Final eligibility was granted on June 28, 2006 and a Certificate of Completion was issued on November 28, 2006. Covenants Not to Sue were issued to various purchasers on January 17, 2008 and April 9, 2008. These actions closed out the surficial soil pathways and completed surficial soil remediation only.

23. On November 29, 2006, the Department issued approval of the Stage 1 Abatement Plan, Final Site Investigation Report and provided notice that a Stage 2 Abatement Plan was required.

24. The Proposed Stage 2 Abatement Plan was submitted to the Department on December 18, 2006.

25. On March 23, 2007, the Department issued a Notice of Deficiency (NOD) for the Proposed Stage 2 Abatement Plan.

26. In response to the NOD, a Modified Stage 2 Abatement Plan was submitted to the Department on September 18, 2007. The Modified Stage 2 Abatement Plan proposal was to perform ground water monitoring for 5 years with a contingency plan to operate an in-situ denitrification system if ground water contamination persisted following the 5 years of monitoring. The Department determined that the proposal as submitted was not approvable. On May 2, 2008, the Department received a request for temporary permission to discharge and a plan to implement a temporary in-situ denitrification system. On May 30, 2008, the Department issued a Temporary Permission to Discharge. The in-situ system was operated during the summer and fall of 2008 and 1.5 million gallons of media consisting of water, sugar, and sodium acetate was injected into the Valley Fill Aquifer. The system had no long-term impact on the ground water nitrate levels at the Site.

27. In late 2008 and 2009, additional site investigation activities were performed to better understand the hydrogeologic framework and groundwater flow at the Site.

28. Based on the site reevaluation and investigation, a Revised Stage 2 Abatement Plan was submitted to the Department on October 28, 2010. The Revised Stage 2 Abatement Plan proposed 66 milligrams per liter (mg/l) as the clean-up level for nitrate -based on the average nitrogen concentration level in ground water monitoring wells at the Site in 1986 and 1987. The Revised Stage 2 Abatement Plan identified this concentration as the existing condition within the meaning of 20.6.2.2013 NMAC and the allowable limit under a discharge permit. The Revised Stage 2 Abatement Plan proposed to extract contaminated groundwater from the Valley Fill Aquifer and land apply the extracted water to approximately 7 acres of crop land for treatment.

29. On March 28, 2011, the Department issued a Notice of Deficiency pursuant to Subsection A of 2.6.2.4109 NMAC regarding the October 28, 2010 Revised Stage 2 Abatement

Plan.

30. The March 28, 2011 Notice of Deficiency rejected the proposal to use 66 mg/l as the clean-up level for nitrate as nitrogen on the basis that the "existing condition" or "existing concentration" for purposes of setting water quality standards for issuance of discharge permits is the existing concentration at the time the predecessor regulation to 20.6.2.3103 NMAC was promulgated, in 1977, not the existing concentration at the time a discharge permit is applied for or issued, such as in 1986 and 1987 when monitoring data for site was first obtained. The 1986 and 1987 monitoring data are not relevant to the standards under 20.6.2.3103 NMAC. The proposal did not meet the WQCC Regulations, which require submittal of a plan to implement an abatement option that meets the WQCC water quality standards for nitrate, total dissolved solids, chloride, and sulfate for both aquifers at the site, as required by Subsection E of 20.6.2.4104 NMAC.

31. On April 27, 2011, dispute resolution was invoked in accordance with 20.6.2.4113 NMAC, which provides that if there is a technical dispute regarding a Notice of Deficiency, the responsible person may notify the Secretary of the Department that a dispute has arisen, and may invoke the dispute resolution provisions of the Regulations. Upon such notification, all deadlines affected by the technical dispute are extended for a maximum of sixty (60) days. During this negotiation period, the Secretary or his/her designee and the responsible person are required to meet at least once. If the dispute remains unresolved after the negotiation period, the decision of the Secretary is final.

32. On October 18, 2011, an Abatement Completion Report for the Former Price's Valley Gold Dairy was submitted to the Department.

33. On October 29, 2012, the Technical Infeasibility (TI) demonstration for the Upper Santa Fe aquifer was submitted to the Department to establish substitute abatement

standards pursuant to Section 20.6.24103.E NMAC. Addendums to the report were submitted on December 7 and 13, 2012.

34. On January 18, 2013, the Department approved the substitute abatement standards proposed in the TI demonstration report and addendums for the Upper Santa Fe Aquifer, with the exception of the area at or near the groundwater monitoring well identified as MW-11R legally platted as Lot-5-A-9.

35. On March 27, 2013, the Abatement Completion Report was submitted to the Department based on the Department's January 18, 2013 approval of substitute abatement standards for the Upper Santa Fe Aquifer.

36. On May 22, 2013, the Department issued an Abatement Completion Approval letter based upon the March 27, 2013 Abatement Completion Report.

II. COMPROMISE AND SETTLEMENT

37. The Department and D&G P (collectively, the "Parties") have engaged in settlement discussions to resolve the technical dispute without further administrative or judicial actions.

38. As a result of these discussions, the Parties have entered into this Settlement Agreement.

39. The purpose of this Settlement Agreement is to resolve all matters related to the March 28, 2011 Notice of Deficiency for the Valley Fill Aquifer and the Upper Santa Fe Aquifer near and around MW-11R.

40. This Settlement Agreement is a compromise that sets forth requirements for the management of the Site and is based on the accumulation of data regarding the Valley Fill Aquifer, and other consideration set forth in more detail in the Work Plan attached as Exhibit A.

III. TERMS OF SETTLEMENT

41. The March 28, 2011 Notice of Deficiency rejected the proposal to use 66 mg/l as the clean-up level for nitrate as nitrogen on the basis that the "existing condition" or "existing concentration" for purposes of setting water quality standards for issuance of discharge permits is the existing concentration at the time the predecessor regulation to 20.6.2.3103 NMAC was promulgated, in 1977, not the existing concentration at the time a discharge permit is applied for or issued, such as in 1986 and 1987 when monitoring data for site was first obtained. The 1986 and 1987 monitoring data are not relevant to the standards under 20.6.2.3103 NMAC. The proposal did not meet the WQCC Regulations, which require submittal of a plan to implement an abatement option that meets the WQCC water quality standards for nitrate, total dissolved solids, chloride, and sulfate for both aquifers at the site, as required by Subsection E of 20.6.2.4104 NMAC.

42. The Valley Fill Aquifer has certain unique characteristics that pose challenges with regard to contaminant removal. The contaminant plume within the Valley Fill Aquifer beneath the site is contained within a wedge shaped formation of low conductivity that is hydraulically separated from the USF aquifer by a red clay unit. Specific details regarding the Valley Fill Aquifer are set forth in the Work Plan attached as Exhibit A.

43. The Parties agree that D&G P may be unable to meet water quality standards at the Site based on the site-specific conditions.

44. Therefore, the Parties agree as follows:

45. Valley Fill Aquifer. D&G P shall perform remedial activities within the Valley Fill Aquifer as follows:

a. D&G P shall extract from the Valley Fill Aquifer, as defined in the Work Plan attached as Exhibit A, and dispose of at the Rio Rancho Waste Water Treatment Plant a

volume of ground water that is the agreed-upon one pore volume of the contaminated plume, in accordance with Exhibit A.

b. D&G P shall implement the storm water prevention plan to prevent ponding at the Site in accordance with Exhibit A.

c. D&G P will adhere to provisions for contingencies related to inability to timely and practicably extract and dispose of one pore volume of the contaminated plume as described in Exhibit A.

d. Upon completion of the extraction and disposal of the one pore volume, or after the extraction system has been in operation for two years, whichever comes first, the Ground Water Quality Bureau of the Department shall support approval of a petition for an alternative abatement standard pursuant to Subsections (D) and (F) of 20.6.2.4103 NMAC if D&G P chooses to bring such a petition before the Water Quality Control Commission.

46. Upper Santa Fe Aquifer. With the exception of monitoring well MW 11-R, ground water monitoring data for the Upper Santa Fe Aquifer for the previous eight consecutive quarters demonstrates that contaminant concentrations in the Upper Santa Fe are not greater than 200 percent of the abatement standard for that contaminant. D&G P shall perform remedial activities within the Upper Santa Fe Aquifer as follows:

a. Pursuant to the Department's January 18, 2013 approval of the Abatement Plan Technical Infeasibility Demonstration, on March 27, 2013, D&G P submitted to the Department an abatement completion report for the Upper Santa Fe Aquifer, except for monitoring well MW-11-R, in accordance with 20.6.2.4112.A NMAC that documented compliance with the standards and requirements in 20.6.2.4103 NMAC. The Abatement Completion Report was approved by the Department on May 22, 2013.

b. D&G P shall continue to monitor MW 11-R for the duration of the implementation of the extraction and treatment plan for the Valley Fill Aquifer, in accordance with the work plan attached as Exhibit A to this Agreement.

c. If upon completion of the extraction and disposal of one pore volume of the contaminated plume in the Valley Fill Aquifer, ground water monitoring data demonstrates that monitoring well MW 11-R is still contaminated in excess of the WQCC ground water quality standards, D&G P and NMED shall resume dispute resolution as described in Paragraph 31.

IV. OTHER TERMS AND CONDITIONS

A. RESERVATION OF RIGHTS

47. The Department reserves the right to pursue civil or administrative relief for any violations of state or federal law, past or future, which are not the subject matter of this Settlement Agreement. D&G P reserves the right to assert any and all defenses that they may have to any civil, administrative or judicial action that may be asserted by the Department as described by the terms of this paragraph.

48. In addition to the rights reserved to the Parties, in the event the Petition described in Paragraphs 40.d and 41.c. is filed but not approved by the WQCC or any reviewing body, D&G P and NMED shall resume dispute resolution as described in Paragraph 31.

49. Except as expressly provided herein, the Parties reserve all other legal privileges and rights.

50. The Parties acknowledge that a contract or other agreement providing access to the City of Rio Rancho Wastewater Treatment system is a condition precedent to this Agreement. D&G P expects such agreement will be obtained immediately upon execution of this Agreement. If D&G P cannot obtain such agreement within thirty days of execution of this

Agreement, D&G P will notify NMED and this Agreement shall be terminated without any further action of either Party, unless extended by written agreement of the Parties.

51. Agreement of the Parties to the work plan must be obtained simultaneously with execution of this Agreement.

B. RELEASE OF LIABILITY

52. D&G P shall assume all costs and liabilities incurred in performing any of its obligations under the Settlement Agreement. The Department, on its own behalf or on behalf of the State of New Mexico, shall not assume any liability for D&G P's performance of any obligation under this Settlement Agreement.

C. BINDING EFFECT

53. This Settlement Agreement shall be binding on the Parties and their officers, directors, employees, agents, subsidiaries, successors, assigns, trustees, or receivers.

D. DURATION

54. This Settlement Agreement shall remain in effect until D&G P completes abatement of the Site pursuant to 20.6.2.4112 NMAC, or both the Valley Fill and the Upper Santa Fe Aquifers have received approval of either a petition for alternative abatement standards pursuant to Subsection F of 20.6.2.4103 NMAC or a technical infeasibility demonstration pursuant to Paragraph (1) of Subsection E of 20.6.2.4103 NMAC, or both, or it is terminated by written agreement of the Parties or the Parties resume dispute resolution as set forth in Paragraph 31.

E. INTEGRATION

55. This Settlement Agreement merges all prior written and oral communications between the Parties concerning the subject matter of this Agreement, and contains the entire

Agreement between the Parties. This Agreement shall not be modified without the express written consent of the Parties.

F. COMPLIANCE WITH OTHER STATE AND FEDERAL REQUIREMENTS

56. This Settlement Agreement shall not be construed to prohibit or limit in any way the Department from requiring D&G P to comply with any other applicable state or federal requirements.

G. DISCLOSURE TO SUCCESSORS-IN-INTEREST

57. D&G P shall disclose this Settlement Agreement to any successor-in-interest and shall advise such successor-in-interest that this Agreement is binding on the successor-in-interest until such time as D&G P complies with the terms and conditions of the Agreement or it is terminated by written agreement of the Parties.

H. AUTHORITY OF SIGNATORIES

58. The persons executing this Settlement Agreement represent that they have the authority to bind their respective parties to this Agreement, and that their representation shall be legally sufficient evidence of actual or apparent authority to bind their respective parties to this Agreement.

It is so Agreed:

NEW MEXICO ENVIRONMENT DEPARTMENT

By:_____ Date: 8/23/2013
Ryan Flynn, Secretary-Designate

Ryan Flynn, Secretary-Designate

D & G Price Limited Partnership,

By: Dudley Price, G.P. Date: 8-14-13

Dudley Price, General Partner

PETITION FOR ALTERNATIVE ABATEMENT STANDARDS FORMER PRICE'S VALLEY GOLD NORTH DAIRY BERNALILLO, SANDOVAL COUNTY, NEW MEXICO

Prepared for:
D&GP
Bernalillo, Sandoval County, New Mexico

Prepared by:
EA Engineering, Science,
and Technology, Inc., PBC
320 Gold Avenue SW, Suite 1300
Albuquerque, New Mexico 87102

April 2016

EA Project No. 1505701.02

EA Engineering, Science, & Technology, Inc., PBC
320 Gold Avenue SW, Suite 1300
Albuquerque, New Mexico 87102
Phone: (505) 224-9013

PETITION FOR ALTERNATIVE ABATEMENT STANDARDS FORMER PRICE'S VALLEY GOLD NORTH DAIRY BERNALILLO, SANDOVAL COUNTY, NEW MEXICO

Prepared for:

D&GP
Bernalillo, Sandoval County, New Mexico

Prepared by:

EA Engineering, Science,
and Technology, Inc., PBC
320 Gold Avenue SW, Suite 1300
Albuquerque, New Mexico

April 2016

4/25/16
Date

Jay Snyder
Senior Hydrogeologist

EA Project No. 1505701.02

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1. INTRODUCTION

This document has been prepared on behalf of D&G Price Limited Partnership (D&GP) to petition for Alternative Abatement Standards (AAS) for the former Price's Valley Gold North Dairy (PVGND) in Bernalillo County, New Mexico. PVGND has been in abatement under Title 20, Chapter 6, Part 2 of New Mexico Administrative Code (20.6.2 NMAC) since 1997. Concentrations of nitrate, chloride, and total dissolved solids (TDS) exceed Water Quality Control Commission (WQCC) standards in a few monitoring wells in the Valley Fill Aquifer (VFA).

The VFA is a wedge-shaped perched aquifer of limited extent which has gone through two abatement demonstrations: (1) an extensive field scale in situ denitrification demonstration, and (2) full-scale groundwater pumping with discharge to the Rio Rancho sanitary sewer. Both of these actions were approved by the Ground Water Quality Bureau (GWQB) of the New Mexico Environment Department. PVGND and its successor D&GP agreed to these recommended actions and implemented them under GWQB oversight. The second abatement action (groundwater pumping and discharge) was performed as part of a settlement agreement (Appendix A) between D&GP and NMED to address impacts to the VFA. Despite these interim abatement actions, groundwater concentrations in isolated areas of the VFA still exceed WQCC standards.

The settlement agreement allows for AAS petition in the event the groundwater pumping did not achieve WQCC standards. Since WQCC standards are still exceeded, AAS are sought that are both achievable and protective such that planned development of the property can proceed unencumbered by environmental concerns.

This report discusses the site location and history below. It is important to note that this AAS petition is for VFA groundwater only. Other actions have resulted in partial site closures and are discussed in "*Site History*." However, this discussion is for completeness and this petition does not include (1) Upper Santa Fe Aquifer groundwater impacts or (2) historical soil contamination.

The Upper Santa Fe Aquifer impacts were addressed by a technical infeasibility demonstration (EA 2012), submission of an Abatement Completion Report (EA 2013) with NMED concurrence (NMED 2013a), and partial abatement termination (NMED 2013b) after all Upper Santa Fe Aquifer monitoring wells were plugged and abandoned with the exception of one (MW-11R). Soil impacts were closed through the Voluntary Remediation Program (VRP), with a Certificate of Completion issued on November 28, 2006 (NMED 2006).

1.1 SITE LOCATION

The former PVGND is located on the east side of New Mexico Highway 528 in Bernalillo, New Mexico. It is bound on the south by Venada Arroyo. The northern portion of the original dairy has been closed and is occupied by Walmart and other commercial businesses (Figure 1). The portion of the former dairy subject to this petition is depicted on Figure 2, and encompasses Lot 5-B, Lot 5-A6, Parcel 1, and contiguous portions of Venada Plaza Drive.

1.2 SITE HISTORY

Originally Ridge Dairy, a 200-cow dairy, was operated on the site from 1960 to 1973 and was owned by Stanley and Ron Ridge. In June 1973, Mr. Dudley Price purchased the Dairy and renamed it Price's Valley Gold Dairy. Mr. Price increased the size of the dairy to 1,000 to 1,200 cows and subsequently purchased 183 acres to the south to accommodate the increased discharge from the enlarged facility.

In February 1986, the New Mexico Environmental Improvement Division notified the PVGND that they were required to have a discharge plan. The dairy submitted an application in May 1986, and it was approved in July 1987. The initial samples collected from groundwater monitoring well MW-1, near the Dairy's east lagoon, had existing nitrate concentrations of 43.8 milligram per liter (mg/l) in November 1986, 93.4 mg/l in February 1987 and 61.8 mg/l in December 1987 (average of 66 mg/l).

In June 1997, the New Mexico Environment Department (NMED) was advised that the Dairy was scheduled to be closed. As part of a site investigation conducted in June and August 1997, the NMED provided guidance on the type of Corrective Action Plan it would require under the discharge permit in connection with the closure of the Dairy. Initial work on the Corrective Action Plan began in August 1997.

The Dairy was closed in June 1998. Beginning in October 1997, Glorieta Geoscience, Inc. and Faith Engineering, Inc. conducted numerous investigations and studies and developed at least three corrective action and abatement plans. In the summer of 2008 a nutrient injection system was operated at the site. The objective of the injection system was to create a treatment wall within the aquifer which would de-nitrify the groundwater as it passed through the wall. In November 2008, METRIC Corporation was retained to conduct an independent evaluation of the historic investigation and remediation efforts at the site.

In October 2010 METRIC submitted an amended Stage 2 Abatement Plan (S2AP) which specified groundwater pumping with irrigated agriculture (alfalfa production) as the end water use and nitrate treatment. The 2010 S2AP modified the original S2AP submitted in 2006 which also relied on groundwater pumping as the principal component of the remedy. The public notice requirement had been satisfied with this initial S2AP submission.

The PVGND has been fully characterized, and the Stage 1 Abatement Plan completed. The site is currently in Stage 2 Abatement according to NMED records, and is in Long Term Monitoring (LTM). The LTM has created a sufficient time-series of groundwater monitoring data to support evaluation of contaminants trends with confidence.

Mr. Price closed the dairy in June 1998. The property was cleared of all structures by 2006 The Property, except for Lot 5-B, has been sold and redeveloped into various lots that contain commercial businesses, including Wal-Mart, Firestone Tires, a gasoline station, a strip mall and several fast food restaurants. There are undeveloped lots within the southeastern portion of the Property. D&G P retains ownership of Lot 5-B and only has limited use of the other surface area that is part of the Site.

In order to facilitate surface redevelopment, PVGND North Area (86.2 acres) entered the NMED VRP (#53061004) for nitrogen compounds in soil. The application was submitted on November 21, 2005, final eligibility granted June 28, 2006, Certificate of Completion issued November 28, 2006 and Covenants Not to Sue (CNS) issued on January 17, 2008 and April 9, 2008. These actions close out soil pathways and complete soil remedies.

Based on the entire record of LTM, relatively high nitrate concentration levels have been observed in VFA monitoring wells. However, the plume has remained relatively constant in size, as it tends to move to the west or east with high or low river flow conditions (METRIC Corp) and shift in hydraulic gradient. A summary of the groundwater contaminant concentrations since March 2011 is provided in Table 1.

With respect to the Upper Santa Fe Aquifer groundwater, on March 27, 2013, D&GP submitted an Abatement Completion Report to NMED that demonstrated abatement was complete for the entire original Abatement Plan Area, with the exception of two areas that remain in abatement because groundwater standards have not yet been achieved.

The two areas still in abatement were Lot 5-A9 (MW-11R) for impacts related to the Upper Santa Fe aquifer groundwater, and Lot 5-B, Lot 5-A6, Parcel 1, and contiguous portions of Venada Plaza Drive for impacts to VFA groundwater. The Abatement Completion Report stated that "D&GP will submit a work plan upon completion of a settlement agreement that addresses the remaining abatement activities." This work plan modified the October 2010 S2AP (METRIC 2010) which had never been implemented. Hence, the S2AP was implemented in accordance with the work plan for implementation of a groundwater extraction system with discharge to the City of Rio Rancho waste water treatment plant rather than field irrigation as specified in the METRIC plan (EA 2013).

Lot 5-B, Lot 5-A6, Parcel 1 and contiguous portions of Venada Plaza Drive overlie the VFA. A series of 3 waste water lagoons operated along Venada Arroyo, and lowest in elevation, or east lagoon, was centered over the VFA in Lot 5-B. This lagoon has a varied history of being initially unlined, then lined during later periods of operation. The volumes of waste water processes through the lagoons, and an estimate of the historic seepage from the lagoons, was not provided in Stage 1 Abatement Plan documents. As result, no means of estimating former discharge from the lagoons is currently available without speculation and assumption; however, since the lagoons ceased receiving waste water circa 1998, it is assumed that drainage out of the vadose zone is complete and sourcing of contaminants to the VFA is complete. According to Hawley (2009), Lot 5-B is underlain by 30 to 40 feet of lithofacies VAY, mapped as younger arroyo-valley alluvium consisting of pale- to light-brown sand, muddy sand, and pebble to cobble gravel associated with tributary streams to the Rio Grande. This soil is expected to drain well.

The east lagoon is the suspected source of groundwater contamination in the VFA as its footprint encompasses perhaps 40 percent of the VFA which directly underlies it. The perched nature of the VFA, along with observed gradient reversals based on river stage (METRIC 2010) has "stranded" the impacts on the confining layer, and dispersion via discharge out of the VFA to the

Rio Grande flood plain alluvium has not occurred. This isolation in concert with gradient reversals has resulted in highly variable contaminant concentrations in some areas. The S2AP intended to collect this isolated groundwater via pumping and discharge it to sanitary sewer. Although much contamination was removed, the variable trends returned once the hydraulic gradient reverted to the natural condition.

The groundwater pumping and discharge system was operated from October 2013 until July 2015 and a total of one pore volume (14,600,000 gallons), which was agreed upon with NMED concurrence, had been pumped from the VFA (EA 2015; Appendix B). In areas where the VFA thickness is sufficient to allow significant pumping rate, the plume in the VFA substantially cleaned up. However, to the north of the VFA where it pinches out and the aquifer is thin, the low pumping rates did not result in cleanup. The positive results from areas where sufficient aquifer thickness exists indicate the technology was appropriate. However, the inability to pump sufficient water in an efficient manner where the aquifer thins indicates a technical infeasibility to achieve WQCC standards with groundwater pumping in areas of insufficient aquifer thickness.

The site is currently being monitored, and the most recent quarterly groundwater monitoring report (EA 2016) is provided in Appendix C. This report includes summary tables of groundwater monitoring data for the VFA going back as far 1998 for MW-1A, a potentiometric surface map for December 2015, plume maps for nitrate chloride, and TDS for December 2015, and hydrographs and trend plots for contaminants of concern.

2. AAS PETITION REQUIREMENTS

This petition for AAS at the former PVGND must address the requirements of 20.6.2 NMAC Section 1210 *Variance Petitions* and Section 4103.F *Alternative Abatement Standards*. The responses to these requirements are discussed below.

2.1 VARIANCE PETITION REQUIREMENTS

Section 1210.A requires that *"Any person seeking a variance pursuant to Section 74-6-4 (G) NMSA 1978, shall do so by filing a written petition with the commission."*
Petitions shall:

1. *State the petitioner's name and address;*

   D&G Price Limited Partnership
   PO Box 850
   Bernalillo New Mexico 87004

2. *State the date of the petition;*

   February 20, 2016.

3. *Describe the facility or activity for which the variance is sought;*

   Valley Fill Aquifer water quality standards at the former Price's Valley Gold North Dairy, Bernalillo County, New Mexico.

4. *State the address or description of the property upon which the facility is located;*

   The former Price's Valley Gold North Dairy (PVGND) is located on the east side of New Mexico Highway 528 in Bernalillo, New Mexico. The parcel of land where VFA is impacted is legally described as Lot 5-B, Lot 5-A6, Parcel 1, and contiguous portions of Venada Plaza Drive for impacts to VFA groundwater.

5. *Describe the water body or watercourse affected by the discharge;*

   The affected water body is the VFA, a localized wedge-shaped perched aquifer of limited extent. That portion of VFA aquifer subject to this variance petition is bound on the east by the Venada Arroyo, on the north and west it pinches out on the underlying confining clay, and to the south it mingles with the Upper Santa Fe aquifer as the confining clay pinches out. In plan-view, the VFA nitrate impacts are shown on Figure 2. In cross section, the VFA is depicted as the perched water levels along sections G-G' and H-H' at match points with J-J'. To the north, at the match points of G-G' and H-H' with D-D', the VFA is absent and the water levels are in the Upper Santa Fe aquifer.

6. *Identify the regulation of the commission from which the variance is sought;*

Sections A and B of 20.6.2.3103 NMAC as provided in Subsection F of 20.6.2.4103 NMAC.

7. *State in detail the extent to which the petitioner wishes to vary from the regulation;*

   The Alternative Abatement Standards sought under this petition are 220 mg/L for nitrate, 350 mg/L for chloride, and 3,310 mg/L total dissolved solids.

8. *State why the petitioner believes that compliance with the regulation will impose an unreasonable burden upon his activity;*

   Both of the interim abatement actions performed to date—in situ denitrification and groundwater pumping—have failed to achieve standards. The VFA is wedged shaped (Hawley 201, and to the north and west where it pinches out, the ability to hydraulically capture the thin aquifer is technically infeasible.

9. *State the period of time for which the variance is desired.*

   The AAS are requested in perpetuity to facilitate site closure and property development.

2.2 ALTERNATIVE ABATEMENT STANDARDS REQUIREMENTS

The demonstration requirements codified in Subpart F of 20.6.2.3103 NMAC include the following:

1. *Compliance with the abatement standard(s) is/are not feasible, by the maximum use of technology within the economic capability of the responsible person; OR there is no reasonable relationship between the economic and social costs and benefits (including attainment of the standard(s) set forth in Section 20.6.2.4103 NMAC) to be obtained;*

   D&GP will demonstrate that compliance with the abatement standards is not technically feasible (Section 7.1) and there is no reasonable relationship between the costs and benefits (Section 7.2).

2. *The proposed alternative abatement standard(s) is/are technically achievable and cost-benefit justifiable; and*

   The AAS proposed will be based on the most recent 8 quarters of groundwater monitoring, thereby ensuring they are achievable.

3. *Compliance with the proposed alternative abatement standard(s) will not create a present or future hazard to public health or undue damage to property.*

   The proposed AAS will be shown to not create a present or future hazard through administrative controls, hydrogeological considerations, and evidence from operation of

the groundwater pumping system. The plume is stable and stagnant in the perched aquifer. After pumping ceased, the plume reverted immediately to its fluctuating east to west, then west to east, groundwater flow pattern which results in very little net migration of contaminants. It will be shown that no undue damage to property will result from the AAS.

3. SITE GEOLOGY AND HYDROLOGY

Numerous site-specific data have been collected from boreholes and monitoring wells for the site to develop the hydrogeologic setting. The site specific geology was in turn integrated into the regional geology and hydrogeology. The Stage 2 Abatement Plan completed by METRIC Corporation (2010) developed the geology and hydrogeology for the site as presented below.

3.1 TOPOGRAPHY

The property is located from approximately 5,150 to 5,050 feet above mean sea level (amsl) with significant land slope toward the southeast (Figure 1). General storm water flow at the former Dairy is from high ground on the northwest downhill toward the low lying areas to the southeast. The Rio Grande is located approximately 4,000 feet east of the Dairy.

3.2 SITE SPECIFIC GEOLOGY

The site specific geology was developed Dr. John W. Hawley, PhD (Hawley Geomatters 2009). METRIC Corporation retained Hawley Geomatters to develop a geologic model of the dairy site. Dr. Hawley was furnished with the available soil boring and monitoring well logs for the site. He was also furnished with historic reports, historic water level data and historic water quality data. The Hawley report is appended the modified S2AP (METRIC 2010; Appendix D).

The Hawley report provides a detailed discussion of all geologic units present, including those units present in the vadose zone. The units and associations germane to the VAF are discussed below.

3.3 HYDROGEOLOGY

Evaluation of the site geology and historic water level data indicates that there are two distinct aquifers at the site: the USF aquifer and the VF aquifer. Recharge to the older USF aquifer probably occurs along its subcrop beneath the older valley fill (VAO) and Los Durans Gravel (TAd) to the west and north of the site. Groundwater flow in the USF aquifer is to the southeast as depicted in Figure 2, which represents conditions in June 2010. Hydrographs of the USF aquifer monitoring wells (Figure 3) indicate water levels are stable. Depth to water within the USF aquifer is approximately 60 to 90 feet below ground surface.

> The younger VFA consists of the combined Venada Arroyo Fill (VAY) and the Rio Grande Valley fill (RG). The two units are hydraulically connected on the east, and exhibit an average water level elevation of about 5040. The VFA is hydraulically separated from USF aquifer by "red clay" in the USF. The presence of the "red clay" in the USF aquifer explains the approximate 20 ft. water level difference between the VFA and the USF aquifer. In plan-view, the VFA nitrate impacts are shown on Figure 2. In cross section, the VFA is depicted as the perched water levels along sections G-G' and H-H' at match points with J-J'. To the north, at the match points of G-G' and H-H' with D-D', the VFA is absent and the water levels are in the Upper Santa Fe aquifer. The relation of VAY to USF at these locations is shown in G-G' and H-H'.

Regional perspective suggests groundwater flow direction in the VFA should be toward the southeast, subparallel to the Rio Grande. However, The VFA is perched and limited in extent to the north and west, thinning and pinching out altogether. Moreover, on the east, the VFA is in communication with the river bed aquifer. So when water levels in the river bed aquifer rise, they do so in the VFA, causing groundwater to flow to the west. Conversely, when water levels in the river bed aquifer fall, groundwater flows to the east in the VFA. METRIC (2010) referred to this phenomenon as "estuary-like" with seasonal gradient reversals versus tidally influenced reversals. The net result from contaminant transport perspective that solute moves to and fro, but does not travel significantly to the south or south and out of the VFA.

Recharge to the VFA aquifer is principally from exchange with the river bed aquifer. However, the Venada Arroyo bounds the site on the south, and is unlined and certainly infiltrates water during periods of surface water flow.

3.4 DISTRIBUTION OF CONTAMINANTS

The sources of contaminants to the VFA as well their occurrence in the VFA are discussed below.

3.4.1 Contaminant Sources

The principal contaminant source for the VFA was a former process lagoon which was situated above the VFA. However, documents obtained in 2011 indicate unauthorized discharges from the City of Rio Ranch's Lift Station 15 to the unlined Venada Arroyo have occurred. These sources are discussed below.

3.4.1.1 Former Dairy Processes

The former dairy process areas are depicted on Figure 1 of the S2AP (METRIC 2010; Appendix D). The lower (and largest) process water lagoon sat directly over the VFA as shown on Figure 6 of the S2AP. It is former discharges from this lagoon that is suspected of being the principal source of *dairy process related* impacts to the VFA. This lagoon no longer exists and the area has been graded for development.

3.4.1.2 Unauthorized Discharges to Venada Arroyo

Unauthorized discharges of raw sewage from Rio Rancho Lift Station 15 have occurred in the past and still occur from time to time. Documents requested and received from the City of Rio Rancho in 2011 indicate that at least 25 discharges of raw sewage have occurred since the mid 1990's (Appendix E). The bottom of the Venada Arroyo is only separated from the VFA by 20 to 30 feet of lithofacies VAY, mapped as younger arroyo-valley alluvium consisting of pale- to light-brown sand, muddy sand, and pebble to cobble gravel associated with tributary streams to the Rio Grande (Hawley 2009). The VAY contains very little fine grained sediments that may impede infiltration and discharge of these spills to the VFA. Therefore, interference from these unassessed discharges may be adversely affecting groundwater quality, potentially resulting in

variability in water quality which affects the feasibility of achieving standards through abatement.

3.4.2 Nature and Extent of Current Groundwater Impacts

The current extent of groundwater impacts by nitrogen, chloride and TDS are discussed below. MW-21 is located in a downgradient position and was not sampled in December 2015 because it could not be found. However, MW-21 has never exceeded standards, and in 2013 contained <0.1 mg/L nitrate, 94 mg/L chloride, and 768 mg/L TDS. MW-18, which flanks the VFA plume on the west, has been reasonably stable: it has never exceeded standard for chloride or TDS, and twice it elevated to 10 mg/L nitrate, but is generally below standard. On the north, MW-13RR has been below standards since 2011. These perimeter well results indicate plume stability, and it appears that with the gradient reversals that occur (east to west, then west to east) in response to interaction with water levels in the river bed aquifer, the net migration is very little, and the plume stagnant.

3.4.2.1 Nitrate Plume

The nitrate plume above 10 mg/L is shown in Figure 4 of the most recent monitoring report for results from December 2015 (EA 2016; Appendix B). The nitrate impacts above standard are limited to an area of about one acre in the vicinity of the groundwater extraction well field (wells EX-1 though EX-4). Included are monitoring wells MW-19R, MW-20R and MW-23. Note that MW-11R is completed in the Upper Santa Fe aquifer and is not included in the VFA plume.

3.4.2.2 Chloride Plume

Chloride is only detected at standard (250 mg/L) in MW-19R (Figure 3, EA 2016); however, elevated chloride is observed in the same general footprint as the nitrate plume and is indicative of the impacted zone of VFA.

3.4.2.3 Total Dissolved Solids Plume

Total dissolved solids plume above the standard of 1,000 mg/L is defined by MW-19R, MW-23 and MW-1A, and spans a similar footprint as described for the nitrate and chloride plumes. The TDS plume is shown on Figure 5 of the most recent quarterly monitoring report (EA 2016).

4. ABATEMENT ACTIVITIES COMPLETED

Abatement activities completed at the site include in situ denitrification conducted by Faith Engineering in summer and fall of 2008.

4.1 IN SITU DENITRIFICATION

Details regarding the in situ denitrification abatement are provided in *"Amended Stage II Abatement Plan at the Former Price's Bernalillo Dairy"* (Faith Engineering 2008; Appendix F). Figure 2 of this report shows the alignment of nine total injection wells spanning from just upgradient and west of MW-20R on the south to just east of MW-19R on the north. The line of injection provides a subsurface treatment barrier to denitrify groundwater as is passes to the southeast. Sodium acetate and later sugar were injected, along with tri-sodium phosphate to provide nutrients. The total volume of amendment is was reportedly over 1.5 million gallons (John Price, personal communication 2016).

4.2 GROUNDWATER PUMPING AND DISCHARGE

D&GP recently completed pumping one pore volume (14,600,000 gallons) of groundwater (EA 2015) in accordance with the settlement agreement (Appendix A). This resulted in reduced concentrations and a somewhat reduced aerial extent of the solute plume (EA 2016). However, rebound is already appearing in MW-19R and MW-23 (in the northern portion of the plume where the VFA thins and vanishes, and where pumping rates were low. A complete accounting of the groundwater pumping and discharge abatement activity is provided in the final *Quarterly Groundwater Monitoring, and System Operation* Report (EA 2015; Appendix B).

5. TECHNICAL INFEASIBILITY EVALUATION

5.1 EVALUATION OF CLEANUP TECHNOLOGIES FOR NITRATE

5.1.1 In Situ Denitrification

Based on the alignment of injection wells, two downgradient wells that would be useful in evaluating the effectiveness of the test are MW-1A and MW-20R. Concentration trend graphs for these wells are provided in the most recent quarterly monitoring report (EA 2016; Appendix B). Inspection of the trend graphs indicate that after the injection circa 2008, concentrations in these two wells declined. However, between 2010 and 2012 rebound is clearly observed in MW-20R.

The use of in situ denitrification for cleanup of the plume is not feasible, both on economic and technical grounds, for the following reasons:

- The line of injection wells requires that all groundwater pass through the treatment zone in order to be denitrified; however, we know from decades of well gauging that groundwater in the VFA reverses gradient typically from east to west and vice versa based on communication with water levels in river bed alluvium and is therefore somewhat stagnant with respect to ultimate discharge point. This phenomenon was described by METRIC as "in a manner analogous to an estuary." Therefore, downgradient is a transient concept, groundwater flows to and fro, and reliance on groundwater passing through a treatment barrier in a downgradient sense will not result in cleanup in a timely manner;

- This technology does nothing to treat chloride and TDS, so that even if nitrate vanished, AAS for chloride and TDS would be required in order to terminate abatement and close the site;

- The addition of sodium acetate and sucrose will cause the groundwater to become reducing, or anaerobic, in nature. This has the potential to cause dissolution of metals subject to oxidation and reduction reactions: arsenic, iron, and manganese. Robust application of this technology may reduce nitrate only to create an alternate groundwater problem and the site would continue in abatement indefinitely.

5.1.2 Groundwater Pump and Discharge

D&GP just completed pumping one pore volume of groundwater (EA 2015) in accordance with the settlement agreement (Appendix A). The pumped groundwater was discharged to the Rio Rancho sanitary sewer as per agreement between Rio Rancho and D&GP to discharge one pore volume (44 acre feet) of groundwater. This resulted in reduced concentrations and a somewhat reduced aerial extent of the solute plume (EA 2016; Appendix C). However, rebound is already appearing in MW-19R and MW-23 (in the northern portion of the plume where the VFA thins and vanishes, and where pumping rates were low.

The results of post-pumping monitoring indicate that since the hydraulic stress of pumping in the line of EW-1 through EW-4 was ceased, the hydraulic gradients reverted to the east to west, and presumably west to east, "estuary" behavior described by METRIC (2010). This aquifer behavior effectively "strands" impacted groundwater from significant movement for hydraulic capture. As soon as the gradient reverted to natural conditions, nitrate advected into MW-19R and MW-23 and elevated to considerably above standard for nitrate, and to levels that are representative of the plume before cleanup attempts.

5.1.3 Reverse Osmosis

The ability to directly discharge pumped groundwater to the Rio Rancho sanitary sewer was a temporary arrangement that facilitated pumping the agreed upon pore volume of groundwater. Pumping groundwater over a considerable period would require treatment. Since chloride and TDS would need to be removed, treatment by reverse osmosis (RO) would be required.

RO is a proven desalinization technology that can remove salts from water. It is, however, an expensive technology that requires high pressure pumps to force water across a selective semipermeable membrane. In reverse osmosis, an applied pressure is used to overcome osmotic pressure, which can remove many types of molecules and ions from solutions. The result is that the solute containing undesirable ions is retained on the pressurized side of the membrane, and pure water is allowed to pass to the other side. To be "selective", this membrane should not allow ions to be removed through the pores. The "solute" retained is referred to as "concentrate" or "waste stream" and is very high in TDS.

When sea water is being treated by RO, the concentrate may be returned to the sea. However, Howe (2004) points out the problems with disposal of concentrate in inland areas, since it is toxic to plants and renders fresh water saline, creating great regulatory challenges. For the reasons of high energy expenditure, and no known means of economical disposal of this waste stream, treatment by RO is considered not economically feasible.

5.1.4 Monitored Natural Attenuation

The VFA has been in some form of groundwater monitoring for a couple decades now, and the rebound observed MW-19R and MW23 are to levels indicative of the plume prior to the in situ injection test and the groundwater pumping of one pore volume. In other words, neither natural processes nor engineered approaches have significantly reduced nitrate concentrations in the stagnant and stranded VFA groundwater. Nitrate can be recalcitrant in aerobic groundwater, and in the VFA this appears to be the case (see concentration trend graphs in EA 2016; Appendix C). So MNA does not look viable, future concentrations can be reasonable predicted as significantly over standard base on past trend data, and long-term MNA monitoring is likely academic.

5.2 EVALUATION OF CLEANUP TECHNOLOGIES FOR INORGANIC CONTAMINANTS

The technology available for significant chloride and TDS reduction is groundwater extraction. Groundwater extraction via pumping and discharge was just completed in accordance with the

settlement agreement, and the effect was not permanent. Contaminant concentrations rebounded as soon as the VFA reverted to natural gradients.

Neither chloride nor TDS will significantly reduce over time via natural attenuation (MNA) processes in the stagnant VFA groundwater. If anything, inducing reducing conditions via acetate and sucrose injection will exacerbate the inorganic constituent concentrations. Ex situ treatment of pumped groundwater via reverse osmosis is cost prohibitive, and technically infeasible due to lack of disposal options for "concentrate."

5.3 ENGINEERING AND ADMINISTRATIVE CONTROLS

There are a number of administrative controls that can be used to protect human health and the environment, prevent exposures, eliminate the use of the affected groundwater for any means, and ensure there is no undue harm to property. These include connection to public water supply, deed restriction prohibiting completion of a water well in the affected stratum, and existing well completion rules promulgated by the Office of State Engineer. These controls are discussed in detail below.

5.3.1 Requirement to Connect to Public Water Supply

In accordance with Town of Bernalillo Water Use and Water Rate Ordinance, Ordinance 81, Article 4, Section 11, "At such time as public water main becomes available within two hundred (200) feet of a property line served by a private water well, a direct connection shall be made to the public water system in compliance with this Ordinance, within 90 days." Water and sewer lines have been install along existing streets within the (Venada Plaza) Development (Appendix G). Because of this requirement, city water supply will be provided to all buildings. Since the property in question is zoned commercial, residential exposure pathways are not complete. Accordingly, the risk of prolonged exposure by ingestion of water to newborns, toddlers and young children is negligible.

5.3.2 Deed Restriction on Well Construction

D&GP will file a deed notice in the real property records of the Bernalillo County where the property is located. The deed notice will provide owners, operators, prospective buyers and others notice and information regarding the groundwater condition in the VFA. The deep regional aquifer, USF aquifer, will still be able to be used for water supply, so there is no unfavorable impact to water availability on the property. A copy of the deed notice is included in Appendix H.

5.3.3 Completion of Well in Contaminated Groundwater Prohibition

Title 20, Chapter 27, Part 4 NMAC *Well Driller Licensing; Construction, Repair and Plugging of Wells* provide rules to prevent construction of a water supply in impacted groundwater. Specifically,

> *"All wells shall be constructed to prevent contamination, to prevent inter-aquifer exchange of water, to prevent flood waters from contaminating the aquifer, and to prevent infiltration of surface water."* (19.27.4.29 NMAC)
> *"All wells shall be set back a minimum of fifty (50) feet from an existing well of other ownership, unless a variance has been granted by the state engineer. All wells shall be set back from potential sources of contamination in accordance with New Mexico environment department regulations and other applicable ordinances or regulations."* (19.27.4.29.D NMAC)
>
> *"When necessary, annular seals will be required to prevent inter-aquifer exchange of water, to prevent the loss of hydraulic head between geologic zones, and to prevent the flow of contaminated or low quality water."* (19.27.4.30.A NMAC)
>
> *"Wells which encounter non-potable, contaminated, or polluted water at any depth shall have the well annulus sealed and the well properly screened to prevent the commingling of the undesirable water with any potable or uncontaminated water."* (19.27.4.30.A.4 NMAC).

5.3.4 State Engineer Order to Prohibit Well

Finally, D&GP will request NMED GWQB petition the OSE to draft a State Engineer Order to prohibit construction of a well in the affected water bearing zone. The order will be established in accordance with 19.27.5.13.A. Rejection of Application, which states:

> *"The state engineer may reject an application for a 72-12-1.1 domestic well permit when the proposed 72-12-1.1 domestic well is to be located in an area where a restriction on the use of water or the drilling of new wells has been imposed by a court. The state engineer may reject an application for a 72-12-1.1 domestic well permit when the proposed 72-12-1.1 domestic well is to be located in an area of water quality concern where a prohibition on or a recommendation against the drilling of new wells has been established by a government entity."*

In this matter, the "area where a restriction on the use of water or the drilling of new wells" shall be the VFA in Lot 5-B and contiguous portions of Venada Plaza Drive. Lot 5-A6 and Parcel 1 are below standards based on MW-13-RR. The government entity establishing the prohibition is NMED. D&GP will provide NMED the necessary documents to support and effect the prohibition and shall not contest its establishment.

In summary, the well construction requirements, deed recordation to document the contaminated groundwater stratum, and Office of State Engineer order will prevent completion of water wells in the VFA, thereby preventing withdrawal of groundwater and potential exposure.

6. PROPOSED ALTERNATIVE ABATEMENT STANDARDS

The proposed AAS are intended to capture the last 8 quarters of groundwater monitoring maximum levels in the VFA, and concentrations will therefore not exceed AAS. This will allow immediate termination of abatement, timely closure of the site, and facilitate redevelopment. The Village of Bernalillo has expressed concern regarding development of the parcel in question in its current regulatory state. With this goal in mind, the proposed standards for VFA groundwater are:

- Nitrate 220 mg/L
- Chloride 350 mg/L
- Total Dissolved Solids 3,310 mg/L

Once these AAS are established, D&GP will file an Abatement Completion Report in accordance with 20.6.2 NMAC Section 4112.A.. This will allow the Secretary to notify D&GP that abatement is terminated in accordance with Section 4112.B. The property will then be unencumbered for continued development.

7. DEMONSTRATION OF AAS REQUIREMENTS

AAS requirements and the proposed AAS satisfy them are discussed in the follow sections.

7.1 ABATEMENT STANDARDS NOT TECHNICALLY ACHIEVABLE

It has been demonstrated herein that the standards at 20.6.2.3103 NMAC, 10 mg/L nitrate, 250 mg/L chloride, and 1,000 mg/L TDS, are not technically achievable. Several decades of natural attenuation and two engineered cleanup actions (in situ denitrification and groundwater pumping and discharge) have not restored groundwater in the VFA to Section 3103 levels. In fact, post groundwater pumping rebound concentrations in select wells in areas where the VFA thins and is difficult to hydraulically stress (due to low transmissivity related to minimal aquifer thickness) have reverted to pre-abatement levels. The VFA is stagnant and perched, and the lack of both (1) groundwater flow-through with attendant dispersion and (2) intrinsic denitrification, renders it very difficult to reduce concentrations despite aggressive efforts.

Compounding the ability to achieve standards is the fact that Lift Station 15 has had and still has unauthorized discharges of raw sewage to the unlined Venada Arroyo. These discharges, which contain the same constituents as the former dairy waste (nitrate, chloride and TDS) are beyond the control and capacity of D&GP to abate. Until these unauthorized discharges cease completely, the VFA will not clean up to Section 3103 standards.

7.2 NO REASONABLE RELATIONSHIP BETWEEN ECONOMIC AND SOCIAL COSTS

There is no reasonable relationship between continuing abatement and social costs. In fact, continuing abatement has an adverse social cost as the land sit idle rather than completion of development. The following points can be made regarding social impacts:

- A number of administrative controls will be in place to ensure the VFA is never used as a potable water supply, including:
    - Deed restriction prohibiting construction of a well in the VFA;
    - Public water supply is in place and required by Bernalillo;
    - Well Drillers rules prohibit completing a water well in impacted groundwater. Moreover, it is unfathomable that a water well would be completed in the VFA when the prolific Upper Santa Fe aquifer resides 20 feet below the VFA;
    - State Engineer Order will be placed that prohibits construction of a water well on the property;
- Because of the nature of the VFA, it is apparent that no effort and no cost are likely to achieve to the standards at Section 3103. Therefore, an arrangement whereby the administrative controls are fully in place and fully documented, attached to the title to

the property so that use of and exposure to VFA is prevented, is both protective of human health and beneficial to intended future land use.

- The AAS will allow the NMED to "clear" the property and administratively close out abatement, freeing the property for final development. This is considered a "positive" social impact.

- Conversely, failure to approve the AAS will result in the property remaining in a state of partial development as groundwater monitoring continues *ad infinitum*. The technical infeasibility of an engineered cleanup approach to achieve Section 3103 standards has been demonstrated via two different abatement activities.

7.3 PROPOSED AAS ARE TECHNICALLY ACHIEVABLE AND COST-BENEFIT JUSTIFIABLE

The proposed AAS have already been achieved and will result in immediate submission of an Abatement Completion Report and termination of abatement. The cost for this activity is nominal relative to the money spent on the two abatement activities. The ability to complete development of this parcel, which presently lies idle in a partial state of development, is beneficial to the Town of Bernalillo.

The cost-benefit evaluation discussed herein is based on that portion of the VFA in Lot 5-B and contiguous portions of Venada Plaza Drive. Lot 5-A6 and Parcel 1 are below standards based on MW-13-RR and will not require AAS.

Cost of Remediation

To date, $1,400,000 has been expended on abatement activities related to the VFA assessment and cleanup. Because of the technical impracticability of cleanup discussed in Section 5, for the purpose of valuation a continued cleanup period of 20 years is established for cost basis. The recently completed pumping and discharging impacted groundwater cost $50,000 for installation and $55,000 per year consulting, maintenance, sampling and utilities. These costs are captured in the $1,400,000. However, operating and maintaining the system for an additional 20 years at $55,000 per year is $1,100,000. This brings the total cost of abatement for an additional 20 years (assuming standards achieved in 20 years ... a goal that may not be attainable) to $1,400,000 already expended plus $1,100,000 ... a total of $2,500,000.

Worth of Property

The assessed value of Lot 5-B is $1,276,344. The current cost of remediation exceeds the appraised property value by 15 percent and the projected cost in 2036 exceeds the property valuation by 50 percent.

Although the property is valued at $1,276,344, it has not sold because of the environmental condition. Since the property cannot be sold, its current market worth is arguably zero. Therefore, granting the requested AAS may at least restore the property worth to a fraction of existing abatement costs expended.

Worth of Affected Groundwater

No water right exists for the affected VFA groundwater. The property is zoned commercial, so domestic use is not foreseeable. The city provides water, and requires that new construction connect to the provided water. Therefore, no reasonable worth of groundwater exists even if it were restored to Section 3103 standards. According, granting the proposed AAS will not adversely affect the worth of ground water.

7.4 PROPOSED AAS WILL NOT CREATE A HAZARD TO PUBLIC HEALTH OR UNDUE DAMAGE TO PROPERTY

Exposure to nitrate impacted groundwater will be prevented by the administrative controls outlined in Section 5.3.3. The administrative controls will eliminate the potential human exposure pathways and render the solution protective of public health. Chloride and TDS are not human health concerns by rule since they are not Section 3103.A. contaminants. Finally, freeing the property so that development can be completed will enhance the property, cause undue harm thereto.

8. SUMMARY AND CONCLUSIONS

The PVGND closed in June 1998. Abatement Plan activities were initiated by Glorieta Geosciences, Inc. and Faith Engineering in October 1997. The abatement activities included soil and groundwater testing to map the nature and extent of sources and impacts to groundwater contamination. Two aquifers were identified at the site: the regional Upper Santa Fe Aquifer, and the perched Valley Fill Aquifer. The Upper Santa Fe Aquifer has been closed with the exception of an isolated area near MW-11R. The VFA remains in abatement, and two attempts at abatement have been undertaken unsuccessfully. The VFA is perched on the Upper Santa Fe Aquifer, and is separated by a confining clay layer.

Development of the property began after this time, and in order to facilitate the development, soil pathways were closed via the Voluntary Remediation Program (VRP #53061004) with a Certificate of Completion issued November 28, 2006.

Following soil pathway closure, abatement of groundwater impacts was initiated. Injection of acetate, sucrose, and nutrients was conducted in 2008, and groundwater pumping and discharge to Rio Rancho sanitary sewer was conducted from October 2013 through July 2015. A total of one pore volume of groundwater was extracted and discharged.

The results of the injection of groundwater amendments showed initial success as measured in select downgradient monitoring wells; however, Section 3103 standards were not achieved, and after two years significant rebound to well above standards was observed. In concept, the injection technology relied on groundwater movement to the southeast, through the line of injection wells. However, the groundwater flow oscillates between east to west, then back to west to east, depending on the water levels in the river bed aquifer. This renders the VFA groundwater mostly stagnant, and not flowing in a direction (southeast and subparallel to the Rio Grande) as predicted by regional consideration. Hence, affected groundwater did not flow through the line of injection wells, and was not treated for nitrate. Moreover, the injection technology provides no means of treatment for chloride and TDS. Another matter apparently not considered at the time the injections were performed is that the injection of acetate and sucrose can lower the dissolved oxygen in the VFA, and dissolve deleterious metals such as arsenic, manganese, and iron. All of these metals are regulated by NMED, and so cleaning up the nitrate may have resulted in a plume with additional regulated constituents above standards. On these grounds, the injection technology is considered technically infeasible.

One pore volume of groundwater was pumped and discharged with the groundwater pumping remedy. Post groundwater pumping sampling has indicated the hydraulic has reverted to its west-east fluctuating pattern, and monitoring wells positively affected by the groundwater pumping have reverted to high nitrate, chloride and TDS concentrations advected from zones not affected by the pumping. The high concentrations returned to areas of the VFA where it is thin and difficult to hydraulically affect via pumping. This renders hydraulic recovery of groundwater via pumping technically infeasible.

Because the abatement activities conducted to date have proven unable to achieve Section 3103 standards, a petition for AAS is appropriate. The VFA is a small, perched aquifer that poses no

threat to regional groundwater supplies. Engineered and administrative controls are available to ensure that no exposure to impacted groundwater can occur. These controls include:

- Potable water is supplied and connection thereto required by Town of Bernalillo; therefore, exposure to VFA water via ingestion is not a complete pathway;

- Administrative rules for well drillers require that water wells be isolated from impacted groundwater via grouting or cementing. Any well installed on the property would be completed at depth in the Upper Santa Fe Aquifer, which yields prolific quantities of groundwater.

- An OSE Order will be completed that prohibits completion of a well on affected property and includes notice in OSE's database.

The proposed AAS are based on the last several years groundwater monitoring data. As a result, the AAS are technically achievable. Acceptance of the AAS will allow D&GP to proceed with submitting an Abatement Completion Report, which in turn allows the Secretary NMED to terminate abatement. Once these actions are completed, the property development can continue to completion, thereby benefitting all involved parties. The administrative controls described above will ensure this action is protective of human health, and causes no undue damage to the property. In fact, approving the AAS will allow the development to proceed as planned and benefit the property.

9. REFERENCES

EA Engineering, Science and Technology, Inc., PBC (EA), 2016. Quarterly Groundwater Monitoring Report for the Former Price's Valley Gold Dairy, Sandoval County, New Mexico. January 22.

EA, 2015. Quarterly Groundwater Monitoring, and System Operation Report for the Former Price's Valley Gold Dairy, Sandoval County, New Mexico. August 27.

EA, 2013. Abatement Completion Report, Former Price's Valley Gold Dairy, Bernalillo, NM. March 27.

EA, 2012. Technical Infeasibility Demonstration Former Price's Valley Gold Dairy, Sandoval County, New Mexico. Prepared for VG Farms, Inc., Albuquerque, NM. October 29.

Faith Engineering, Inc., 2008. Amended Stage II Abatement Plan at the Former Price's Bernalillo Dairy prepared for VG Farms, Inc. January 31.

Hawley Geomatters, 2009. Draft Report on the Hydrogeologic Setting of the Price's Valley Gold-North Dairy Site, in and Near Section 36, T13N, R3E, Sandoval County, New Mexico, January 12.

New Mexico Environment Department, 1997. Letter from Marcy Leavitt, Ground Water Quality Bureau Chief to Gary Rose, ECO Resources, documenting Lift Station 15 Spill. November 10.

Meisenheimer, Wyatt, 1998. Letter to Marchell Schulman, NMED regarding Lift Station 15 discharge to Venada Arroyo. September 9.

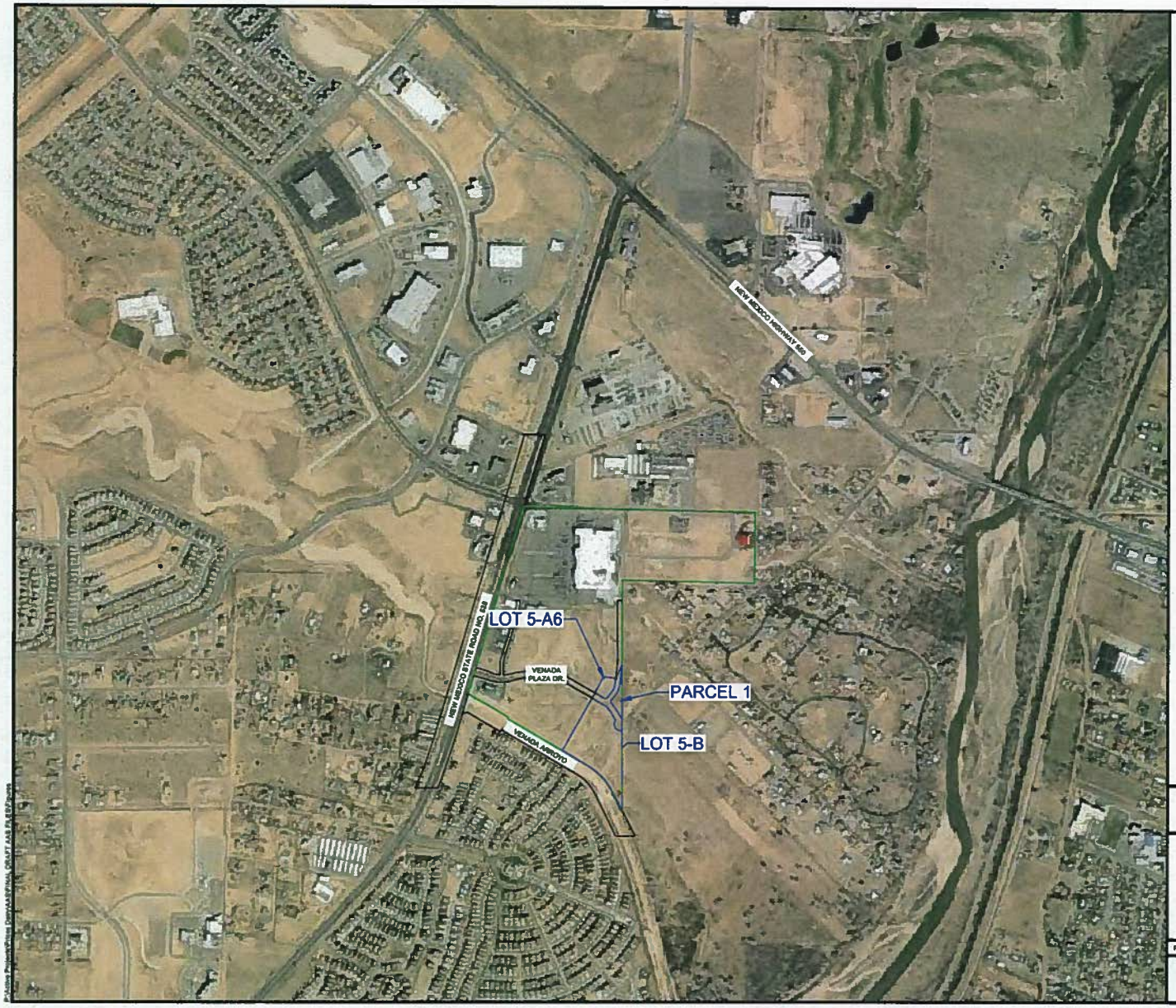
METRIC Corporation, 2010. Amended Stage 2 Abatement Plan for the Price's Valley Gold North Dairy Site, Sandoval County, New Mexico. Prepared for VG Farms, Inc., Albuquerque, New Mexico. October 10.

New Mexico Environment Department (NMED), 2013a. Abatement Completion Approval, Former Price's Valley Gold North Dairy, Bernalillo, New Mexico. Letter from Jerry Schoeppner, Chief, Ground Water Quality Bureau, to John Price, Price's Valley Gold North Dairy. May 22.

NMED, 2013b. Partial Abatement Plan Termination, Former Price's Valley Gold North Dairy, Bernalillo, New Mexico. Letter from Jerry Schoeppner, Chief, Ground Water Quality Bureau, to John Price, D&GP Price Limited Partnership. December 13.

NMED, 2006. Transmittal of Certificate of Completion the former Price's Valley Gold Dairy, North Dairy - North Area (VRP Site No. 53061004) in Bernalillo, New Mexico. Letter from William C. Olson, Chief, Ground Water Quality Bureau, to John Price, Price's Valley Gold North Dairy. November 28.

FIGURES



LEGEND:

ORIGINAL DAIRY BOUNDARY

REPLATTED BOUNDARY VFA

NOTES:

Replatted lots shown relative to original DP-437 Plat.

N

1000 500 0 1000

SCALE IN FEET

PRICE'S DAIRY

FIGURE 1.
SITE LOCATION

PROJECT #: 1402606 | PROJECT PHASE: 01 | PROJECT MANAGER: JS

320 Gold Avenue SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-0013
Fax: (505) 224-0018

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

LEGEND:

- SITE BOUNDARY
- REPLATTING BOUNDARY
- VFA NO_3 PLUME
- OLD LAGOON
- VALLEY FILL MONITORING WELLS

NOTES:

Replatted lots shown relative to original DP-437 Plat.

NO_3 plume and monitoring well locations shown from Amended Stage 2 Abatement Plan by Metric Corporation dated October, 2010.

200 100 0 200

SCALE IN FEET

PRICE'S DAIRY

FIGURE 2.
AREA SUBJECT TO VFA ALTERNATIVE ABATEMENT STANDARD

PROJECT #:	1483606	PROJECT PHASE	01	PROJECT MANAGER:	JS

320 Gold Avenue SW Suite 1218
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9018
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

APPENDIX A

SETTLEMENT AGREEMENT

NEW MEXICO
ENVIRONMENT DEPARTMENT

Office of General Counsel

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

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Ryan Flynn
Cabinet Secretary-Designate
BUTCH TONGATE
Deputy Secretary

Jeffrey M. Kendall, General Counsel

August 26, 2013

Pete Domenici, Jr.
Domenici Law Firm, P.C.
320 Gold Ave. SW, Suite 1000
Albuquerque, NM 87102-3328

Dear Pete,

Enclosed you will find a fully executed copy of the Price's Dairy Settlement Agreement. Please note that the finalized Work Plan is also part of the Settlement Agreement and both documents should be kept together for further reference. If you have any questions, please feel free to contact me at (505) 222-9550.

Sincerely,

Jennifer L. Hower
Deputy General Counsel

Encl.

SETTLEMENT AGREEMENT

This Settlement Agreement ("Agreement") is made between the New Mexico Environment Department ("Department") and D&G Price Limited Partnership, a NM limited partnership, ("D&G P") to resolve the Notice of Deficiency ("NOD") issued by the Department on March 28, 2011 in response to the Modified Stage 2 Abatement Plan submitted on October 28, 2010.

I. BACKGROUND

A. PARTIES

1. The New Mexico Environment Department was created pursuant to NMSA 1978, § 9-7A-6.B(3), and is an executive agency within the government of the State of New Mexico charged with administering and enforcing various laws relating to the environment. NMSA 1978, § 9-7A-4, NMSA 1978, § 74-1-6 and § 74-1-7.

2. D&G P is a New Mexico limited partnership and is the successor in ownership to VG Farms, Inc., fka Price's Valley Gold Dairy, Inc.

3. The Property is the former Price's Valley Gold North Dairy located at 618 NM Highway 528, Bernalillo, New Mexico.

4. The Site subject to the terms of this Settlement Agreement is the Valley Fill (VF) groundwater within its historical impacted domain in Lot 5-B, Lot 5-A6, Parcel 1 and portions of Venada Plaza Drive between and contiguous to these lots (Attachment A, Work Plan for Groundwater Extraction, Figure 1, Abatement Plan Area Valley Fill Aquifer) and well MW-11R, located in lot 5-A9.

B. INTRODUCTION

5. Pursuant to the New Mexico Water Quality Act ("Act"), NMSA 1978, §§ 74-6-1 to 74-6-17 (1967), and the New Mexico Water Quality Control Commission Regulations, 20.6.2

NMAC - *Ground and Surface Water Protection* ("WQCC Regulations"), the Department may require responsible persons to abate ground water pollution.

6. D&G P, as the successor in ownership to VG Farms, fka Price's Valley Gold Dairy, Inc., is the responsible party for the abatement of ground water pollution resulting from the former dairy operations on the Property.

7. The former dairy operation was established on the Property by Stanley and Ron Ridge in 1960 and operated as Ridge Dairy until 1973. In June, 1973, Mr. Dudley Price purchased the dairy and renamed it Price's Valley Gold North Dairy (the Dairy). Mr. Price increased the size of the Dairy to 1,000 to 1,200 cows and subsequently purchased 183 acres to the south to accommodate the increased discharge from the enlarged facility. All dairy operations ceased in 1998 when the Dairy was closed and all cattle and manure were removed from the Property. The Property was cleared of all structures by 2006.

8. The Property, except for Lot 5-B, has been sold and redeveloped into various lots that contain commercial businesses, including Wal-Mart, Firestone Tires, a gasoline station, a strip mall and several fast food restaurants. There are undeveloped lots within the southeastern portion of the Property.

9. The Property includes two aquifers, the Upper Santa Fe Aquifer and the Valley Fill Aquifer. Ground water monitoring has shown that both aquifers were contaminated in excess of the WQCC ground water quality standards for nitrate, sulfate, chloride, and total dissolved solids ("TDS") in 20.6.2.3103 NMAC.

10. In 1986, the Department required the Dairy to apply for a groundwater discharge permit and DP-437 was approved and issued in July, 1987. DP-437 approval allowed for a maximum discharge of 9,073 gallons per day of wastewater generated in the milking parlor to be discharged to two manure lined lagoons, and then land applied to crops and pasture on the

Property.

11. DP-437 was approved and modified in May, 1994 for a maximum discharge of 70,000 gallons per day of wastewater generated in the milking parlor to be discharged through a manure separator, conveyed to a synthetically lined lagoon ("Lagoon") with 11.17 acre feet of operational capacity and an additional 4.36 acre-feet of freeboard capacity and then land applied to crops and pasture on the Property.

12. In 1997, the Department was notified that the dairy operation on the Property was scheduled to be closed. The Department conducted site inspections in June and August, 1997 and required the submission of a Corrective Action Plan, pursuant to the terms of DP-437, as part of the closure of such dairy operations on the Property.

13. Initial work on the Corrective Action Plan began in August, 1997. The dairy operations on the Property ceased in 1998.

14. DP-437 was renewed and modified on November 16, 2001 to facilitate groundwater monitoring and closure activity on the Property. The permit renewal and modification required a site investigation of the facility because Water Quality Control Commission ground water standards were exceeded and soil was contaminated on portions of the Property at the time of closure.

15. The required site investigation and groundwater monitoring data demonstrated that all closure plan requirements were satisfied in full for a south portion of the Property containing approximately 156 acres ("South Parcel"). The South Parcel was removed from DP-437 on September 27, 2002 and was not subject to any further discharge plan requirements.

16. On April 3, 2003, a Supplemental Site Investigation Report to evaluate the possible withdrawal of a portion of the remainder of the Property ("North Parcel") from DP-437 was submitted to the Department. The request was denied by the Department on May 27, 2003.

17. On July 22, 2005, the Dairy requested that DP-437 be voluntarily terminated and that remediation proceed pursuant to the WQCC abatement regulations, 20.6.2.4100 – 4115 NMAC.

18. On August 10, 2005, the Department responded and requested that a site characterization report be submitted to the Department prior to the termination of DP-437.

19. On January 11, 2006, a Stage 1 Abatement Plan and Site Characterization Report for Termination of DP-437 was submitted to the Department.

20. On March 3, 2006, the Department provided notice that DP-437 was terminated and that further groundwater investigation and remediation would take place pursuant to WQCC Regulations Sections 20.6.2.4000 through 20.6.2.4115 NMAC.

21. The Stage 1 Abatement Plan was approved by the Department on April 3, 2006.

22. On November 21, 2005, a Voluntary Remediation Program (VRP) application for soil remediation on the North Parcel was submitted to the Department. Final eligibility was granted on June 28, 2006 and a Certificate of Completion was issued on November 28, 2006. Covenants Not to Sue were issued to various purchasers on January 17, 2008 and April 9, 2008. These actions closed out the surficial soil pathways and completed surficial soil remediation only.

23. On November 29, 2006, the Department issued approval of the Stage 1 Abatement Plan, Final Site Investigation Report and provided notice that a Stage 2 Abatement Plan was required.

24. The Proposed Stage 2 Abatement Plan was submitted to the Department on December 18, 2006.

25. On March 23, 2007, the Department issued a Notice of Deficiency (NOD) for the Proposed Stage 2 Abatement Plan.

26. In response to the NOD, a Modified Stage 2 Abatement Plan was submitted to the Department on September 18, 2007. The Modified Stage 2 Abatement Plan proposal was to perform ground water monitoring for 5 years with a contingency plan to operate an in-situ denitrification system if ground water contamination persisted following the 5 years of monitoring. The Department determined that the proposal as submitted was not approvable. On May 2, 2008, the Department received a request for temporary permission to discharge and a plan to implement a temporary in-situ denitrification system. On May 30, 2008, the Department issued a Temporary Permission to Discharge. The in-situ system was operated during the summer and fall of 2008 and 1.5 million gallons of media consisting of water, sugar, and sodium acetate was injected into the Valley Fill Aquifer. The system had no long-term impact on the ground water nitrate levels at the Site.

27. In late 2008 and 2009, additional site investigation activities were performed to better understand the hydrogeologic framework and groundwater flow at the Site.

28. Based on the site reevaluation and investigation, a Revised Stage 2 Abatement Plan was submitted to the Department on October 28, 2010. The Revised Stage 2 Abatement Plan proposed 66 milligrams per liter (mg/l) as the clean-up level for nitrate -based on the average nitrogen concentration level in ground water monitoring wells at the Site in 1986 and 1987. The Revised Stage 2 Abatement Plan identified this concentration as the existing condition within the meaning of 20.6.2.2013 NMAC and the allowable limit under a discharge permit. The Revised Stage 2 Abatement Plan proposed to extract contaminated groundwater from the Valley Fill Aquifer and land apply the extracted water to approximately 7 acres of crop land for treatment.

29. On March 28, 2011, the Department issued a Notice of Deficiency pursuant to Subsection A of 2.6.2.4109 NMAC regarding the October 28, 2010 Revised Stage 2 Abatement

Plan.

30. The March 28, 2011 Notice of Deficiency rejected the proposal to use 66 mg/l as the clean-up level for nitrate as nitrogen on the basis that the "existing condition" or "existing concentration" for purposes of setting water quality standards for issuance of discharge permits is the existing concentration at the time the predecessor regulation to 20.6.2.3103 NMAC was promulgated, in 1977, not the existing concentration at the time a discharge permit is applied for or issued, such as in 1986 and 1987 when monitoring data for site was first obtained. The 1986 and 1987 monitoring data are not relevant to the standards under 20.6.2.3103 NMAC. The proposal did not meet the WQCC Regulations, which require submittal of a plan to implement an abatement option that meets the WQCC water quality standards for nitrate, total dissolved solids, chloride, and sulfate for both aquifers at the site, as required by Subsection E of 20.6.2.4104 NMAC.

31. On April 27, 2011, dispute resolution was invoked in accordance with 20.6.2.4113 NMAC, which provides that if there is a technical dispute regarding a Notice of Deficiency, the responsible person may notify the Secretary of the Department that a dispute has arisen, and may invoke the dispute resolution provisions of the Regulations. Upon such notification, all deadlines affected by the technical dispute are extended for a maximum of sixty (60) days. During this negotiation period, the Secretary or his/her designee and the responsible person are required to meet at least once. If the dispute remains unresolved after the negotiation period, the decision of the Secretary is final.

32. On October 18, 2011, an Abatement Completion Report for the Former Price's Valley Gold Dairy was submitted to the Department.

33. On October 29, 2012, the Technical Infeasibility (TI) demonstration for the Upper Santa Fe aquifer was submitted to the Department to establish substitute abatement

standards pursuant to Section 20.6.24103.E NMAC. Addendums to the report were submitted on December 7 and 13, 2012.

34. On January 18, 2013, the Department approved the substitute abatement standards proposed in the TI demonstration report and addendums for the Upper Santa Fe Aquifer, with the exception of the area at or near the groundwater monitoring well identified as MW-11R legally platted as Lot-5-A-9.

35. On March 27, 2013, the Abatement Completion Report was submitted to the Department based on the Department's January 18, 2013 approval of substitute abatement standards for the Upper Santa Fe Aquifer.

36. On May 22, 2013, the Department issued an Abatement Completion Approval letter based upon the March 27, 2013 Abatement Completion Report.

II. COMPROMISE AND SETTLEMENT

37. The Department and D&G P (collectively, the "Parties") have engaged in settlement discussions to resolve the technical dispute without further administrative or judicial actions.

38. As a result of these discussions, the Parties have entered into this Settlement Agreement.

39. The purpose of this Settlement Agreement is to resolve all matters related to the March 28, 2011 Notice of Deficiency for the Valley Fill Aquifer and the Upper Santa Fe Aquifer near and around MW-11R.

40. This Settlement Agreement is a compromise that sets forth requirements for the management of the Site and is based on the accumulation of data regarding the Valley Fill Aquifer, and other consideration set forth in more detail in the Work Plan attached as Exhibit A.

III. TERMS OF SETTLEMENT

41. The March 28, 2011 Notice of Deficiency rejected the proposal to use 66 mg/l as the clean-up level for nitrate as nitrogen on the basis that the "existing condition" or "existing concentration" for purposes of setting water quality standards for issuance of discharge permits is the existing concentration at the time the predecessor regulation to 20.6.2.3103 NMAC was promulgated, in 1977, not the existing concentration at the time a discharge permit is applied for or issued, such as in 1986 and 1987 when monitoring data for site was first obtained. The 1986 and 1987 monitoring data are not relevant to the standards under 20.6.2.3103 NMAC. The proposal did not meet the WQCC Regulations, which require submittal of a plan to implement an abatement option that meets the WQCC water quality standards for nitrate, total dissolved solids, chloride, and sulfate for both aquifers at the site, as required by Subsection E of 20.6.2.4104 NMAC.

42. The Valley Fill Aquifer has certain unique characteristics that pose challenges with regard to contaminant removal. The contaminant plume within the Valley Fill Aquifer beneath the site is contained within a wedge shaped formation of low conductivity that is hydraulically separated from the USF aquifer by a red clay unit. Specific details regarding the Valley Fill Aquifer are set forth in the Work Plan attached as Exhibit A.

43. The Parties agree that D&G P may be unable to meet water quality standards at the Site based on the site-specific conditions.

44. Therefore, the Parties agree as follows:

45. Valley Fill Aquifer. D&G P shall perform remedial activities within the Valley Fill Aquifer as follows:

a. D&G P shall extract from the Valley Fill Aquifer, as defined in the Work Plan attached as Exhibit A, and dispose of at the Rio Rancho Waste Water Treatment Plant a

volume of ground water that is the agreed-upon one pore volume of the contaminated plume, in accordance with Exhibit A.

b. D&G P shall implement the storm water prevention plan to prevent ponding at the Site in accordance with Exhibit A.

c. D&G P will adhere to provisions for contingencies related to inability to timely and practicably extract and dispose of one pore volume of the contaminated plume as described in Exhibit A.

d. Upon completion of the extraction and disposal of the one pore volume, or after the extraction system has been in operation for two years, whichever comes first, the Ground Water Quality Bureau of the Department shall support approval of a petition for an alternative abatement standard pursuant to Subsections (D) and (F) of 20.6.2.4103 NMAC if D&G P chooses to bring such a petition before the Water Quality Control Commission.

46. Upper Santa Fe Aquifer. With the exception of monitoring well MW 11-R, ground water monitoring data for the Upper Santa Fe Aquifer for the previous eight consecutive quarters demonstrates that contaminant concentrations in the Upper Santa Fe are not greater than 200 percent of the abatement standard for that contaminant. D&G P shall perform remedial activities within the Upper Santa Fe Aquifer as follows:

a. Pursuant to the Department's January 18, 2013 approval of the Abatement Plan Technical Infeasibility Demonstration, on March 27, 2013, D&G P submitted to the Department an abatement completion report for the Upper Santa Fe Aquifer, except for monitoring well MW-11-R, in accordance with 20.6.2.4112.A NMAC that documented compliance with the standards and requirements in 20.6.2.4103 NMAC. The Abatement Completion Report was approved by the Department on May 22, 2013.

b. D&G P shall continue to monitor MW 11-R for the duration of the implementation of the extraction and treatment plan for the Valley Fill Aquifer, in accordance with the work plan attached as Exhibit A to this Agreement.

c. If upon completion of the extraction and disposal of one pore volume of the contaminated plume in the Valley Fill Aquifer, ground water monitoring data demonstrates that monitoring well MW 11-R is still contaminated in excess of the WQCC ground water quality standards, D&G P and NMED shall resume dispute resolution as described in Paragraph 31.

IV. OTHER TERMS AND CONDITIONS

A. RESERVATION OF RIGHTS

47. The Department reserves the right to pursue civil or administrative relief for any violations of state or federal law, past or future, which are not the subject matter of this Settlement Agreement. D&G P reserves the right to assert any and all defenses that they may have to any civil, administrative or judicial action that may be asserted by the Department as described by the terms of this paragraph.

48. In addition to the rights reserved to the Parties, in the event the Petition described in Paragraphs 40.d and 41.c. is filed but not approved by the WQCC or any reviewing body, D&G P and NMED shall resume dispute resolution as described in Paragraph 31.

49. Except as expressly provided herein, the Parties reserve all other legal privileges and rights.

50. The Parties acknowledge that a contract or other agreement providing access to the City of Rio Rancho Wastewater Treatment system is a condition precedent to this Agreement. D&G P expects such agreement will be obtained immediately upon execution of this Agreement. If D&G P cannot obtain such agreement within thirty days of execution of this

Agreement, D&G P will notify NMED and this Agreement shall be terminated without any further action of either Party, unless extended by written agreement of the Parties.

51. Agreement of the Parties to the work plan must be obtained simultaneously with execution of this Agreement.

B. RELEASE OF LIABILITY

52. D&G P shall assume all costs and liabilities incurred in performing any of its obligations under the Settlement Agreement. The Department, on its own behalf or on behalf of the State of New Mexico, shall not assume any liability for D&G P's performance of any obligation under this Settlement Agreement.

C. BINDING EFFECT

53. This Settlement Agreement shall be binding on the Parties and their officers, directors, employees, agents, subsidiaries, successors, assigns, trustees, or receivers.

D. DURATION

54. This Settlement Agreement shall remain in effect until D&G P completes abatement of the Site pursuant to 20.6.2.4112 NMAC, or both the Valley Fill and the Upper Santa Fe Aquifers have received approval of either a petition for alternative abatement standards pursuant to Subsection F of 20.6.2.4103 NMAC or a technical infeasibility demonstration pursuant to Paragraph (1) of Subsection E of 20.6.2.4103 NMAC, or both, or it is terminated by written agreement of the Parties or the Parties resume dispute resolution as set forth in Paragraph 31.

E. INTEGRATION

55. This Settlement Agreement merges all prior written and oral communications between the Parties concerning the subject matter of this Agreement, and contains the entire

Agreement between the Parties. This Agreement shall not be modified without the express written consent of the Parties.

F. COMPLIANCE WITH OTHER STATE AND FEDERAL REQUIREMENTS

56. This Settlement Agreement shall not be construed to prohibit or limit in any way the Department from requiring D&G P to comply with any other applicable state or federal requirements.

G. DISCLOSURE TO SUCCESSORS-IN-INTEREST

57. D&G P shall disclose this Settlement Agreement to any successor-in-interest and shall advise such successor-in-interest that this Agreement is binding on the successor-in-interest until such time as D&G P complies with the terms and conditions of the Agreement or it is terminated by written agreement of the Parties.

H. AUTHORITY OF SIGNATORIES

58. The persons executing this Settlement Agreement represent that they have the authority to bind their respective parties to this Agreement, and that their representation shall be legally sufficient evidence of actual or apparent authority to bind their respective parties to this Agreement.

It is so Agreed:

NEW MEXICO ENVIRONMENT DEPARTMENT

By: _____ Date: 8/23/2013
Ryan Flynn, Secretary-Designate

Ryan Flynn, Secretary-Designate

D & G Price Limited Partnership,

By: Dudley Price, G.P. Date: 8-14-13

Dudley Price, General Partner

APPENDIX B

FINAL GROUNDWATER MONITORING AND SYSTEM OPERATIONS REPORT

EA Engineering, Science, & Technology, Inc., PBC
320 Gold Avenue SW, Suite 1210
Albuquerque, New Mexico 87102
Phone: (505) 224-9013 Fax (505) 224-9016

August 27, 2015

Justin Ball
New Mexico Environment Department
Ground Water Quality Bureau
Remediation Oversight Section
5500 San Antonio Dr. NE
Albuquerque, New Mexico 87109

Dear Mr. Ball:

On behalf of D&G Price Limited Partnership, EA Engineering, Science, and Technology, Inc., PBC is submitting the Quarterly Groundwater Monitoring, and System Operation Report for the Former Price's Valley Gold Dairy located in Sandoval County, New Mexico. The report discusses the 7th quarterly groundwater sampling event, and groundwater extraction system operation and maintenance conducted to fulfill requirements of the *Work Plan* for groundwater extraction dated May 24, 2013.

As provided in the May 24, 2013 work plan and the August 26, 2013 Settlement Agreement, Paragraph 45.a, the agreed to pore-volume of groundwater has been extracted. The aerial extent and mass of the solute plume has been substantially reduced. Accordingly, operation of the groundwater extraction system has been terminated. D&G Price Limited Partnership will initiate Alternative Abatement Standards for the Valley Fill Aquifer pursuant to Subsections D and F of 20.6.2.4103 NMAC as provided in Paragraph 45.d of the Settlement Agreement.

Please let me know if you have any questions regarding the information provided in this report.

Sincerely,

Jay Snyder
Senior Hydrogeologist

Enclosure

Cc: John Price
Dudley Price
File

QUARTERLY GROUNDWATER MONITORING, AND GROUNDWATER EXTRACTION SYSTEM OPERATION REPORT FORMER PRICE'S VALLEY GOLD DAIRY BERNALILLO, SANDOVAL COUNTY, NEW MEXICO

Prepared for:

Former Price's Valley Gold Dairy
Bernalillo, Sandoval County, New Mexico

Prepared by:

EA Engineering, Science,
and Technology, Inc., PBC
320 Gold Avenue SW, Suite 1210
Albuquerque, New Mexico 87102

August 2015

EA Project No. 1505701.02

EA Engineering, Science, & Technology, Inc., PBC
320 Gold Avenue SW, Suite 1210
Albuquerque, New Mexico 87102
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QUARTERLY GROUNDWATER MONITORING, AND GROUNDWATER EXTRACTION SYSTEM OPERATION REPORT FORMER PRICE'S VALLEY GOLD DAIRY BERNALILLO, SANDOVAL COUNTY, NEW MEXICO

Prepared for:

Former Price's Valley Gold Dairy
Bernalillo, Sandoval County, New Mexico

Prepared by:

EA Engineering, Science,
and Technology, Inc., PBC
320 Gold Avenue SW, Suite 1210
Albuquerque, New Mexico

August 2015

8/27/15
Date

Jay Snyder
Senior Hydrogeologist

EA Project No. 1505701.02

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1.0 INTRODUCTION

On behalf of Former Price's Valley Gold Dairy (Price's Dairy), EA Engineering, Science, and Technology, Inc., PBC (EA) has prepared this 5th Quarterly Groundwater Monitoring Report for Price's Dairy located in Sandoval County, New Mexico. This report was completed in accordance with the *Groundwater Extraction Work Plan* dated May 24, 2013. The Work Plan (WP) was prepared to satisfy requirements stated in the New Mexico Administrative Code (NMAC), Title 20, 6.2 §4106 through §4110.

Price's Dairy is located on the east side of New Mexico Highway 528 in Bernalillo, New Mexico. Originally Ridge Dairy, a 200-cow dairy, was operated on the site from 1960 to 1973 and was owned by Stanley and Ron Ridge. In June 1973, Mr. Dudley Price purchased the Dairy and renamed it Price's Valley Gold Dairy. Mr. Price increased the size of the dairy to 1,000 to 1,200 cows and subsequently purchased 183 acres to the south to accommodate the increased discharge from the enlarged facility. Mr. Price closed the dairy in June 1998. The property was cleared of all structures by 2006. The property, except for Lot 5-B, has been sold and redeveloped into various lots that contain commercial businesses, including Wal-Mart, Firestone Tires, a gasoline station, a strip mall and several fast food restaurants. There are undeveloped lots within the southeastern portion of the Property.

The groundwater extraction system is located in Lot 5-B, Figure 1. The system consists of four 5-inch-diameter groundwater extraction wells, EW-1 through EW-4, equipped with Red Jacket Enduro 8S21, 1HP submersible pumps. All wells discharge into the City of Rio Rancho waste water sewer system on the west side of New Mexico Highway 528 via 2-inch SDR-17 HDPE conveyance line. The system layout is provided in Figure 1.

The following scope of work was performed during this monitoring period:

- Gauged 4 extraction wells and 7 monitoring wells;
- Collected groundwater samples from 4 extraction wells and 7 monitoring wells, and analyzed samples for nitrate, chloride, and total dissolved solids (TDS) using EPA Method 300 and SM 2540 C, respectively;
- Collected field nitrate sample using a HACH Model NI-12 0-50 mg/L nitrate test kit;
- Conducted bi-weekly operation and maintenance (O&M) consisting of gauging extraction wells, recording flow meter readings, and collecting field nitrate samples;
- Prepared this Quarterly Groundwater Monitoring, and Groundwater Extraction System Operation Report.

A total of 14.6 million gallons of groundwater have been pumped to date. This equates to 45 acre-feet. The agreed upon pore volume provided in the May 24, 2013 work plan, transmitted to NMED on August 6, 2013, was 44 acre-feet. This objective has been achieved. The plume dimensions, plume mass and average concentrations have been significantly reduced as a result of this abatement action. The groundwater extraction system is not being operated as the agreed

upon pore volume has been removed. A petition for alternative abatement standards is appropriate at this juncture.

2.0 GROUNDWATER MONITORING ACTIVITIES

Groundwater monitoring activities included gauging and sampling 4 extraction wells (EW-1, EW-2, EW-3, and EW-4) and 7 monitoring wells (MW-1A, MW-11R, MW-13RR, MW-18, MW-19R, MW-20R, and MW- 23). All wells are completed in Valley Fill Aquifer except MW-11R, which is in the Upper Santa Fe Aquifer.

2.1 Well Gauging

On July 23, 2015, 11 wells were gauged with an electronic water level indicator. Groundwater levels in the extraction wells fluctuate daily in response to pump cycling and are therefore not used in the groundwater elevation map. Table 1 provides a summary of the groundwater gauging data collected from the monitoring network including historical data. A potentiometric surface map (Figure 2) was constructed based on the most recent data.

2.2 Groundwater Sampling

On July 23, 2015, 4 extraction wells and 7 monitoring wells were sampled. Prior to sampling, the monitoring wells were purged using disposable bailers and new disposable rope or twine. Monitoring wells were purged three well volumes to the extent possible without bailing dry prior to sample collection. During purging, EA measured and recorded on sampling field forms field parameters (specific conductance, pH, dissolved oxygen, and temperature) with an Oakton or YSI water quality meter and a YSI dissolved oxygen meter. The meters were calibrated and/or checked against a standard in accordance with manufacturers' specifications prior to use. Purge water from the wells was ground discharged. Extraction well groundwater parameters, field nitrate samples, and laboratory samples were collected from the extraction well sample ports with the pumps running.

Groundwater samples were collected in the sample containers provided by Hall Environmental Analysis Laboratory (HEAL). Sample containers, preservatives, analytical methods, and holding times are specified in Table 2. All samples were preserved in accordance with method requirements, labeled, then immediately cooled to <6°C with ice and delivered under chain-of-custody to HEAL in Albuquerque, New Mexico. Wells were sampled from clean to dirty to the extent possible to minimize cross-contamination. All equipment was decontaminated between wells with an Alconox™ solution to further ensure sample quality. Copies of field forms are included in Appendix A. The analytical laboratory reports are provided in Appendix B.

3.0 GROUNDWATER MONITORING RESULTS

3.1 Hydraulic Gradient and Direction of Groundwater Flow

During this quarter groundwater elevations in the wells immediately surrounding the extraction well field have increased. Hydrographs for the Valley Fill Aquifer monitoring wells are included in Appendix C. Figure 2 provides the potentiometric surface map, as indicated by the contours the groundwater flow direction is towards the east. Deflection of the flow lines in response to pumping is observed around EW-1, EW-2, EW-3, and EW-4.

3.2 Groundwater Analytical Results and Trend Analysis

During this quarter concentrations of chloride, nitrate and total dissolved solids (TDS) were found above the New Mexico Water Quality Control (NMWQCC) standards. Current and historical contaminant concentrations can be found in Table 3. Concentration trends can be found in Appendix D.

Chloride was below the NMWQCC standard of 250 milligrams per liter (mg/L) in all extraction and monitoring wells except for MW-19R. A map of the chloride distribution can be found in Figure 3.

Nitrate was above the NMWQCC standard of 10 mg/L in wells EW-1 (11 mg/L), MW-11R (22mg/L), MW-19R (220 mg/L), and MW-20R (21 mg/L). Concentrations in wells EW-1and MW-20R decreased by 6 mg/L and 33 mg/L respectively while the concentrations in wells MW-11R and MW-19R increased by 2 and 200 mg/L respectively. Nitrate concentrations in wells EW-2, EW-3, and EW-4 are below the standard of 10 mg/L. A map of the nitrate distribution can be found in Figure 4. Trend plots of nitrate concentrations are provided in Appendix D.

TDS concentrations were above the NMWQCC standard of 1,000 mg/L in wells EW-1(1,300 mg/L), EW-2 (1,040 mg/L), EW-4 (1,070 mg/L), MW-11R (1,250 mg/L), MW-19R (3,310 mg/L), and MW-23 (1,230 mg/L). TDS concentrations in wells EW-1, EW-2, EW-3, MW-1A, and MW-23 have been generally decreased since the 1st quarter sampling event. During this quarter TDS in wells EW-4, MW-11R, MW-19R, and MW-23 increased by 360 mg/L, 180 mg/L, 1,910 mg/L, and 30 mg/L, respectively. All other well TDS concentrations either decreased or remained below the standard. A map of the TDS distribution can be found in Figure 5. TDS concentration trends are provided in Appendix D.

The sample collected from MW-19R on July 23, 2015 showed significant increase in contaminant concentrations. In order to confirm the results, the well was resampled on August 3, 2015 and the nitrate, chloride, and TDS results decreased significantly to 140 mg/L, 210 mg/L, and 2,650 mg/L respectively. Because of the large decrease over the 11 day period the well was resampled again on August 12, 2015. Concentrations for nitrate, chloride, and TDS were 170 mg/L, 240 mg/L, and 2460 mg/L respectively. The large increase for nitrate, chloride, and TDS in well MW-19R is most likely attributed to the 3-foot increase in the site groundwater elevation and shift in groundwater flow direction strongly to the east.

4.0 GROUNDWATER EXTRACTION SYSTEM PERFORMANCE ASSESSMENT

4.1 Groundwater Extraction System Operation

After system start-up routine operation and maintenance tasks were conducted on a bi-weekly basis, Table 4. The following system parameters were recorded on field data sheets (Appendix A).

- Recorded totalizing flow meter readings;
- Collected field nitrate sample using the HACH Model NI-12 0-50 mg/L nitrate test kit;
- Gauged depth to water;
- Inspected conveyance line along the Venada Arroyo;
- Inspected outfall into City of Rio Rancho waste water sewer.

During this quarter the groundwater extraction system experienced 1 period of downtime lasting approximately 24 hours due to extraction well treatment.

- On February 6, 2015, EW-3 was shut off to optimized the nitrate removal from the site.
- On February 19, 2015, approximately 1 gallon of BioClean and 3 gallons of water was added to wells EW-1, EW-2, and EW-4. The system was left off for approximately 24 hours then restarted.
- On April 24, 2015, the flowmeter in well EW-4 was found to be non-operational. On April 28, 2015, the flowmeter was cleaned and reinstalled.
- On July 10, 2015, the flowmeter in well EW-4 was found to be non-operational. The flowmeter was removed, cleaned and re-installed.
- On July 23, 2015, the flow meter in EW-4 was not working properly due to scale and bio-fouling build up. EW-4 was shut off after sampling and EW-3 was turned on.

4.2 Groundwater Extraction System

During this quarter the average system flow rate decreased from 15.23 gpm to 13.03 gpm. This decrease can be mostly attributed to well EW-3 being shut off during this period and the clogged flow meter in EW-4. Approximately 1.69 million gallons (5.19 acre-feet) of contaminated groundwater were extracted during this quarter.

Since start up the average total system extraction rate has averaged 15.74 gallons per minute (gpm). Individual wells varied between 6.03 gpm in EW-3 and 1.86 gpm in EW-1. During this quarter individual wells averaged between 5.80 gpm in EW-2 and 2.71 gpm in EW-1. Calculations of system flow rates can be found in Table 5. As of July 23, 2015, approximately 14.6 million gallons (45 acre-feet) of contaminated groundwater have been extracted from the Valley Fill Aquifer and discharged into the city sewer.

The areal extent of groundwater impacts in Valley Fill Aquifer are now contained in vicinity of extraction wells EW-1 thru EW-4. Nitrate concentrations have generally declined; the system appears to be functioning as designed.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This groundwater monitoring event included gauging and sampling 4 extraction wells and 7 monitoring wells. Based on the data collected the following conclusions and recommendations are presented:

- The groundwater extraction system is removing contaminants from the Valley Fill Aquifer.
- Nitrate and TDS concentrations within the Valley Fill Aquifer exceed the NMWQCC standards; however, TDS concentrations are now below 2 times standards in all wells except MW-19R.
- Except for well MW-19R, Chloride concentrations with in the Valley Fill Aquifer do not exceed the NMWQCC standards.
- Approximately 14.6 million gallons (45acre-feet) of contaminated groundwater have been extracted since system startup. This exceeds the 44 acre-foot of groundwater pore volume established in the May 24, 2013 work plan.
- MW-11R, completed in Upper Santa Fe Aquifer, had a concentration of 22 mg/L nitrate this event.
- Nitrate, chloride, and TDS concentrations saw a large increase during this quarter. The increase is most likely attributed to a 3-foot increase in the site groundwater elevation.
- Because the agreed upon pore-volume of groundwater has been extracted, operation of the groundwater extraction system has been terminated.
- Petition for alternative abatement standards for residual contaminants is appropriate at this juncture.

TABLES

TABLE 1. VALLEY FILL AQUIFER GROUNDWATER ELEVATION
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date Gauged	Casing Elevation (amsl)	Depth to Water (feet)	Groundwater Elevation (amsl)
MW-1A	7/23/2015	5072.26	33.77	5038.49
	4/24/2015		36.91	5035.35
	1/23/2015		37.03	5035.23
	10/16/2014		36.71	5035.55
	7/9/2014		36.34	5035.92
	4/10/2014		37.32	5034.94
	1/14/2014		37.45	5034.81
	10/15/2013		36.97	5035.29
	7/29/2013		36.92	5035.34
	3/28/2013		37.66	5034.60
	12/22/2011		36.52	5035.74
	9/8/2011		34.41	5037.85
	6/15/2011		35.20	5037.06
	3/10/2011		35.30	5036.96
MW-11R	7/23/2015	5110.54	83.95	5026.59
	4/24/2015		84.42	5026.12
	1/23/2015		84.69	5025.85
	10/16/2014		84.33	5026.21
	7/9/2014		84.52	5026.02
	4/10/2014		84.35	5026.19
	1/14/2014		84.72	5025.82
	7/29/2013		85.19	5025.35
	3/28/2013		85.12	5025.42
	12/22/2011		84.22	5026.32
	9/8/2011		84.07	5026.47
	6/15/2011		83.95	5026.59
	3/10/2011		83.89	5026.65
MW-13RR	7/23/2015	5090.20	53.55	5036.65
	4/24/2015		55.07	5035.13
	1/23/2015		54.70	5035.50
	10/16/2014		54.35	5035.85
	7/9/2014		54.83	5035.37
	4/10/2014		54.70	5035.50
	1/14/2014		54.09	5036.11
	10/15/2013		53.80	5036.40
	7/29/2013		56.05	5034.15
	3/28/2013		56.22	5033.98
	12/22/2011		54.17	5036.03
	9/7/2011		53.76	5036.44
	6/15/2011		54.25	5035.95
	3/10/2011		53.50	5036.70
MW-18	7/23/2015	5080.80	39.20	5041.60
	4/24/2015		44.13	5036.67
	1/23/2015		42.21	5038.59
	10/16/2014		40.67	5040.13
	7/9/2014		45.65	5035.15
	4/10/2014		42.61	5038.19
	1/14/2014		38.87	5041.93
	10/15/2013		34.20	5046.60
	7/29/2013		Dry	Dry
	3/28/2013		42.54	5038.26
	12/26/2011		40.81	5039.99
	9/7/2011		41.83	5038.97
	6/15/2011		44.33	5036.47
	3/10/2011		40.03	5040.77

TABLE 1. VALLEY FILL AQUIFER GROUNDWATER ELEVATION
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date Gauged	Casing Elevation (amsl)	Depth to Water (feet)	Groundwater Elevation (amsl)
MW-19R	7/23/2015	5072.69	34.57	5038.12
	4/24/2015		37.29	5035.40
	1/23/2015		37.30	5035.39
	10/16/2014		36.70	5035.99
	7/9/2014		36.81	5035.88
	4/10/2014		37.34	5035.35
	1/14/2014		37.34	5035.35
	10/15/2013		37.00	5035.69
	7/29/2013		36.98	5035.71
	3/28/2013		37.51	5035.18
	12/26/2011		36.33	5036.36
	9/7/2011		34.76	5037.93
	6/15/2011		35.10	5037.59
	3/10/2011		35.27	5037.42
MW-20R	7/23/2015	5072.57	33.73	5038.84
	4/24/2015		37.05	5035.52
	1/23/2015		37.19	5035.38
	10/16/2014		36.85	5035.72
	7/9/2014		36.52	5036.05
	4/10/2014		37.55	5035.02
	1/14/2014		37.71	5034.86
	10/15/2013		36.82	5035.75
	7/29/2013		37.01	5035.56
	3/28/2013		37.98	5034.59
	12/22/2011		36.74	5035.83
	9/7/2011		34.83	5037.74
	6/15/2011		35.41	5037.16
	3/10/2011		35.52	5037.05
MW-23	7/23/2015	5073.13	34.98	5038.15
	4/24/2015		37.82	5035.31
	1/23/2015		38.00	5035.13
	10/16/2014		37.61	5035.52
	7/9/2014		37.36	5035.77
	4/10/2014		38.37	5034.76
	1/14/2014		38.45	5034.68
	10/15/2013		37.66	5035.47
	7/29/2013		37.58	5035.55
	3/28/2013		38.25	5034.88
	12/22/2011		37.03	5036.10
	9/7/2011		35.20	5037.93
	6/15/2011		35.72	5037.41
	3/10/2011		35.21	5037.92

NOTES:
amsl = feet above mean sea level

TABLE 2. SUMMARY OF SAMPLE ANALYTICAL AND QUALITY CONTROL REQUIREMENTS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Analyte	Method	Medium	Container and Minimum Volume	Preservation	Holding Time	Storage
Chloride	EPA 300	Water	250 ml poly	None	28 days	Cool < 6 °C
Nitrate/Nitrite	EPA 300	Water	250 ml poly	H_2SO_4 pH <2	28 days	Cool < 6 °C
TDS	SM 2540 C	Water	250 ml poly	None	7 days	Cool < 6 °C

NOTES:
°C = degrees Celcius
< = less than
EPA = U.S. Environmental Protection Agency
mL = milliliter
VOC = Volatile organic compounds
TDS = total dissolved solids

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
EW-1	VF	7/23/2015	190	1,300	11
		4/24/2015	170	1,420	17
		1/23/2015	220	1,460	17
		10/31/2014	230	1,610	27
		7/9/2014	240	1,520	18
		4/10/2014	290	1,750	31
		1/14/2014	390	2,140	57
		10/15/2013	350	2,320	85
EW-2	VF	7/23/2015	140	1,040	<1.0
		4/24/2015	160	1,100	<1.0
		1/23/2015	170	1,140	1.1
		10/16/2014	190	1,200	<1.0
		7/9/2014	200	1,270	3
		4/10/2014	200	1,380	7.6
		1/14/2014	310	1,770	23
		10/15/2013	330	1,960	21
EW-3	VF	7/23/2015	120	995	4.8
		4/24/2015	120	939	1.5
		1/23/2015	130	1,010	2.5
		10/16/2014	130	1,010	3.2
		7/9/2014	150	1,090	3.4
		4/10/2014	170	1,210	3.2
		1/14/2014	220	1,410	6.3
		10/15/2013	320	1,780	0.35
EW-4	VF	7/23/2015	140	1,070	5.7
		4/24/2015	83	710	1.1
		1/23/2015	77	691	1.1
		10/16/2014	89	776	<1.0
		7/9/2014	110	894	1.1
		4/10/2014	110	891	1.5
		1/14/2014	130	977	1.4
		10/15/2013	210	1,300	<0.10
MW-11R	USF	7/23/2015	230	1,250	22
		4/24/2015	200	1,070	20
		1/23/2015	210	1,070	20
		10/16/2014	190	1,120	19
		7/9/2014	230	1,110	20
		4/10/2014	210	1,060	19
		1/14/2014	220	1,020	20
		7/10/2013	220	1,030	21
		3/12/2012	190	1,060	29
		12/26/2011	190	1,030	26
		9/6/2011	220	1,180	33
		6/15/2011	240	1,260	38
		3/10/2011	240	1,180	41
		9/9/2010	210	1,180	38
		3/11/2010	260	1,190	42
		9/16/2009	270	1,210	35
		3/20/2009	270	2,000	34
		3/20/2009	230	1,270	36
		3/20/2008	200	1,000	19

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-1A	VF	7/23/2015	82	820	<1.0
		4/24/2015	92	912	<1.0
		1/23/2015	120	1,040	2.1
		10/16/2014	120	1,060	1
		7/9/2014	110	990	0.14
		4/10/2014	110	1,000	<0.10
		1/14/2014	110	1,080	1.5
		10/15/2013	200	1,530	29
		7/10/2013	140	360	16
		3/13/2012	190	1,640	63
		12/22/2011	200	1,730	59
		9/8/2011	170	1,570	46
		6/15/2011	190	1,660	56
		3/10/2011	210	1,830	79
		12/9/2010	230	2,260	120
		9/9/2010	190	1,840	64
		6/18/2010	180	1,490	40
		3/11/2010	240	2,070	110
		12/17/2009	270	2,380	120
		9/16/2009	250	2,010	4.8
		6/23/2009	250	1,700	56
		3/20/2009	340	2,300	150
		3/20/2009	275	2,780	150
		6/26/2008	190	1,400	45
		3/20/2008	110	1,000	15
		8/22/2007	140	1,200	38
		7/6/2007	140	1,300	37
		5/31/2007	270	2,500	190
		2/8/2007	140	1,300	39
		10/25/2006	220	1,700	71
		5/19/2006	97	1,100	30
		1/17/2006	83	980	16
		8/22/2005	91	1,000	21
		4/27/2005	88	880	4.0
		11/16/2004	98	1,100	16
		7/15/2004	89	820	11
		3/31/2004	98	800	25
		7/28/2003	100	790	0.21
		2/7/2003	120	930	4.6
		11/7/2002	150	1,000	12
		8/12/2002	150	1,100	18
		5/22/2002	180	1 300	24
		2/11/2002	210	1,100	13
		12/13/2001	150	790	0.15
		9/11/2001	200	920	6
		6/25/2001	170	820	21
		3/28/2001	180	850	4.9
		1/26/2001	170	730	2.0
		12/28/2000	210	1,900	130
		5/4/2000	190	1,200	31
		2/24/2000	170	920	14
		10/28/1999	200	1,300	56
		7/27/1999	190	870	ND
		4/22/1999	140	1,100	40
		1/27/1998	152	1,324	42.5

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-13-RR	VF	7/23/2015	84	468	4.5
		4/24/2015	98	496	5.6
		1/23/2015	71	505	4.7
		10/16/2014	39	396	4.0
		7/9/2014	47	438	5.0
		4/10/2014	36	400	4.7
		1/14/2014	47	434	7.4
		10/15/2013	41	400	5.9
		7/10/2013	41	425	5.8
		3/13/2012	65	540	8.0
		12/22/2011	120	757	14.28
		9/7/2011	130	849	11.24
		6/15/2011	130	839	11
		3/10/2011	160	931	11
		12/9/2010	130	869	12
		9/9/2010	150	969	12
		6/18/2010	130	920	12
		3/11/2010	140	867	12
		12/17/2009	170	1,040	12
		9/16/2009	240	1,340	12
		3/20/2009	180	1,300	11
		3/20/2009	157	1,070	9.9
		6/26/2008	94	4,600	1.5
		3/18/2008	160	680	3.4
MW-18	VF	7/23/2015	31	300	4.4
		4/24/2015	72	386	5.0
		1/23/2015	69	660	19
		10/16/2014	27	294	3.5
		7/9/2014	42	420	8.1
		4/10/2014	72	550	19
		1/14/2014	26	340	6.4
		10/15/2013	16	269	3.1
		3/12/2012	43	368	3.7
		12/26/2011	71	416	3.5
		9/7/2011	140	648	4.0
		6/15/2011	46	403	3.3
		3/10/2011	71	378	3.4
		12/9/2010	110	567	5.8
		9/9/2010	41	316	2.5
		6/18/2010	64	445	6.1
		3/11/2010	66	428	6.9
		12/17/2009	40	339	3.8
		9/16/2009	71	438	5.0
		6/23/2009	50	440	3.3
		3/20/2009	45	650	11
		3/20/2008	34	450	7.4
		8/22/2007	50	420	2.8
		6/1/2007	69	390	2.0
		2/8/2007	8	230	1.8
		10/26/2006	6	260	1.6
		5/20/2006	24	360	6.8

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-19R	VF	8/3/2015	210	2,650	140
		7/23/2015	280	3,310	220
		4/24/2015	180	1,400	20
		1/23/2015	220	1,560	27
		10/16/2014	270	1,940	42
		7/9/2014	350	1,970	58
		4/10/2014	350	1,930	51
		1/14/2014	330	1,960	60
		10/15/2013	330	2,160	83
		7/10/2013	370	2,260	96
		3/13/2012	330	2,360	120
		12/26/2011	310	2,380	110
		9/7/2011	400	2,880	150
		6/15/2011	380	2,700	150
		3/10/2011	290	2,540	130
		12/9/2010	360	2,910	150
		9/9/2010	510	3,520	200
		6/18/2010	520	3,760	230
		3/11/2010	320	2,850	140
		12/17/2009	420	3,190	140
		9/16/2009	500	2,920	160
		6/23/2009	470	3,000	170
		3/20/2009	410	3,500	130
		3/20/2009	334	3,120	130
		6/26/2008	120	1,100	17
		3/18/2008	470	2,200	29
MW-20R	VF	7/23/2015	50	680	21
		4/24/2015	74	975	55
		1/23/2015	74	1,020	60
		10/16/2014	54	868	41
		7/9/2014	71	760	17
		4/10/2014	72	905	50
		1/14/2014	59	930	43
		10/15/2013	51	811	37
		7/10/2013	180	1,600	40
		3/13/2012	92	1,160	76
		12/22/2011	92	963	39.39
		9/7/2011	69	1,100	51
		6/15/2011	90	1,100	25
		3/10/2011	38	632	26
		12/9/2010	28	570	23
		9/9/2010	28	504	14
		6/18/2010	45	687	21
		3/11/2010	48	653	27
		12/17/2009	76	1,200	96
		9/16/2009	40	686	29
		6/23/2009	71	1,000	59
		3/20/2009	150	1,800	160
		3/20/2009	148	2,350	170
		6/26/2008	220	2,200	110
		3/18/2008	82	1,900	190

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-21	VF	7/10/2013	94	768	<0.10
		3/12/2012	68	724	ND
		12/26/2011	65	686	ND
		9/7/2011	60	678	ND
		6/15/2011	61	673	ND
		3/10/2011	66	683	ND
		12/9/2010	66	667	ND
		9/9/2010	68	662	ND
		6/18/2010	54	565	ND
		3/11/2010	70	0	ND
		12/17/2009	69	663	ND
		9/16/2009	61	612	ND
		6/23/2009	52	490	ND
		3/20/2009	65	390	ND
		3/20/2009	56	632	ND
		3/20/2008	42	480	0.29
		10/26/2006	38	490	ND
		5/19/2006	25	450	ND
MW-23	VF	7/23/2015	130	1,230	5.7
		4/24/2015	150	1,200	9.5
		1/23/2015	160	1,290	2.3
		10/16/2014	170	1,640	4.8
		7/9/2014	190	1,380	5.6
		4/10/2014	220	1,480	0.13
		1/14/2014	250	1,580	0.22
		10/15/2013	240	1,640	9.7
		7/10/2013	320	1,770	4.2
		3/13/12	270	1,610	17
		12/22/11	240	1,560	23
		9/7/11	250	2,100	45
		6/15/11	270	1,600	15
		3/10/11	220	2,060	110
		12/9/10	270	2,180	94
		9/9/10	300	2,520	94
		6/18/10	230	1,370	4.0
		3/11/10	220	2,400	190
		12/17/09	240	2,390	130
		9/16/09	260	2,140	98
		6/23/09	260	1,400	1.7
		3/20/09	220	2,200	190
		3/20/09	159	2,480	171
NMWQCC Standard			**250**	**1,000**	**10**

NOTES:
ate data are by EPA Method 300.0
EPA Method SM 2540 C
above NMWQCC standard if shaded
= milligrams per liter
= Total dissolved solids
ND = Non detect
Mexico Environment Department
w Mexico Water Quality Control
F = Upper Santa Fe
VF = Valley Fill

TABLE 4. SUMMARY OF GROUNDWATER FIELD PARAMETERS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date	Flow Meter Reading (gallons)	Depth to Water (feet)	Field Nitrate (ppm)
EW-1	7/10/2015	1,034,630	NM	10
	6/24/2015	957,923	NM	10
	6/12/2015	909,752	NM	10
	5/28/2015	856,802	NM	10
	4/24/2015	744,980	37.48	5-10
	3/21/2015	638,716	NM	10-20
	3/6/2015	592,430	NM	10
	2/19/2015	550,503	NM	10
	2/6/2015	509,458	NM	10
	1/23/2015	462,735	T.O.P.	10
	1/2/2015	393,482	NM	10
	12/19/2014	345,000	NM	10
	12/5/2014	301,755	NM	10
	11/21/2014	252,718	NM	NM
	11/14/2014	233,024	46.1	5-10
	10/30/2014	180,239	NM	50
	10/16/2014	180,132	36.93	NM
	10/9/2014	175,992	NM	NM
	10/9/2014	9,734,391	NM	NM
	10/2/2014	9,719,793	T.O.P.	5
	9/22/2014	9,680,031	T.O.P.	10
	9/8/2014	9,627,612	T.O.P.	10
	8/21/2014	9,552,453	47.75	10
	8/11/2014	9,512,921	T.O.P.	10
	7/25/2014	9,438,001	NM	5
	7/9/2014	9,374,875	T.O.P.	10-20
	6/27/2014	9,327,907	T.O.P.	10-20
	6/13/2014	9,279,991	T.O.P.	10-20
	5/30/2014	9,241,233	NM	10-20
	5/27/2014	9,236,547	NM	NM
	5/11/2014	9,216,882	NM	10-20
	4/24/2014	9,196,238	47.14	20
	4/10/2014	9,156,017	39.95	20
	3/25/2014	9,125,066	40.32	20
	3/21/2014	9,117,242	NM	NM
	3/10/2014	9,095,016	NM	NM
	3/10/2014	175,992	T.O.P.	35
	2/27/2014	159,528	NM	20
	2/26/2014	157,970	NM	NM
	2/12/2014	138,240	NM	35
	1/30/2014	127,210	NM	NM
	1/29/2014	127,180	38.7	35
	1/28/2014	127,180	NM	NM
	1/14/2014	127,133	39.74	20
	1/10/2014	121,034	NM	NM
	1/8/2014	118,810	39.75	35
	12/27/2013	101,731	41.63	20
	12/12/2013	73,509	NM	NM
	11/25/2013	52,687	41.5	35
	11/11/2013	27,220	T.O.P.	35
	11/5/2013	18,808	NM	NM
	10/28/2013	7,831	37.42	35
	10/18/2013	5,740		
	10/15/2013	155		

TABLE 4. SUMMARY OF GROUNDWATER FIELD PARAMETERS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date	Flow Meter Reading (gallons)	Depth to Water (feet)	Field Nitrate (ppm)
EW-2	7/10/2015	6,768,068	NM	0
	6/24/2015	6,623,404	NM	0
	6/12/2015	6,517,850	NM	0-5
	5/28/2015	6,376,551	NM	0-5
	4/24/2015	6,060,000	38.77	0-5
	3/21/2015	5,754,530	NM	0
	3/6/2015	5,616,735	NM	0-5
	2/19/2015	5,493,835	NM	0-5
	2/6/2015	5,393,955	NM	0-5
	1/23/2015	5,285,127	39.15	0-5
	1/2/2015	5,125,385	NM	0-5
	12/19/2014	5,015,095	NM	0-5
	12/5/2014	4,922,323	NM	0-5
	11/21/2014	4,829,370	NM	NM
	11/14/2014	4,784,360	38.56	0-5
	10/30/2014	4,694,213	NM	0-5
	10/16/2014	4,624,453	37.30	0-5
	10/2/2014	4,623,137	40.61	0
	9/22/2014	4,551,766	NM	0
	9/8/2014	4,463,785	41.05	0
	8/21/2014	4,342,513	40.41	0-5
	8/11/2014	4,281,637	NM	0-5
	7/25/2014	4,172,899	NM	0-5
	7/9/2014	4,085,286	42.5	0-5
	6/27/2014	4,004,441	42.09	5
	6/13/2014	3,908,572	41.34	0-5
	5/30/2014	3,829,979	NM	5-10
	5/27/2014	3,813,392	NM	NM
	5/11/2014	3,732,025	NM	5
	4/24/2014	3,666,252	T.O.P.	5-10
	4/10/2014	3,613,758	T.O.P.	10
	3/25/2014	3,539,885	T.O.P.	5-10
	3/21/2014	3,528,092	NM	NM
	3/10/2014	3,491,362	NM	NM
	3/10/2014	402,917	46.95	10
	2/27/2014	371,628	NM	10
	2/26/2014	368,940	NM	NM
	2/12/2014	331,010	50.15	<5
	1/30/2014	291,157	NM	NM
	1/29/2014	289,231	T.O.P.	20
	1/28/2014	286,464	NM	NM
	1/14/2014	243,439	50.55	10
	1/10/2014	229,870	NM	NM
	1/8/2014	223,111	46	15
	12/27/2013	182,942	50.4	20
	12/12/2013	127,633	NM	NM
	11/25/2013	96,506	44.5	10-15
	11/11/2013	55,497	T.O.P.	20
	11/5/2013	41,237	NM	NM
	10/28/2013	19,430	36.05	20
	10/18/2013	5,444		
	10/15/2013	559		

TABLE 4. SUMMARY OF GROUNDWATER FIELD PARAMETERS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date	Flow Meter Reading (gallons)	Depth to Water (feet)	Field Nitrate (ppm)
EW-3	7/10/2015	OFF	OFF	OFF
	6/24/2015	OFF	OFF	OFF
	6/12/2015	OFF	OFF	OFF
	5/28/2015	OFF	OFF	OFF
	4/24/2015	5,183,510	37.69	0-5
	3/21/2015	5,181,222	NM	NM
	3/6/2015	5,181,222	NM	NM
	2/19/2015	5,181,222	NM	NM
	2/6/2015	5,181,222	NM	0-5
	1/23/2015	5,028,453	37.25	0-5
	1/2/2015	4,811,566	NM	0-5
	12/19/2014	4,662,754	NM	0-5
	12/5/2014	4,533,018	NM	0-5
	11/21/2014	4,304,274	NM	NM
	11/14/2014	4,086,362	37.85	0-5
	10/30/2014	3,948,289	NM	0-5
	10/16/2014	3,820,033	36.52	0-5
	10/2/2014	3,697,780	36.35	0
	9/22/2014	3,603,848	NM	0-5
	9/8/2014	3,489,198	35.85	0
	8/21/2014	3,479,893	NM	NM
	8/11/2014	3,466,373	NM	0
	7/25/2014	3,268,676	NM	0-5
	7/9/2014	3,101,476	36.76	0-5
	6/27/2014	2,970,535	37.02	0-5
	6/13/2014	2,813,719	37.39	0-5
	5/30/2014	2,669,227	NM	0-5
	5/27/2014	2,637,622	NM	NM
	5/11/2014	2,478,924	NM	0
	4/24/2014	2,334,732	48.08	0-5
	4/10/2014	2,184,326	~48	0-5
	3/25/2014	2,037,160	~52	0-5
	3/21/2014	2,002,039	NM	NM
	3/10/2014	1,917,233	NM	NM
	3/10/2014	889,366	42.95	5-10
	2/27/2014	889,366	NM	0-5
	2/26/2014	883,121	NM	NM
	2/12/2014	794,940	42.5	5-10
	1/30/2014	713,372	NM	NM
	1/29/2014	713,343	T.O.P.	5
	1/28/2014	713,343	NM	NM
	1/14/2014	705,442	47.8	5-10
	1/10/2014	680,389	NM	NM
	1/8/2014	671,023	49.95	5
	12/27/2013	587,312	45.4	5
	12/12/2013	452,351	NM	NM
	11/25/2013	378,479	44.78	5
	11/11/2013	253,730	40.35	10
	11/5/2013	199,810	NM	NM
	10/28/2013	126,182	37.36	5-10
	10/18/2013	27,640		
	10/15/2013	310		

TABLE 4. SUMMARY OF GROUNDWATER FIELD PARAMETERS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date	Flow Meter Reading (gallons)	Depth to Water (feet)	Field Nitrate (ppm)
EW-4	7/10/2015	12,052,981	NM	0
	6/24/2015	12,024,187	NM	0
	6/12/2015	11,983,510	NM	0
	5/28/2015	11,850,263	NM	0
	4/24/2015	11,536,200	45.72	0-5
	3/21/2015	11,437,084	NM	0
	3/6/2015	11,239,867	NM	0-5
	2/19/2015	11,063,782	NM	0-5
	2/6/2015	10,902,545	NM	0-5
	1/23/2015	10,751,475	45.61	0-5
	1/2/2015	10,533,332	NM	0-5
	12/19/2014	10,382,760	NM	0-5
	12/5/2014	10,250,684	NM	0-5
	11/21/2014	10,110,920	NM	NM
	11/14/2014	10,035,777	45.95	0-5
	10/30/2014	9,938,628	NM	0-5
	10/16/2014	9,794,192	44.30	0-5
	10/9/2014	9,734,391	NM	NM
	10/9/2014	1,787,212	NM	NM
	10/2/2014	1,787,212	NM	NM
	9/22/2014	1,787,212	NM	NM
	9/8/2014	1,726,004	36.72	0
	8/21/2014	1,554,070	36.55	0
	8/11/2014	1,467,745	NM	0
	7/25/2014	1,339,434	NM	0
	7/9/2014	1,232,341	40.84	0
	6/27/2014	1,125,421	42.48	0
	6/13/2014	995,618	42.27	0
	5/30/2014	875,379	NM	0
	5/27/2014	844,121	NM	NM
	5/11/2014	684,382	NM	0
	4/24/2014	535,613	46.97	0
	4/10/2014	357,484	48.11	0
	3/25/2014	192,449	47.76	0
	3/21/2014	155,133	NM	NM
	3/10/2014	59,837	NM	NM
	3/10/2014	919,953	43.7	0
	2/27/2014	919,942	NM	0-5
	2/26/2014	912,735	NM	NM
	2/12/2014	819,150	NM	5
	1/30/2014	736,045	NM	NM
	1/29/2014	731,561	T.O.P.	0
	1/28/2014	725,525	NM	NM
	1/14/2014	631,711	T.O.P.	0
	1/10/2014	600,440	NM	NM
	1/8/2014	600,412	T.O.P.	0
	12/27/2013	522,436	18.1	0
	12/12/2013	469,465	NM	NM
	11/25/2013	404,730	50.1	0-5
	11/11/2013	278,248	48.3	5
	11/5/2013	219,244	NM	NM
	10/28/2013	138,465	47.25	5
	10/18/2013	31,210		
	10/15/2013	393		

TABLE 4. SUMMARY OF GROUNDWATER FIELD PARAMETERS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date	Flow Meter Reading (gallons)	Depth to Water (feet)	Field Nitrate (ppm)
NOTES: ppm = parts per million NM - Not Measured T.O.P. - Top of Pump Changed flow meters on 3/10/14				

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
EW-1	7/23/15 14:36	310:36:00	18636	930601	1,096,265	61,635	1,735,640	3.31	1.86	
	7/10/15 16:00	392:15:00	23535	911965	1,034,630	76,707	1,674,005	3.26	1.84	
	6/24/15 7:45	279:05:00	16745	888430	957,923	48,171	1,597,298	2.88	1.80	2.71
	6/12/15 16:40	364:14:00	21854	871685	909,752	52,950	1,549,127	2.42	1.78	
	5/28/15 12:26	290:26:00	17426	849831	856,802	40,163	1,496,177	2.30	1.76	
	5/16/15 10:00	527:18:00	31638	832405	816,639	71,659	1,456,014	2.26	1.75	
	4/24/15 10:42	811:48:00	48708	800767	744,980	106,264	1,384,355	2.18	1.73	
	3/21/15 14:54	358:17:00	21497	752059	638,716	46,286	1,278,091	2.15	1.70	
	3/6/15 16:37	362:22:00	21742	730562	592,430	41,927	1,231,805	1.93	1.69	2.15
	2/19/15 14:15	310:42:00	18642	708820	550,503	41,045	1,189,878	2.20	1.68	
	2/6/15 15:33	342:03:00	20523	690178	509,458	46,723	1,148,833	2.28	1.66	
	1/23/15 9:30	497:54:00	29874	669655	462,735	69,253	1,102,110	2.32	1.65	
	1/2/15 15:36	344:01:00	20641	639781	393,482	48,482	1,032,857	2.35	1.61	
	12/19/14 7:35	335:02:00	20102	619140	345,000	43,245	984,375	2.15	1.59	
	12/5/14 8:33	328:52:00	19732	599038	301,755	49,037	941,130	2.49	1.57	1.99
	11/21/14 15:41	176:20:00	10580	579306	252,718	19,694	892,093	1.86	1.54	
	11/14/14 7:21	355:48:00	21348	568726	233,024	52,785	872,399	2.47	1.53	
	10/30/14 11:33	331:45:00	19905	547378	180,239	107	819,614	0.01	1.50	
	10/16/14 15:48	175:48:00	10548	527473	180,132	4,140	819,507	0.39	1.55	
	10/9/14 8:00	0:00:00	0	516925	175,992	0	815,367	0.00	1.58	
	10/9/14 8:00	160:22:00	9622	516925	9,734,391	14,598	815,367	1.52	1.58	
	10/2/14 15:38	239:38:00	14378	507303	9,719,793	39,762	800,769	2.77	1.58	
	9/22/14 16:00	335:22:00	20122	492925	9,680,031	52,419	761,007	2.61	1.54	2.54
	9/8/14 16:38	432:48:00	25968	472803	9,627,612	75,159	708,588	2.89	1.50	
	8/21/14 15:50	239:54:00	14394	446835	9,552,453	39,532	633,429	2.75	1.42	
	8/11/14 15:56	411:32:00	24692	432441	9,512,921	74,920	593,897	3.03	1.37	
	7/25/14 12:24	387:03:00	23223	407749	9,438,001	63,126	518,977	2.72	1.27	
	7/9/14 9:21	285:39:00	17139	384526	9,374,875	46,968	455,851	2.74	1.19	
	6/27/14 11:42	339:25:00	20365	367387	9,327,907	47,916	408,883	2.35	1.11	
	6/13/14 8:17	336:52:00	20212	347022	9,279,991	38,758	360,967	1.92	1.04	
	5/30/14 7:25	72:00:00	4320	326810	9,241,233	4,686	322,209	1.08	0.99	1.69
	5/27/14 7:25	383:55:00	23035	322490	9,236,547	19,665	317,523	0.85	0.98	
	5/11/14 7:30	398:45:00	23925	299455	9,216,882	20,644	297,858	0.86	0.99	
	4/24/14 16:45	343:05:00	20585	275530	9,196,238	40,221	277,214	1.95	1.01	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
EW-1 (Con't.)	4/10/14 9:40	385:50:00	23150	254945	9,156,017	30,951	236,993	1.34	0.93	
	3/25/14 7:50	92:35:00	5555	231795	9,125,066	7,824	206,042	1.41	0.89	
	3/21/14 11:15	260:45:00	15645	226240	9,117,242	22,226	198,218	1.42	0.88	
	3/10/14 14:30	3:30:00	210	210595	9,095,016	0	175,992	0.00	0.83	
	3/10/14 11:00	257:25:00	15445	210385	175,992	16,464	175,992	1.07	0.84	
	2/27/14 17:35	24:22:00	1462	194940	159,528	1,558	159,528	1.07	0.82	0.89
	2/26/14 17:13	338:08:00	20288	193478	157,970	19,730	157,970	0.97	0.82	
	2/12/14 15:05	318:45:00	19125	173190	138,240	11,030	138,240	0.58	0.80	
	1/30/14 8:20	16:25:00	985	154065	127210	30	127210	0.03	0.82	
	1/29/14 15:55	23:05:00	1385	153080	127180	0	127180	0.00	0.83	
	1/28/14 16:50	336:20:00	20180	151695	127180	47	127180	0.00	0.84	
	1/14/14 16:30	102:45:00	6,165	131,515	127,133	6099	127,133	0.99	0.97	
	1/10/14 9:45	40:40:00	2,440	125,350	121,034	2224	121,034	0.91	0.96	
	1/8/14 17:05	297:40:00	17,860	122,910	118,810	17079	118,810	0.96	0.97	
	12/27/13 7:25	350:25:00	21,025	105,050	101,731	28222	101,731	1.34	0.97	
	12/12/13 17:00	407:46:00	24,466	84,025	73,509	20822	73,509	0.85	0.87	
	11/25/13 17:14	338:41:00	20,321	59,559	52,687	25467	52,687	1.25	0.88	
	11/11/13 14:33	142:28:00	8,548	39,238	27,220	8412	27,220	0.98	0.69	0.97
	11/5/13 16:05	190:39:00	11,439	30,690	18,808	10977	18,808	0.96	0.61	
	10/28/13 17:26	4:26:00	266	19,251	7,831	352	7,831	1.32	0.40	
	10/28/13 13:00	245:28:00	14,728	18,985	7,479	1739	7,479	0.12	0.39	
	10/18/13 7:32	65:16:00	3,916	4,257	5,740	5080	5,740	1.30	1.31	
	10/15/13 14:16	4:55:00	295	341	660	434	660	1.47	1.48	
	10/15/13 9:21	0:46:00	46	46	226	71	226	1.54	1.54	
	10/15/13 8:35	—	—	—	155	155	155	—	—	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
EW-2	7/23/15 14:16	310:16:00	18616	930582	6,813,225	45,157	3,724,780	2.43	4.00	
	7/10/15 16:00	392:07:00	23527	911966	6,768,068	144,664	3,679,623	6.15	4.03	
	6/24/15 7:53	279:04:00	16744	888439	6,623,404	105,554	3,534,959	6.30	3.98	5.80
	6/12/15 16:49	364:18:00	21858	871695	6,517,850	141,299	3,429,405	6.46	3.93	
	5/28/15 12:31	290:26:00	17426	849837	6,376,551	112,335	3,288,106	6.45	3.87	
	5/16/15 10:05	527:28:00	31648	832411	6,264,216	204,216	3,175,771	6.45	3.81	
	4/24/15 10:37	811:37:00	48697	800763	6,060,000	305,470	2,971,555	6.27	3.71	
	3/21/15 15:00	358:17:00	21497	752066	5,754,530	137,795	2,666,085	6.41	3.54	
	3/6/15 16:43	362:22:00	21742	730569	5,616,735	122,900	2,528,290	5.65	3.46	5.91
	2/19/15 14:21	310:41:00	18641	708827	5,493,835	99,880	2,405,390	5.36	3.39	
	2/6/15 15:40	342:28:00	20548	690186	5,393,955	108,828	2,305,510	5.30	3.34	
	1/23/15 9:12	497:30:00	29850	669638	5,285,127	159,742	2,196,682	5.35	3.28	
	1/2/15 15:42	344:02:00	20642	639788	5,125,385	110,290	2,036,940	5.34	3.18	
	12/19/14 7:40	335:15:00	20115	619146	5,015,095	92,772	1,926,650	4.61	3.11	
	12/5/14 8:25	328:43:00	19723	599031	4,922,323	92,953	1,833,878	4.71	3.06	4.65
	11/21/14 15:42	176:07:00	10567	579308	4,829,370	45,010	1,740,925	4.26	3.00	
	11/14/14 7:35	359:03:00	21543	568741	4,784,360	90,147	1,695,915	4.18	2.98	
	10/30/14 8:32	328:55:00	19735	547198	4,694,213	69,760	1,605,768	3.53	2.93	
	10/16/14 15:37	335:51:00	20151	527463	4,624,453	1,316	1,536,008	0.07	2.91	
	10/2/14 15:46	239:39:00	14379	507312	4,623,137	71,371	1,534,692	4.96	3.02	
	9/22/14 16:07	335:20:00	20120	492933	4,551,766	87,981	1,463,321	4.37	2.97	
	9/8/14 16:47	432:50:00	25970	472813	4,463,785	121,272	1,375,340	4.67	2.91	3.77
	8/21/14 15:57	239:53:00	14393	446843	4,342,513	60,876	1,254,068	4.23	2.81	
	8/11/14 16:04	411:34:00	24694	432450	4,281,637	108,738	1,193,192	4.40	2.76	
	7/25/14 12:30	387:33:00	23253	407756	4,172,899	87,613	1,084,454	3.77	2.66	
	7/9/14 8:57	285:07:00	17107	384503	4,085,286	80,845	996,841	4.73	2.59	
	6/27/14 11:50	339:28:00	20368	367396	4,004,441	95,869	915,996	4.71	2.49	
	6/13/14 8:22	336:51:00	20211	347028	3,908,572	78,593	820,127	3.89	2.36	
	5/30/14 7:31	72:04:00	4324	326817	3,829,979	16,587	741,534	3.84	2.27	3.64
	5/27/14 7:27	383:52:00	23032	322493	3,813,392	81,367	724,947	3.53	2.25	
	5/11/14 7:35	398:40:00	23920	299461	3,732,025	65,773	643,580	2.75	2.15	
	4/24/14 16:55	343:35:00	20615	275541	3,666,252	52,494	577,807	2.55	2.09	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
EW-2 (Con't.)	4/10/14 9:20	385:25:00	23125	254926	3,613,758	73,873	525,313	3.19	2.06	
	3/25/14 7:55	92:39:00	5559	231801	3,539,885	11,793	451,440	2.12	1.95	
	3/21/14 11:16	260:46:00	15646	226242	3,528,092	36,730	439,647	2.35	1.94	
	3/10/14 14:30	3:23:00	203	210596	3,491,362	0	402,917	0.00	1.91	
	3/10/14 11:07	257:27:00	15447	210393	402,917	31,289	402,917	2.03	1.91	
	2/27/14 17:40	24:26:00	1466	194946	371,628	2,688	371,628	1.83	1.90	2.28
	2/26/14 17:14	338:21:00	20301	193480	368,940	37,930	368,940	1.87	1.90	
	2/12/14 14:53	318:10:00	19090	173179	331,010	39,853	331,010	2.09	1.91	
	1/30/14 8:43	16:36:00	996	154,089	291,157	1,926	291,157	1.93	1.89	
	1/29/14 16:07	23:02:00	1,382	153,093	289,231	2,767	289,231	2.00	1.89	
	1/28/14 17:05	336:20:00	20,180	151,711	286,464	43,025	286,464	2.13	1.88	
	1/14/14 16:45	103:02:00	6,182	131,531	243,439	13,569	243,439	2.19	1.85	
	1/10/14 9:43	40:28:00	2,428	125,349	229,870	6,759	229,870	2.78	1.83	
	1/8/14 17:15	297:12:00	17,832	122,921	223,111	40,169	223,111	2.25	1.81	
	12/27/13 8:03	350:50:00	21,050	105,089	182,942	55,309	182,942	2.63	1.74	
	12/12/13 17:13	408:10:00	24,490	84,039	127,633	31,127	127,633	1.27	1.51	
	11/25/13 17:03	338:19:00	20,299	59,549	96,506	41,009	96,506	2.02	1.61	
	11/11/13 14:44	142:37:00	8,557	39,250	55,497	14,260	55,497	1.67	1.40	1.85
	11/5/13 16:07	190:35:00	11,435	30,693	41,237	21,807	41,237	1.91	1.33	
	10/28/13 17:32	5:40:00	340	19,258	19,430	1,369	19,430	4.03	0.98	
	10/28/13 11:52	244:27:00	14,667	18,918	18,061	12,617	18,061	0.86	0.93	
	10/18/13 7:25	65:20:00	3,920	4,251	5,444	3,519	5,444	0.90	1.15	
	10/15/13 14:05	4:45:00	285	331	1,925	1,020	1,925	3.58	4.13	
	10/15/13 9:20	0:46:00	46	46	905	346	905	7.52	7.52	
	10/15/13 8:34	—	—	—	559	559	559	—	—	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
EW-3	7/23/15 13:54	309:54:00	18594	930561	5,190,307	6,797	4,162,440	0.37	6.03	
	7/10/15 16:00	391:57:00	23517	911967	5,183,510	0	4,155,643	0.00	6.02	
	6/24/15 8:03	279:14:00	16754	888450	5,183,510	0	4,155,643	0.00	6.02	0.05
	6/12/15 16:49	364:15:00	21855	871696	5,183,510	0	4,155,643	0.00	6.02	
	5/28/15 12:34	290:24:00	17424	849841	5,183,510	0	4,155,643	0.00	6.02	
	5/16/15 10:10	527:43:00	31663	832417	5,183,510	0	4,155,643	0.00	6.02	
	4/24/15 10:27	811:25:00	48685	800754	5,183,510	2,288	4,155,643	0.05	6.02	
	3/21/15 15:02	358:19:00	21499	752069	5,181,222	0	4,153,355	0.00	6.02	
	3/6/15 16:43	362:15:00	21735	730570	5,181,222	0	4,153,355	0.00	6.02	1.18
	2/19/15 14:28	310:43:00	18643	708835	5,181,222	0	4,153,355	0.00	6.02	
	2/6/15 15:45	342:49:00	20569	690192	5,181,222	152,769	4,153,355	7.43	6.02	
	1/23/15 8:56	497:09:00	29829	669623	5,028,453	216,887	4,000,586	7.27	5.97	
	1/2/15 15:47	344:01:00	20641	639794	4,811,566	148,812	3,783,699	7.21	5.91	
	12/19/14 7:46	335:25:00	20125	619153	4,662,754	129,736	3,634,887	6.45	5.87	
	12/5/14 8:21	328:38:00	19718	599028	4,533,018	228,744	3,505,151	11.60	5.85	8.50
	11/21/14 15:43	175:59:00	10559	579310	4,304,274	217,912	3,276,407	20.64	5.66	
	11/14/14 7:44	359:18:00	21558	568751	4,086,362	138,073	3,058,495	6.40	5.38	
	10/30/14 8:26	329:01:00	19741	547193	3,948,289	128,256	2,920,422	6.50	5.34	
	10/16/14 15:25	335:33:00	20133	527452	3,820,033	122,253	2,792,166	6.07	5.29	
	10/2/14 15:52	239:38:00	14378	507319	3,697,780	93,932	2,669,913	6.53	5.26	
	9/22/14 16:14	335:18:00	20118	492941	3,603,848	114,650	2,575,981	5.70	5.23	
	9/8/14 16:56	432:56:00	25976	472823	3,489,198	9,305	2,461,331	0.36	5.20	5.03
	8/21/14 16:00	239:51:00	14391	446847	3,479,893	13,520	2,452,026	0.94	5.49	
	8/11/14 16:09	411:34:00	24694	432456	3,466,373	197,697	2,438,506	8.01	5.64	
	7/25/14 12:35	387:50:00	23270	407762	3,268,676	167,200	2,240,809	7.19	5.49	
	7/9/14 8:45	284:49:00	17089	384492	3,101,476	130,941	2,073,609	7.66	5.39	
	6/27/14 11:56	339:28:00	20368	367403	2,970,535	156,816	1,942,668	7.70	5.29	
	6/13/14 8:28	336:53:00	20213	347035	2,813,719	144,492	1,785,852	7.15	5.15	
	5/30/14 7:35	72:06:00	4326	326822	2,669,227	31,605	1,641,360	7.31	5.02	7.08
	5/27/14 7:29	383:48:00	23028	322496	2,637,622	158,698	1,609,755	6.89	4.99	
	5/11/14 7:41	398:41:00	23921	299468	2,478,924	144,192	1,451,057	6.03	4.84	
	4/24/14 17:00	344:00:00	20640	275547	2,334,732	150,406	1,306,865	7.29	4.74	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
EW-3 (Con't.)	4/10/14 9:00	384:58:00	23098	254907	2,184,326	147,166	1,156,459	6.37	4.54	
	3/25/14 8:02	92:44:00	5564	231809	2,037,160	35,121	1,009,293	6.31	4.35	
	3/21/14 11:18	260:53:00	15653	226245	2,002,039	84,806	974,172	5.42	4.30	
	3/10/14 14:25	14:25:00	865	210592	1,917,233	0	889,366	0.00	4.22	
	3/10/14 0:00	246:13:00	14773	209727	889,366	0	889,366	0.00	4.24	
	2/27/14 17:47	24:31:00	1471	194954	889,366	6,245	889,366	4.25	4.56	3.66
	2/26/14 17:16	338:31:00	20311	193483	883,121	88,181	883,121	4.34	4.56	
	2/12/14 14:45	316:20:00	18980	173172	794,940	81,568	794,940	4.30	4.59	
	1/30/14 10:25	18:05:00	1,085	154,192	713,372	29	713,372	0.03	4.62	
	1/29/14 16:20	23:14:00	1,394	153,107	713,343	0	713,343	0.00	4.66	
	1/28/14 17:06	335:56:00	20,156	151,713	713,343	7,901	713,343	0.39	4.70	
	1/14/14 17:10	103:28:00	6,208	131,557	705,442	25,053	705,442	4.04	5.36	
	1/10/14 9:42	40:20:00	2,420	125,349	680,389	9,366	680,389	3.87	5.43	
	1/8/14 17:22	297:49:00	17,869	122,929	671,023	83,711	671,023	4.68	5.46	
	12/27/13 7:33	350:30:00	21,030	105,060	587,312	134,961	587,312	6.42	5.59	
	12/12/13 17:03	408:07:00	24,487	84,030	452,351	73,872	452,351	3.02	5.38	
	11/25/13 16:56	337:58:00	20,278	59,543	378,479	124,749	378,479	6.15	6.35	
	11/11/13 14:58	142:50:00	8,570	39,265	253,730	53,920	253,730	6.29	6.45	5.36
	11/5/13 16:08	190:26:00	11,426	30,695	199,810	73,628	199,810	6.44	6.50	
	10/28/13 17:42	6:11:00	371	19,269	126,182	2,168	126,182	5.84	6.53	
	10/28/13 11:31	244:12:00	14,652	18,898	124,014	96,374	124,014	6.58	6.55	
	10/18/13 7:19	65:35:00	3,935	4,246	27,640	26,004	27,640	6.61	6.44	
	10/15/13 13:44	4:25:00	265	311	1,636	731	1,636	2.76	4.26	
	10/15/13 9:19	0:46:00	46	46	905	595	905	12.93	12.93	
	10/15/13 8:33	—	—	—	310	310	310	—	—	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
EW-4	7/23/15 14:46	310:46:00	18646	930614	12,117,304	64,323	5,030,240	3.45	5.40	
	7/10/15 16:00	391:57:00	23517	911968	12,052,981	28,794	4,965,917	1.22	5.44	
	6/24/15 8:03	279:09:00	16749	888451	12,024,187	40,677	4,937,123	2.43	5.56	4.47
	6/12/15 16:54	364:14:00	21854	871702	11,983,510	133,247	4,896,446	6.10	5.62	
	5/28/15 12:40	290:25:00	17425	849848	11,850,263	112,626	4,763,199	6.46	5.60	
	5/16/15 10:15	528:02:00	31682	832423	11,737,637	201,437	4,650,573	6.36	5.59	
	4/24/15 10:13	811:06:00	48666	800741	11,536,200	99,116	4,449,136	2.04	5.56	
	3/21/15 15:07	358:19:00	21499	752075	11,437,084	197,217	4,350,020	9.17	5.78	
	3/6/15 16:48	362:20:00	21740	730576	11,239,867	176,085	4,152,803	8.10	5.68	5.98
	2/19/15 14:28	310:37:00	18637	708836	11,063,782	161,237	3,976,718	8.65	5.61	
	2/6/15 15:51	343:10:00	20590	690199	10,902,545	151,070	3,815,481	7.34	5.53	
	1/23/15 8:41	496:49:00	29809	669609	10,751,475	218,143	3,664,411	7.32	5.47	
	1/2/15 15:52	344:01:00	20641	639800	10,533,332	150,572	3,446,268	7.29	5.39	
	12/19/14 7:51	335:36:00	20136	619159	10,382,760	132,076	3,295,696	6.56	5.32	
	12/5/14 8:15	328:30:00	19710	599023	10,250,684	139,764	3,163,620	7.09	5.28	6.73
	11/21/14 15:45	175:54:00	10554	579313	10,110,920	75,143	3,023,856	7.12	5.22	
	11/14/14 7:51	359:34:00	21574	568759	10,035,777	97,149	2,948,713	4.50	5.18	
	10/30/14 8:17	329:05:00	19745	547185	9,938,628	144,436	2,851,564	7.32	5.21	
	10/16/14 15:12	175:12:00	10512	527440	9,794,192	59,801	2,707,128	5.69	5.13	
	10/9/14 8:00	0:00:00	0	516928	9,734,391	0	2,647,327	0.00	5.12	
	10/9/14 8:00	160:00:00	9600	516928	1,787,211	0	2,647,327	0.00	5.12	
	10/2/14 16:00	239:20:00	14360	507328	1,787,211	0	2,647,327	0.00	5.22	
	9/22/14 16:40	335:37:00	20137	492968	1,787,211	61,207	2,647,327	3.04	5.37	4.30
	9/8/14 17:03	432:49:00	25969	472831	1,726,004	171,934	2,586,120	6.62	5.47	
	8/21/14 16:14	239:59:00	14399	446862	1,554,070	86,325	2,414,186	6.00	5.40	
	8/11/14 16:15	411:34:00	24694	432463	1,467,745	128,311	2,327,861	5.20	5.38	
	7/25/14 12:41	388:21:00	23301	407769	1,339,434	107,093	2,199,550	4.60	5.39	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
EW-4 (Con't.)	7/9/14 8:20	284:18:00	17058	384468	1,232,341	106,920	2,092,457	6.27	5.44	
	6/27/14 12:02	339:29:00	20369	367410	1,125,421	129,803	1,985,537	6.37	5.40	
	6/13/14 8:33	336:53:00	20213	347041	995,618	120,239	1,855,734	5.95	5.35	
	5/30/14 7:40	72:09:00	4329	326828	875,379	31,258	1,735,495	7.22	5.31	15.23
	5/27/14 7:31	383:43:00	23023	322499	844,121	159,739	1,704,237	6.94	5.28	
	5/11/14 7:48	398:41:00	23921	299476	684,382	148,769	1,544,498	6.22	5.16	
	4/24/14 17:07	344:35:00	20675	275555	535,613	178,129	1,395,729	8.62	5.06	
	4/10/14 8:32	384:20:00	23060	254880	357,484	165,035	1,217,600	7.16	4.78	
	3/25/14 8:12	92:53:00	5573	231820	192,449	37,316	1,052,565	6.70	4.54	
	3/21/14 11:19	261:39:00	15699	226247	155,133	95,296	1,015,249	6.07	4.49	
	3/10/14 13:40	2:25:00	145	210548	59,837	0	919,953	0.00	4.37	
	3/10/14 11:15	257:20:00	15440	210403	919,953	11	919,953	0.00	4.37	
	2/27/14 17:55	24:37:00	1477	194963	919,942	7,207	919,942	4.88	4.72	4.75
	2/26/14 17:18	338:48:00	20328	193486	912,735	93,585	912,735	4.60	4.72	
	2/12/14 14:30	315:10:00	18910	173158	819,150	83,105	819,150	4.39	4.73	
	1/30/14 11:20	18:49:00	1129	154248	736,045	4,484	736,045	3.97	4.77	
	1/29/14 16:31	23:23:00	1403	153119	731,561	6,036	731,561	4.30	4.78	
	1/28/14 17:08	336:09:00	20169	151716	725,525	93,814	725,525	4.65	4.78	
	1/14/14 16:59	103:22:00	6202	131547	631,711	31,271	631,711	5.04	4.80	
	1/10/14 9:37	40:09:00	2409	125345	600,440	28	600,440	0.01	4.79	
	1/8/14 17:28	297:38:00	17858	122936	600,412	77,976	600,412	4.37	4.88	
	12/27/13 7:50	350:44:00	21044	105078	522,436	52,971	522,436	2.52	4.97	
	12/12/13 17:06	408:19:00	24499	84034	469,465	64,735	469,465	2.64	5.58	
	11/25/13 16:47	337:48:00	20268	59535	404,730	126,482	404,730	6.24	6.79	
	11/11/13 14:59	142:50:00	8570	39267	278,248	59,004	278,248	6.88	7.08	4.80
	11/5/13 16:09	190:24:00	11424	30697	219,244	80,779	219,244	7.07	7.13	
	10/28/13 17:45	6:29:00	389	19273	138,465	2,504	138,465	6.44	7.16	
	10/28/13 11:16	244:03:00	14643	18884	135,961	104,751	135,961	7.15	7.18	
	10/18/13 7:13	65:39:00	3939	4241	31,210	28,570	31,210	7.25	7.27	
	10/15/13 13:34	4:17:00	257	302	2,640	1,735	2,640	6.75	7.44	
	10/15/13 9:17	0:45:00	45	45	905	512	905	11.38	11.38	
	10/15/13 8:32	—	—	—	393	393	393	—	—	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
Totalized	7/23/15 14:46	310:46:00	18646	930614	25,217,101	177,912	14,653,100	9.54	15.74	
	7/10/15 16:00	391:57:00	23517	911968	25,039,189	250,165	14,475,188	10.64	15.87	
	6/24/15 8:03	279:09:00	16749	888451	24,789,024	194,402	14,225,023	11.61	16.01	13.03
	6/12/15 16:54	364:14:00	21854	871702	24,594,622	327,496	14,030,621	14.99	16.09	
	5/28/15 12:40	290:25:00	17425	849848	24,267,126	265,124	13,703,125	15.22	16.12	
	5/16/15 10:15	528:02:00	31682	832423	24,002,002	477,312	13,438,001	15.07	16.14	
	4/24/15 10:13	811:06:00	48666	800741	23,524,690	513,138	12,960,689	10.54	16.18	
	3/21/15 15:07	358:19:00	21499	752075	23,011,552	381,298	12,447,551	17.74	16.55	
	3/6/15 16:48	362:20:00	21740	730576	22,630,254	340,912	12,066,253	15.68	16.51	15.23
	2/19/15 14:28	310:37:00	18637	708836	22,289,342	302,162	11,725,341	16.21	16.54	
	2/6/15 15:51	343:10:00	20590	690199	21,987,180	459,390	11,423,179	22.31	16.55	
	1/23/15 8:41	496:49:00	29809	669609	21,527,790	664,025	10,963,789	22.28	16.37	
	1/2/15 15:52	344:01:00	20641	639800	20,863,765	458,156	10,299,764	22.20	16.10	
	12/19/14 7:51	335:36:00	20136	619159	20,405,609	397,829	9,841,608	19.76	15.89	
	12/5/14 8:15	328:30:00	19710	599023	20,007,780	510,498	9,443,779	25.90	15.76	21.87
	11/21/14 15:45	175:54:00	10554	579313	19,497,282	357,759	8,933,281	33.90	15.42	
	11/14/14 7:51	359:34:00	21574	568759	19,139,523	378,154	8,575,522	17.53	15.08	
	10/30/14 8:17	329:05:00	19745	547185	18,761,369	342,559	8,197,368	17.35	14.98	
	10/16/14 15:12	335:12:00	20112	527440	18,418,810	202,108	7,854,809	10.05	14.89	
	10/2/14 16:00	239:20:00	14360	507328	19,827,921	205,065	7,652,701	14.28	15.08	
	9/22/14 16:40	335:37:00	20137	492968	19,622,856	316,257	7,447,636	15.71	15.10	
	9/8/14 17:03	432:49:00	25969	472831	19,306,599	377,670	7,131,379	14.54	15.08	15.64
	8/21/14 16:14	239:59:00	14399	446862	18,928,929	200,253	6,753,709	13.91	15.11	
	8/11/14 16:15	411:34:00	24694	432463	18,728,676	509,666	6,553,456	20.64	15.15	
	7/25/14 12:41	388:21:00	23301	407769	18,219,010	425,032	6,043,790	18.24	14.82	
	7/9/14 8:20	284:18:00	17058	384468	17,793,978	365,674	5,618,758	21.44	14.61	
	6/27/14 12:02	339:29:00	20369	367410	17,428,304	430,404	5,253,084	21.13	14.29	
	6/13/14 8:33	336:53:00	20213	347041	16,997,900	382,082	4,822,680	18.90	13.89	
	5/30/14 7:40	72:09:00	4329	326828	16,615,818	84,136	4,440,598	19.44	13.58	19.16
	5/27/14 7:31	383:43:00	23023	322499	16,531,682	419,469	4,356,462	18.22	13.50	
	5/11/14 7:48	398:41:00	23921	299476	16,112,213	379,378	3,936,993	15.86	13.14	
	4/24/14 17:07	344:35:00	20675	275555	15,732,835	421,250	3,557,615	20.37	12.91	

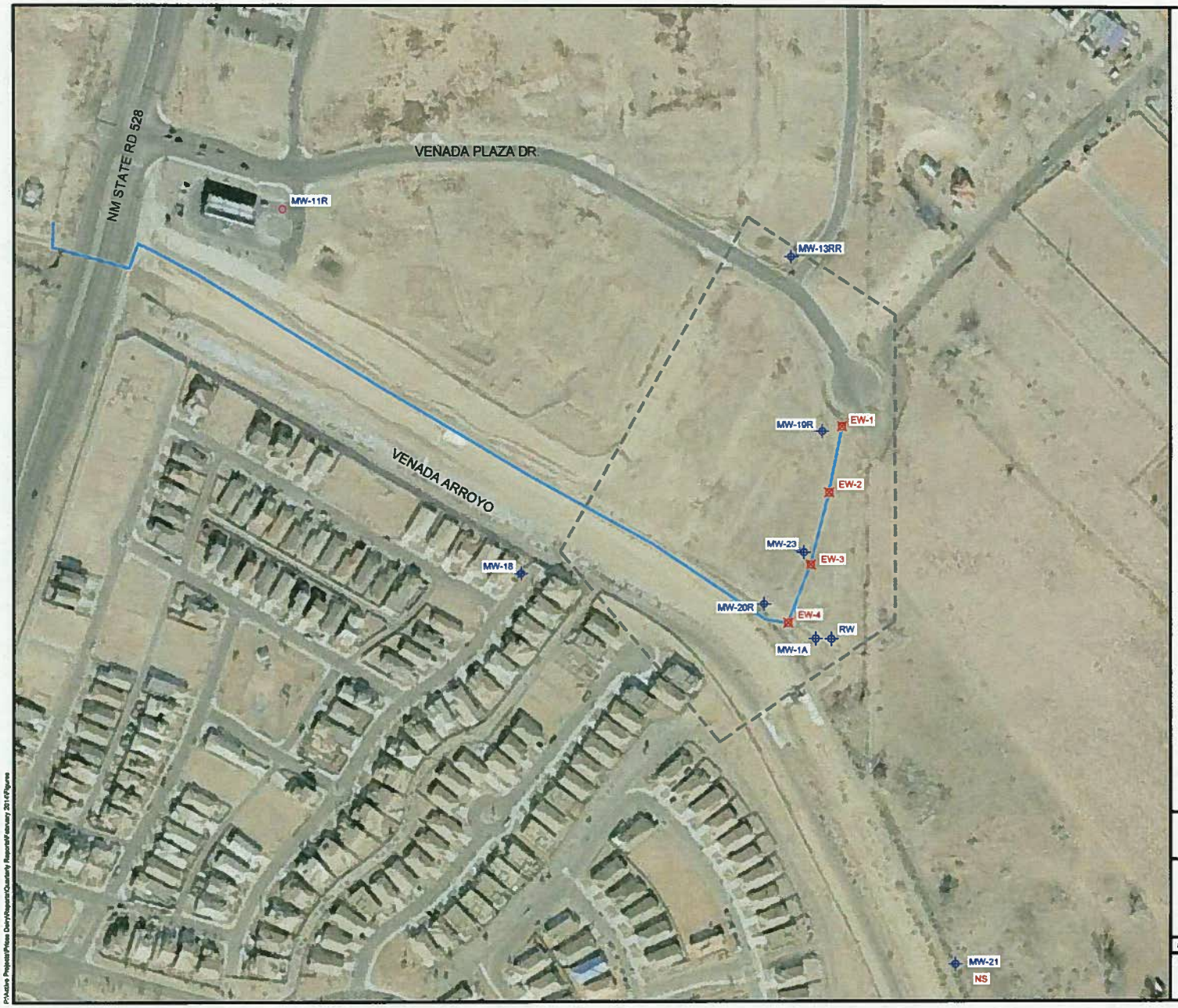
TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
Totalized (Con't.)	4/10/14 8:32	384:20:00	23060	254880	15,311,585	417,025	3,136,365	18.08	12.30	
	3/25/14 8:12	92:53:00	5573	231820	14,894,560	92,054	2,719,340	16.52	11.72	
	3/21/14 11:19	261:39:00	15699	226247	14,802,506	239,058	2,627,286	15.23	11.61	
	3/10/14 13:40	13:40:00	820	210548	14,563,448	0	2,388,228	0.00	11.34	
	3/10/14 0:00	246:05:00	14765	209728	2,388,228	47,764	2,388,228	3.23	11.38	
	2/27/14 17:55	24:37:00	1477	194963	2,340,464	17,698	2,340,464	11.98	12.00	11.58
	2/26/14 17:18	338:48:00	20328	193486	2,322,766	239,426	2,322,766	11.78	12.00	
	2/12/14 14:30	315:10:00	18910	173158	2,083,340	215,556	2,083,340	11.40	12.02	
	1/30/14 11:20	18:49:00	1129	154248	1,867,784	6,469	1,867,784	5.73	12.10	
	1/29/14 16:31	23:23:00	1403	153119	1,861,315	8,803	1,861,315	6.27	12.15	
	1/28/14 17:08	336:09:00	20169	151716	1,852,512	144,787	1,852,512	7.18	12.20	
	1/14/14 16:59	103:22:00	6202	131547	1,707,725	75,992	1,707,725	12.25	12.97	
	1/10/14 9:37	40:09:00	2409	125345	1,631,733	18,377	1,631,733	7.63	13.01	
	1/8/14 17:28	297:38:00	17858	122936	1,613,356	218,935	1,613,356	12.26	13.11	
	12/27/13 7:50	350:44:00	21044	105078	1,394,421	271,463	1,394,421	12.90	13.26	
	12/12/13 17:06	408:19:00	24499	84034	1,122,958	190,556	1,122,958	7.78	13.35	
	11/25/13 16:47	337:48:00	20268	59535	932,402	317,707	932,402	15.68	15.64	
	11/11/13 14:59	142:50:00	8570	39267	614,695	135,596	614,695	15.82	15.62	12.97
	11/5/13 16:09	190:24:00	11424	30697	479,099	187,191	479,099	16.39	15.56	
	10/28/13 17:45	6:29:00	389	19273	291,908	6,393	291,908	16.43	15.07	
	10/28/13 11:16	244:03:00	14643	18884	285,515	215,481	285,515	14.72	15.04	
	10/18/13 7:13	65:39:00	3939	4241	70,034	63,173	70,034	16.04	16.18	
	10/15/13 13:34	4:17:00	257	302	6,861	3,920	6,861	15.25	18.03	
	10/15/13 9:17	0:45:00	45	45	2,941	1,524	2,941	33.87	33.87	
	10/15/13 8:32	—	—	—	1,417	1,417	1,417	—	—	

TABLE 5. CALCULATION OF SYSTEM FLOW RATES
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date and Time	Elapsed Time (HH:MM:SS)	Elapsed Time (min)	Total elapsed Time (min)	Flow Meter Reading (gallons)	Extracted Volume Between Events (gallons)	Total Extracted Volume (gallons)	Average Flow Rate Between Events (gpm)	Average Flow Rate Since Start-up (gpm)	Quarterly Average Flow Rate (gpm)
NOTES: gpm = Gallons per minute HH:MM:SS = Hours: Minutes: Seconds min = minutes Changed flow meter on 3/10/14										

FIGURES



LEGEND:

- EW-1 EXTRACTION WELLS
- MW-23 VALLEY FILL AQUIFER MONITORING WELL
- MW-11R UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE

N

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 1
SITE LAYOUT

PROJECT #:	1506901	PROJECT PHASE:	04	PROJECT MANAGER:	JS

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.
320 Gold Avenue SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9016

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LEGEND:

- EW-1 — EXTRACTION WELLS
- MW-23 — VALLEY FILL AQUIFER MONITORING WELL
- MW-11R — UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE
- GROUNDWATER FLOW DIRECTION

NOTE:

GROUNDWATER LEVELS IN THE EXTRACTION WELLS EXPERIENCES FREQUENT CHANGES DUE TO THE CYCLING OF THE PUMPS. THEREFORE, THESE ELEVATIONS WERE NOT USED TO FOR CONTOURING.

N

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 2
GROUNDWATER ELEVATIONS
JULY 2015

PROJECT #:	1508901	PROJECT PHASE:	04	PROJECT MANAGER:	JS

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.
320 Gold Avenue, SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9016

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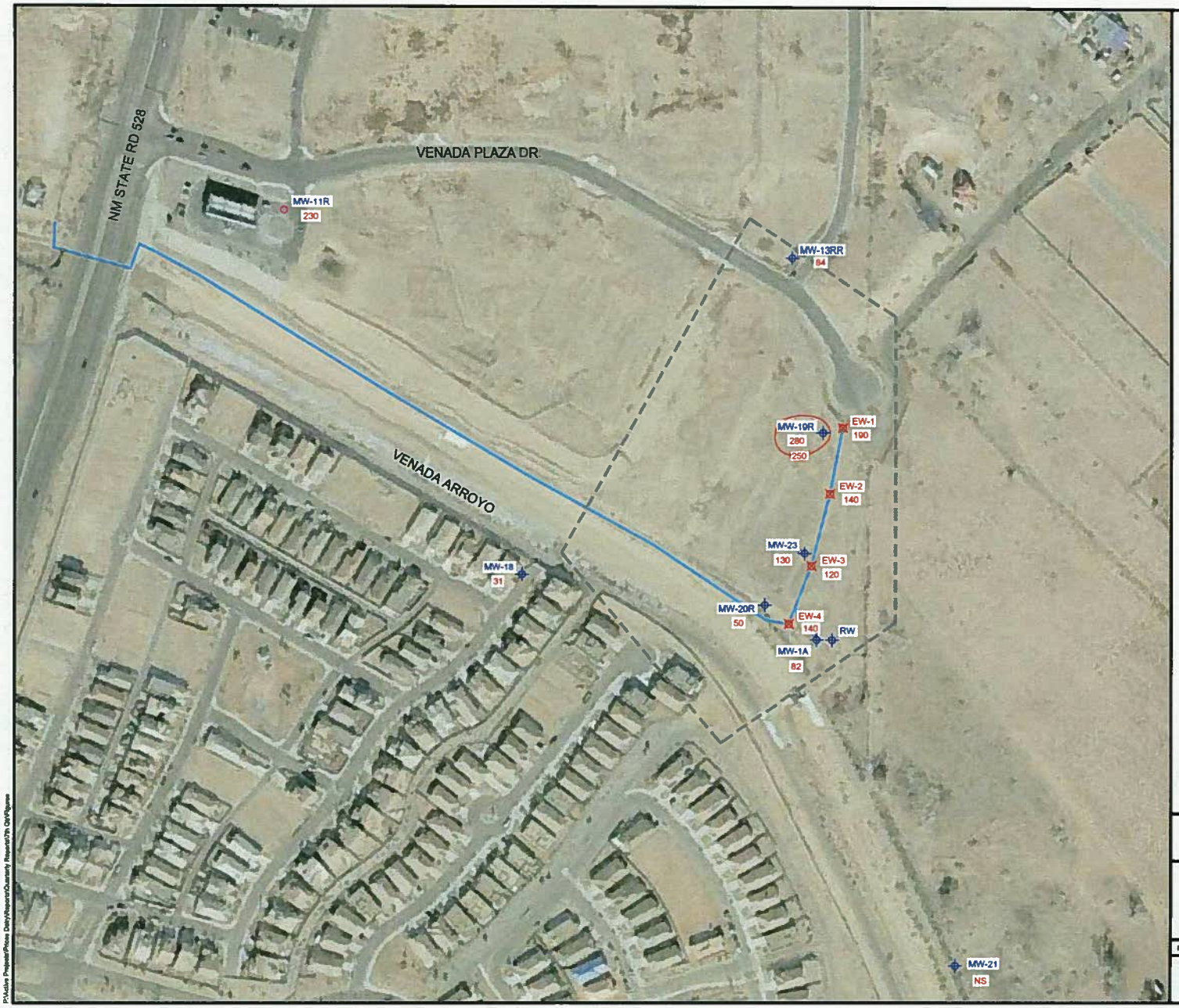

LEGEND:

- EW-1 — EXTRACTION WELLS
- MW-23 — VALLEY FILL AQUIFER MONITORING WELL
- MW-11R — UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE
- 250 — CHLORIDE CONCENTRATION CONTOUR
- NS — NOT SAMPLED

NOTE:

VALUES NEXT TO WELLS INDICATE CHLORIDE CONCENTRATIONS IN GROUNDWATER SAMPLES (mg/L).

N

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 3
CHLORIDE CONCENTRATIONS IN GROUNDWATER, JULY 2015

PROJECT #:	150801	PROJECT PHASE:	04	PROJECT MANAGER:	JS

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.
320 Gold Avenue, SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9016

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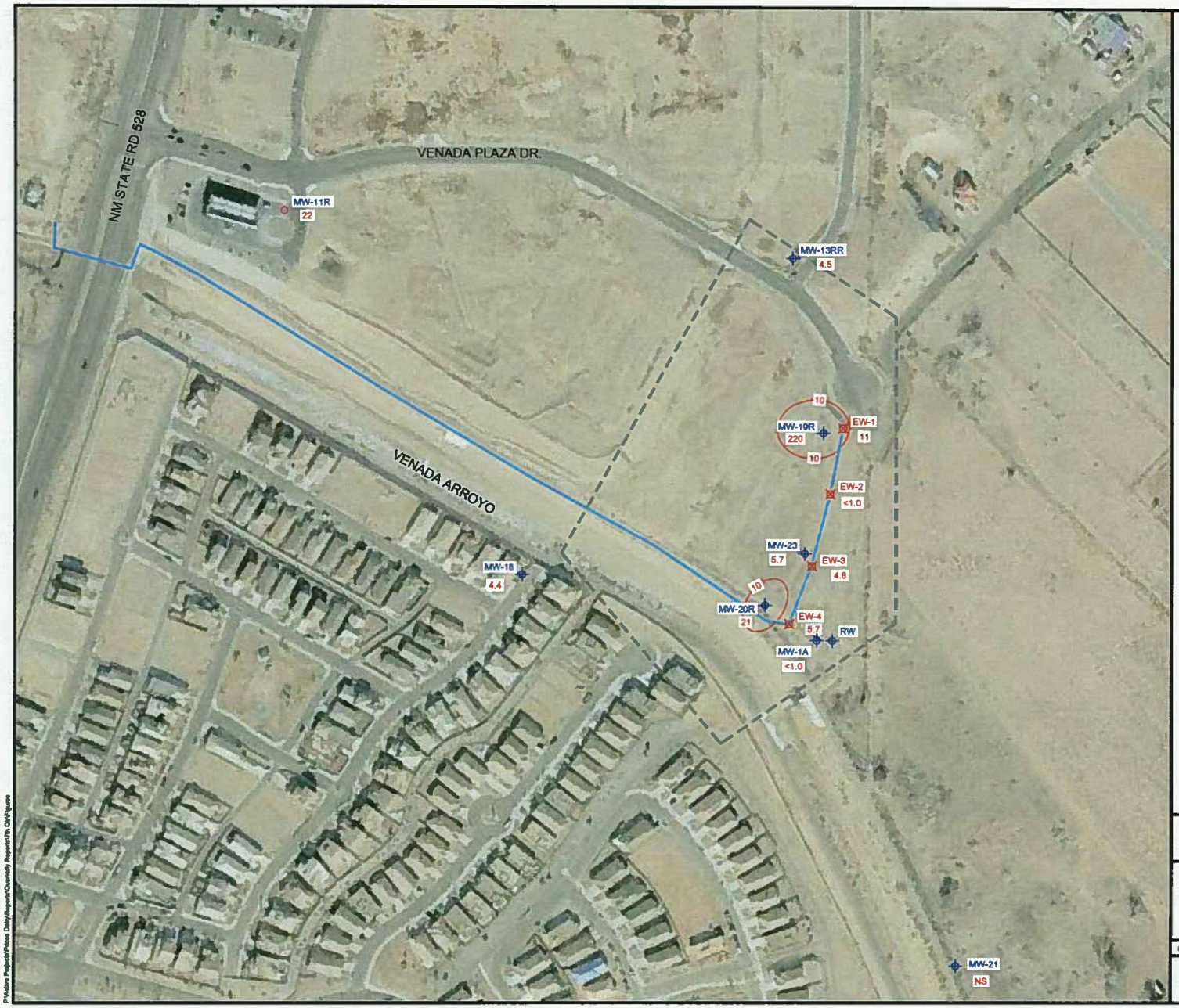

LEGEND:

- EW-1 — EXTRACTION WELLS
- MW-23 — VALLEY FILL AQUIFER MONITORING WELL
- MW-11R — UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE
- 10 — NITRATE CONCENTRATION CONTOUR MILLIGRAMS PER LITER (mg/L)
- NS — NOT SAMPLED

NOTE:

VALUES NEXT TO WELLS INDICATE NITRATE CONCENTRATIONS IN GROUNDWATER SAMPLES (mg/L).

N

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 4
NITRATE CONCENTRATIONS IN GROUNDWATER, JULY 2015

PROJECT #:	1508901	PROJECT PHASE:	04	PROJECT MANAGER:	JS

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.
320 Gold Avenue, SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9018

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LEGEND:

- EW-1 — EXTRACTION WELLS
- MW-23 — VALLEY FILL AQUIFER MONITORING WELL
- MW-11R — UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE
- 1000 — TOTAL DISSOLVED SOLIDS CONCENTRATION CONTOUR IN MILLIGRAMS PER LITER (mg/L)
- NS — NOT SAMPLED

NOTE:

VALUES NEXT TO WELLS INDICATE TOTAL DISSOLVED SOLIDS (TDS) CONCENTRATIONS IN GROUNDWATER SAMPLES (mg/L).

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 5
TDS IN GROUNDWATER
JULY 2015

PROJECT #:	1500901	PROJECT PHASE:	04	PROJECT MANAGER:	JS

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.
320 Gold Avenue, SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-0013
Fax: (505) 224-0016

P:\Active Projects\Prices Dairy\Reports\Quarterly Reports\With GW\Figures

APPENDIX A
FIELD FORMS

EA Engineering, Science, and Technology
320 Gold Avenue SW, Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-1A
Site: Price's Dairy
Depth to PSH: — Feet
Depth to water: 33.77 Feet
Total depth: 51.70 Feet
NAPL thickness: — Feet

Date gauged: 7/23/15
Time gauged: 0824
Well diameter: 2 Inches
Height of fluid column: 17.93 Feet
Volume in well: 3.0 Gallons

(3 well volumes = 90 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Hand Bailed

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
0829	0.25	19.3	1734	6.83		0.83
0838	4.5	18.7	1819	7.16		
0846	8.75	18.5	1213	7.18		

Actual purge volume: 9.0 gal.
Field measurements stabilized within ± 10%? Yes

Time/date sampled: 0848
Purged/sampled by: T. Curley

Sample method: Clean bailer
Requested analyses: Nitrate chloride TDS

Comments/observations:

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-13RR
Site: Prices Dairy
Depth to PSH: — Feet
Depth to water: 53.55 Feet
Total depth: 66.80 Feet
NAPL thickness: — Feet
Date gauged: 7/23/15
Time gauged: 0904
Well diameter: 2 Inches
Height of fluid column: 13.25 Feet
Volume in well: 2.25 Gallons
(3 well volumes = 6.75 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Hand bailed

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
0908	0.25	20.2	801	7.93		1.04
0919	3.5	19.2	791	7.76		
0930	6.75	19.1	792	7.77		

Actual purge volume: 7.0 gal.
Field measurements stabilized within ± 10%? Yes
Time/date sampled: 0932
Purged/sampled by: T. Curley
Sample method: Clean bailer
Requested analyses: Nitrate Chloride TDS
Comments/observations:

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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Albuquerque, NM 87102
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MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-18
Site: Price's Dairy
Date gauged: 7/23/15
Time gauged: 1000

Depth to PSH: — Feet
Well diameter: 2 Inches
Depth to water: 39.20 Feet
Height of fluid column: 12.9 Feet
Total depth: 52.10 Feet
Volume in well: 2.2 Gallons
NAPL thickness: — Feet

(3 well volumes = 6.6 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Hand Bailed

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1004	0.25	19.7	433	7.84		7.63
1012	3.5	18.41	464	7.80		
1020	6.5	18.3	464	7.77		

Actual purge volume: 6.75 gal.
Field measurements stabilized within ± 10%? Yes

Time/date sampled: 1027
Purged/sampled by: T. Curley

Sample method: Clean bailer
Requested analyses: Nitrate Chloride TDS

Comments/observations: _____

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

EA Engineering, Science, and Technology
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Albuquerque, NM 87102
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MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-23
Site: Price's Dairy
Depth to PSH: — Feet
Depth to water: 34.98 Feet
Total depth: 42.55 Feet
NAPL thickness: — Feet

Date gauged: 7/23/15
Time gauged: 1045
Well diameter: 2 Inches
Height of fluid column: 7.57 Feet
Volume in well: 1.28 Gallons

(3 well volumes = 3.84 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Hand bailed

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1051	0.25	~~17.7~~ 20.7	1700	7.17		1.07
1055	2.0	18.8	1702	7.16		
1100	3.75	18.5	1734	7.17		

Actual purge volume: 4.0 gal.
Field measurements stabilized within ± 10%? No

Time/date sampled: 1102
Purged/sampled by: T Curley

Sample method: clean bailer
Requested analyses: Nitrate Chloride TDS
Comments/observations:

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-11R
Site: Price's Dairy
Date gauged: 7/23/15
Time gauged:
Depth to PSH: — Feet
Well diameter: 2 Inches
Depth to water: ~~83.95~~ 83.95 Feet
Height of fluid column: 7.45 Feet
Total depth: ~~87.50~~ 91.40 Feet
Volume in well: 1.76 Gallons
NAPL thickness: — Feet
(3 well volumes = 3.78 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Hand bailed

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1102	0.25	20.7	1513	7.41		6.38
1135	2.0	19.5	1531	7.35		
1146	3.75	18.9	1541	7.33		

Actual purge volume: 4.0 gal.
Field measurements stabilized within ± 10%? Yes
Time/date sampled: 1142
Purged/sampled by: T. Curley
Sample method: Clean bailer
Requested analyses: Nitrate chloride TDS
Comments/observations:

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-19R
Site: Price's Dairy
Depth to PSH: — Feet
Depth to water: 34.57 Feet
Total depth: 40.40 Feet
NAPL thickness: — Feet

Date gauged: 7/23/15
Time gauged: 12.50
Well diameter: 2 inches
Height of fluid column: 5.83 Feet
Volume in well: 0.99 Gallons

(3 well volumes = 2.97 gallons)

After Bailing NAPL
Depth to PSH _____ Feet
Depth to water _____ Feet
NAPL thickness _____ Feet
NAPL Recovered _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Hand bailed

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1255	0.25	21.0	3680	6.88		1.31
1300	1.5	19.5	3810	6.90		
1305	2.75	18.7	3870	6.90		

Actual purge volume: 3.0 gal.
Field measurements stabilized within ± 10%? No

Time/date sampled: 1305
Purged/sampled by: T. Curley

Sample method: Clean Bailer
Requested analyses: Nitrate Chloride TDS

Comments/observations: _____

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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Albuquerque, NM 87102
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MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-20R
Site: Price's Dairy
Depth to PSH: — Feet
Depth to water: 33.73 Feet
Total depth: 40.65 Feet
NAPL thickness: — Feet

Date gauged: 7/23/15
Time gauged: 1326
Well diameter: 2 Inches
Height of fluid column: 6.92 Feet
Volume in well: 1.07 Gallons

(3 well volumes = 3.51 gallons)

After Bailing NAPL
Depth to PSH _____ Feet
Depth to water _____ Feet
NAPL thickness _____ Feet
NAPL Recovered _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Hand bailed

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1330	0.25	20.9	1753	7.34		0.94
1335	~~2.75~~ 2.0	20.0	1078	7.28		
1339	3.50	19.0	1079	7.28		

Actual purge volume: 3.75 gal.
Field measurements stabilized within ± 10%? ~~Yes~~ No

Time/date sampled: ~~1341~~ 1341
Purged/sampled by: T. Curley

Sample method: Clean bailer
Requested analyses: Nitrate Chloride TDS

Comments/observations: _____

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: EW-1
Site: Ricks Dairy
Date gauged: 7/23/15
Time gauged: 1436

Depth to PSH: — Feet
Well diameter: [illegible] Inches
Depth to water: 38.50 Feet
Height of fluid column: _____ Feet
Total depth: _____ Feet
Volume in well: _____ Gallons
NAPL thickness: — Feet

(3 well volumes = _____ gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Pump

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1436		21.9	826	7.34		2.02

Actual purge volume _____ gal.
Field measurements stabilized within ± 10%? _____

Time/date sampled: 1438
Purged/sampled by: T. Curley

Sample method: Sample tap
Requested analyses: Nitrate Chloride TDS

Comments/observations: _____

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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Albuquerque, NM 87102
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MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: EW-2
Site: Price's Dairy
Date gauged: 7/23/15
Time gauged: 1416

Depth to PSH: _____ Feet
Depth to water: 37.85 Feet
Total depth: _____ Feet
NAPL thickness: _____ Feet

Well diameter: _____ Inches
Height of fluid column: _____ Feet
Volume in well: _____ Gallons

(3 well volumes = _____ gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Pump

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1417		21.5	1457	7.51		

Actual purge volume _____ gal.
Field measurements stabilized within ± 10%? _____

Time/date sampled: 1419
Purged/sampled by: T. Curley

Sample method: Tap
Requested analyses: Nitrate Chloride TDS

Comments/observations: _____

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: EW-3
Site: Price's Dairy
Date gauged: 7/23/15
Time gauged: 1354

Depth to PSH _____ Feet
Depth to water _____ Feet
Total depth _____ Feet
NAPL thickness _____ Feet

Well diameter _____ Inches
Height of fluid column _____ Feet
Volume in well _____ Gallons

(3 well volumes = _____ gallons)

After Bailing NAPL
Depth to PSH _____ Feet
Depth to water _____ Feet
NAPL thickness _____ Feet
NAPL Recovered _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged _____ Purge Method: Pump

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
0745	5,183510	Turn on pump				
1357	5,190307					
1358		20.9	1466	7.38		1.50

Actual purge volume _____ gal.
Field measurements stabilized within ± 10%? _____

Time/date sampled: 1402
Purged/sampled by: T. Curley

Sample method: Sample tap
Requested analyses: Nitrate Chloride TDS

Comments/observations _____

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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320 Gold Avenue SW, Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: EW-4
Site: Price's Dairy
Depth to PSH: — Feet
Depth to water: 32.70 Feet
Total depth: _____ Feet
NAPL thickness: — Feet

Date gauged: 7/23/15
Time gauged: 1446
Well diameter: _____ Inches
Height of fluid column: _____ Feet
Volume in well: _____ Gallons

(3 well volumes = _____ gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: _____
Purge Method: Pump

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1450		22.5	1594	7.51		

Actual purge volume _____ gal.
Field measurements stabilized within ± 10%? _____

Time/date sampled: 1452
Purged/sampled by: T. Cosby

Sample method: Sample Tap
Requested analyses: Nitrate Chloride TDS
Comments/observations: Pump was not on. Turned pump on for ~ 50 min then sampled.

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

FORMER PRICE'S VALLEY GOLD DAIRY				
Date & Time: 7/23/15		Personnel: T. Corley		
Electric Meter Reading: 7391				
Well ID:	Meter Reading (gal)	DTW (ft.)	Nitrate (ppm)	Notes:
EW-1:	1,096,265	38.50	10	
EW-2	6,883,225	37.85	0-5	
EW-3	5190307	36.90	0-5	
EW-4	2117,304	32.70	0-5	
Visual Inspection of Outfall:				

EW-4 was not operating properly. Turned well flowmeter off after sampling & turned on EW-3.

Chain-of-Custody Record

Client: EA Engineering

Mailing Address: 320 Gold Ave Ste 1310

ABQ NM 87102

Phone #: 505-224-9013

email or Fax#: tcurley@eaest.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other ____

☐ EDD (Type) ____

Turn-Around Time:

☒ Standard ☐ Rush ____

Project Name: Arcos Daily

Project #: 1505701

Project Manager: Jay Snyder

Sampler: Tyler Corley

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Nitrate/Chloride/TDS				Air Bubbles (Y or N)
7/21/15	[illegible]	Aq	MW-1A	3x40ml	None/H_2SO_4	-												X				
	1142		MW-11R	↓	↓													X				
	0952		MW-13RR															X				
	1022		MW-18															X				
	1305		MW-19R															X				
	1341		MW-20R															X				
	1102		MW-23															X				
	1438		EW-1															X				
	1419		EW-2															X				
	1402		EW-3															X				
	1452		EW-4	↓	↓													X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/21/15	1551	[signature]	[signature]	7/21/15	1551
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

FORMER PRICE'S VALLEY GOLD DAIRY				
Date & Time: 5/28/15		Personnel: T. Curl/o1		
Electric Meter Reading: 68509				
Well ID:	Meter Reading (gal)	DTW (ft.)	Nitrate (ppm)	Notes:
EW-1:	856,802	—	10	@12:26
EW-2	6,376,551	—	0-5	@ 12:31
EW-3	off			
EW-4	1,850,263	—	0	@10:40
Visual Inspection of Outfall:				

FORMER PRICE'S VALLEY GOLD DAIRY				
Date & Time: 6/12/15		Personnel: T. Custer		
Electric Meter Reading: 69779				
Well ID:	Meter Reading (gal)	DTW (ft.)	Nitrate (ppm)	Notes:
EW-1:	909,752	—	10	@1640
EW-2	6,517,850	—	0-5	@1649
EW-3	off	—	NA	
EW-4	1,983,510	—	0	@1654
Visual Inspection of Outfall:	No visible leaks			

FORMER PRICE'S VALLEY GOLD DAIRY				
Date & Time: 6/24/15		Personnel: T. Curtay		
Electric Meter Reading:				
Well ID:	Meter Reading (gal)	DTW (ft.)	Nitrate (ppm)	Notes:
EW-1:	957923	—	10	7:45
EW-2	6,623,402		0	7:53
EW-3	off			
EW-4	2,024,187		0	8:03
Visual Inspection of Outfall:				

FORMER PRICE'S VALLEY GOLD DAIRY				
Date & Time: 7/10/15		Personnel: T. Curley		
Electric Meter Reading:				
Well ID:	Meter Reading (gal)	DTW (ft.)	Nitrate (ppm)	Notes:
EW-1:	1034630	—	10	
EW-2	6,768068	—	0	
EW-3	off			
EW-4	2,052,981	—	0	
Visual Inspection of Outfall:	No Visible leaks			

EW-4 flowmeter was clogged, disassembled & cleaned flowmeter.

APPENDIX B
ANALYTICAL LABORATORY RESULTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 29, 2015

Jay Snyder
EA Engineering
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL:
FAX

RE: Prices Dairy OrderNo.: 1507B19

Dear Jay Snyder:

Hall Environmental Analysis Laboratory received 11 sample(s) on 7/23/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1507B19**
Date Reported: **7/29/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-001
Matrix: AQUEOUS
Client Sample ID: MW-1A
Collection Date: 7/23/2015 8:48:00 AM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	82	5.0		mg/L	10	7/23/2015 7:05:26 PM	R27725
Nitrogen, Nitrate (As N)	ND	1.0		mg/L	10	7/23/2015 7:05:26 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	820	40.0	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-002
Matrix: AQUEOUS
Client Sample ID: MW-11R
Collection Date: 7/23/2015 11:42:00 AM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	230	50		mg/L	100	7/23/2015 8:07:29 PM	R27725
Nitrogen, Nitrate (As N)	22	1.0	*	mg/L	10	7/23/2015 7:55:04 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	1250	200	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-003

Client Sample ID: MW-13RR
Collection Date: 7/23/2015 9:32:00 AM
Matrix: AQUEOUS **Received Date:** 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	84	5.0		mg/L	10	7/23/2015 8:19:53 PM	R27725
Nitrogen, Nitrate (As N)	4.5	1.0		mg/L	10	7/23/2015 8:19:53 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	468	40.0		mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-004

Client Sample ID: MW-18
Collection Date: 7/23/2015 10:22:00 AM
Matrix: AQUEOUS **Received Date:** 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	31	5.0		mg/L	10	7/23/2015 8:44:43 PM	R27725
Nitrogen, Nitrate (As N)	4.4	1.0		mg/L	10	7/23/2015 8:44:43 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**
Total Dissolved Solids	300	40.0		mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-005
Matrix: AQUEOUS

Client Sample ID: MW-19R
Collection Date: 7/23/2015 1:05:00 PM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	280	50	*	mg/L	100	7/23/2015 9:46:45 PM	R27725
Nitrogen, Nitrate (As N)	220	10	*	mg/L	100	7/23/2015 9:46:45 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**
Total Dissolved Solids	3310	200	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-006
Matrix: AQUEOUS
Client Sample ID: MW-20R
Collection Date: 7/23/2015 1:41:00 PM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	50	5.0		mg/L	10	7/23/2015 9:59:10 PM	R27725
Nitrogen, Nitrate (As N)	21	1.0	*	mg/L	10	7/23/2015 9:59:10 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**
Total Dissolved Solids	680	200	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-007
Matrix: AQUEOUS
Client Sample ID: MW-23
Collection Date: 7/23/2015 11:02:00 AM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	130	5.0		mg/L	10	7/23/2015 10:23:59 PM	R27725
Nitrogen, Nitrate (As N)	5.7	1.0		mg/L	10	7/23/2015 10:23:59 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	1230	200	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-008
Matrix: AQUEOUS
Client Sample ID: EW-1
Collection Date: 7/23/2015 2:38:00 PM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	190	5.0		mg/L	10	7/23/2015 10:48:48 PM	R27725
Nitrogen, Nitrate (As N)	11	1.0	*	mg/L	10	7/23/2015 10:48:48 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**
Total Dissolved Solids	1300	20.0	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-009
Matrix: AQUEOUS
Client Sample ID: EW-2
Collection Date: 7/23/2015 2:19:00 PM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	140	5.0		mg/L	10	7/23/2015 11:13:37 PM	R27725
Nitrogen, Nitrate (As N)	ND	1.0		mg/L	10	7/23/2015 11:13:37 PM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**
Total Dissolved Solids	1040	20.0	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-010
Matrix: AQUEOUS
Client Sample ID: EW-3
Collection Date: 7/23/2015 2:02:00 PM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	120	5.0		mg/L	10	7/24/2015 12:03:15 AM	R27725
Nitrogen, Nitrate (As N)	4.8	1.0		mg/L	10	7/24/2015 12:03:15 AM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	995	20.0	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1507B19-011
Matrix: AQUEOUS
Client Sample ID: EW-4
Collection Date: 7/23/2015 2:52:00 PM
Received Date: 7/23/2015 3:51:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	140	5.0		mg/L	10	7/24/2015 12:28:04 AM	R27725
Nitrogen, Nitrate (As N)	5.7	1.0		mg/L	10	7/24/2015 12:28:04 AM	R27725
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	1070	20.0	*	mg/L	1	7/27/2015 11:49:00 AM	20433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507B19**

29-Jul-15

Client: EA Engineering
Project: Prices Dairy

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27725**	RunNo: **27725**
Prep Date:	Analysis Date: **7/23/2015**	SeqNo: **833510** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R27725**	RunNo: **27725**
Prep Date:	Analysis Date: **7/23/2015**	SeqNo: **833511** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.3	90	110			
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	93.0	90	110			

Sample ID **1507B19-001AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **MW-1A**	Batch ID: **R27725**	RunNo: **27725**
Prep Date:	Analysis Date: **7/23/2015**	SeqNo: **833523** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	130	5.0	50.00	82.45	97.8	81.2	116			
Nitrogen, Nitrate (As N)	23	1.0	25.00	0	91.3	87.3	111			

Sample ID **1507B19-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **MW-1A**	Batch ID: **R27725**	RunNo: **27725**
Prep Date:	Analysis Date: **7/23/2015**	SeqNo: **833524** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	130	5.0	50.00	82.45	99.7	81.2	116	0.697	20	
Nitrogen, Nitrate (As N)	23	1.0	25.00	0	92.6	87.3	111	1.34	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507B19**

29-Jul-15

Client: EA Engineering

Project: Prices Dairy

Sample ID	MB-20433	SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW	Batch ID:	20433		RunNo:	27770				
Prep Date:	7/24/2015	Analysis Date:	7/27/2015		SeqNo:	834805	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-20433	SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW	Batch ID:	20433		RunNo:	27770				
Prep Date:	7/24/2015	Analysis Date:	7/27/2015		SeqNo:	834806	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Sample ID	1507B19-004AMS	SampType:	MS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	MW-18	Batch ID:	20433		RunNo:	27770				
Prep Date:	7/24/2015	Analysis Date:	7/27/2015		SeqNo:	834816	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2380	40.0	2000	300.0	104	80	120			

Sample ID	1507B19-004AMSD	SampType:	MSD		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	MW-18	Batch ID:	20433		RunNo:	27770				
Prep Date:	7/24/2015	Analysis Date:	7/27/2015		SeqNo:	834817	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2390	40.0	2000	300.0	105	80	120	0.419	5	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: EA Engineering Alb Work Order Number: 1507B19 RcptNo: 1

Received by/date: LM 07/23/15

Logged By: Ashley Gallegos 7/23/2015 3:51:00 PM AG

Completed By: Ashley Gallegos 7/23/2015 4:04:30 PM AG

Reviewed By: JA 07/23/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 11 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.6	Good	Not Present			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Client: EA Engineering

Mailing Address: 320 Gold Ave Ste 910
ABQ NM 87102

Phone #: 505-224-9013

email or Fax#: tarley@eaest.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Alice's Dairy

Project #: 1505701

Project Manager: Jay Snyder

Sampler: Tyler Carley

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.6

HEAL No. 1507B19

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Nitrate/Chloride/TDS				Air Bubbles (Y or N)
7/23/15	0846	Aq	MW-1A	2xPoly	None/H_2SO_4	-001												X				
	1142		MW-11R			-002												X				
	0932		MW-13RR			-003												X				
	1022		MW-18			-004												X				
	1305		MW-19R			-005												X				
	1341		MW-20R			-006												X				
	1102		MW-23			-007												X				
	1438		EW-1			-008												X				
	1419		EW-2			-009												X				
	1402		EW-3			-010												X				
	1452		EW-4	↓	↓	-011												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/23/15	1951			07/23/15	1551
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 06, 2015

Jay Snyder
EA Engineering
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL: (505) 224-9013
FAX

RE: Prices Dairy OrderNo.: 1508044

Dear Jay Snyder:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/3/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1508044**
Date Reported: **8/6/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1508044-001
Matrix: AQUEOUS
Client Sample ID: MW-19R
Collection Date: 8/3/2015 11:53:00 AM
Received Date: 8/3/2015 1:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	210	50		mg/L	100	8/3/2015 4:55:01 PM	R27933
Nitrogen, Nitrate (As N)	140	10	*	mg/L	100	8/3/2015 4:55:01 PM	R27933
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**
Total Dissolved Solids	2650	100	*	mg/L	1	8/5/2015 7:28:00 PM	20581

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508044**

06-Aug-15

Client: EA Engineering

Project: Prices Dairy

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27933**	RunNo: **27933**
Prep Date:	Analysis Date: **8/3/2015**	SeqNo: **840123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R27933**	RunNo: **27933**
Prep Date:	Analysis Date: **8/3/2015**	SeqNo: **840124** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.7	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508044**

06-Aug-15

Client: EA Engineering

Project: Prices Dairy

Sample ID **MB-20581**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-20581**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: EA Engineering Alb Work Order Number: 1508044 RcptNo: 1

Received by/date: [signature] 08/03/15

Logged By: Ashley Gallegos 8/3/2015 1:15:00 PM [signature]

Completed By: Ashley Gallegos 8/3/2015 2:29:42 PM [signature]

Reviewed By: [signature] 08/05/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples were collected the same day and chilled.
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐ # of preserved bottles checked for pH: 1 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐ Adjusted? —
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐ Checked by [signature]

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____
By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	7.8	Good	Not Present			

Chain-of-Custody Record

Client: EA Engineering

Mailing Address: 320 Gold Ave Ste 1210
ABQ NM 87102

Phone #: 505-884-9013

email or Fax#: tasley@eaest

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
~~☐ Standard~~ ☒ Rush 2 day

Project Name: Price's Dairy

Project #: 150570 1

Project Manager: Jay Snyder

Sampler: T. Casley

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1508044	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	N: Nitrate Chloride TDS				Air Bubbles (Y or N)
8/3/15	1153	Aq	MW-19R	2 poly	None/HNO3	-001												X				

Date: 8/3/15 Time: 1315 Relinquished by:

Received by: Date: 08/05/15 Time: 835

Date: Time: Relinquished by:

Received by: Date: Time:

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 14, 2015

Jay Snyder
EA Engineering
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL:
FAX

RE: Prices Dairy OrderNo.: 1508569

Dear Jay Snyder:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/12/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1508569**
Date Reported: **8/14/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1508569-001
Matrix: AQUEOUS
Client Sample ID: MW-1aR
Collection Date: 8/12/2015 2:25:00 PM
Received Date: 8/12/2015 2:55:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	260	10	*	mg/L	20	8/13/2015 3:00:56 AM	R28163
Nitrogen, Nitrate (As N)	170	2.0	*	mg/L	20	8/13/2015 3:00:56 AM	R28163
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**
Total Dissolved Solids	2460	100	*D	mg/L	1	8/14/2015 3:16:00 PM	20772

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508569**

14-Aug-15

Client: EA Engineering
Project: Prices Dairy

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R28163**	RunNo: **28163**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **848618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R28163**	RunNo: **28163**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **848619** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.8	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508569**

14-Aug-15

Client: EA Engineering
Project: Prices Dairy

Sample ID **MB-20772**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **20772**	RunNo: **28209**
Prep Date: **8/13/2015**	Analysis Date: **8/14/2015**	SeqNo: **850204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-20772**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **20772**	RunNo: **28209**
Prep Date: **8/13/2015**	Analysis Date: **8/14/2015**	SeqNo: **850205** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: EA Engineering Alb Work Order Number: 1508569 RcptNo: 1

Received by/date: MG 08/12/15

Logged By: Ashley Gallegos 8/12/2015 2:56:00 PM

Completed By: Ashley Gallegos 8/12/2015 3:36:35 PM

Reviewed By: CS 08/12/15 @ 1546

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples were collected the same day and chilled.
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
    # of preserved bottles checked for pH: 1 (<2 or >12 unless noted)
    Adjusted? —
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐
    Checked by: JM

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	15.8	Good	Not Present			

Chain-of-Custody Record

Client: EA Engineering

Mailing Address: 320 Gold Ave Stenw

Phone #: 505-244-9013

email or Fax#: tcurley

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standard ☒ Rush 2day

Project Name: Price's Dairy

Project #: 1505201

Project Manager: Jay Snyder

Sampler: Tyler Curley

On Ice: ☒ Yes ☐ No

Sample Temperature: 15.8°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Nitrate/Chloride/TDS				Air Bubbles (Y or N)
8/12/15	1455	Aq	MW-1AR	2x1dy	HgSO4/none	1508569 -001												X				

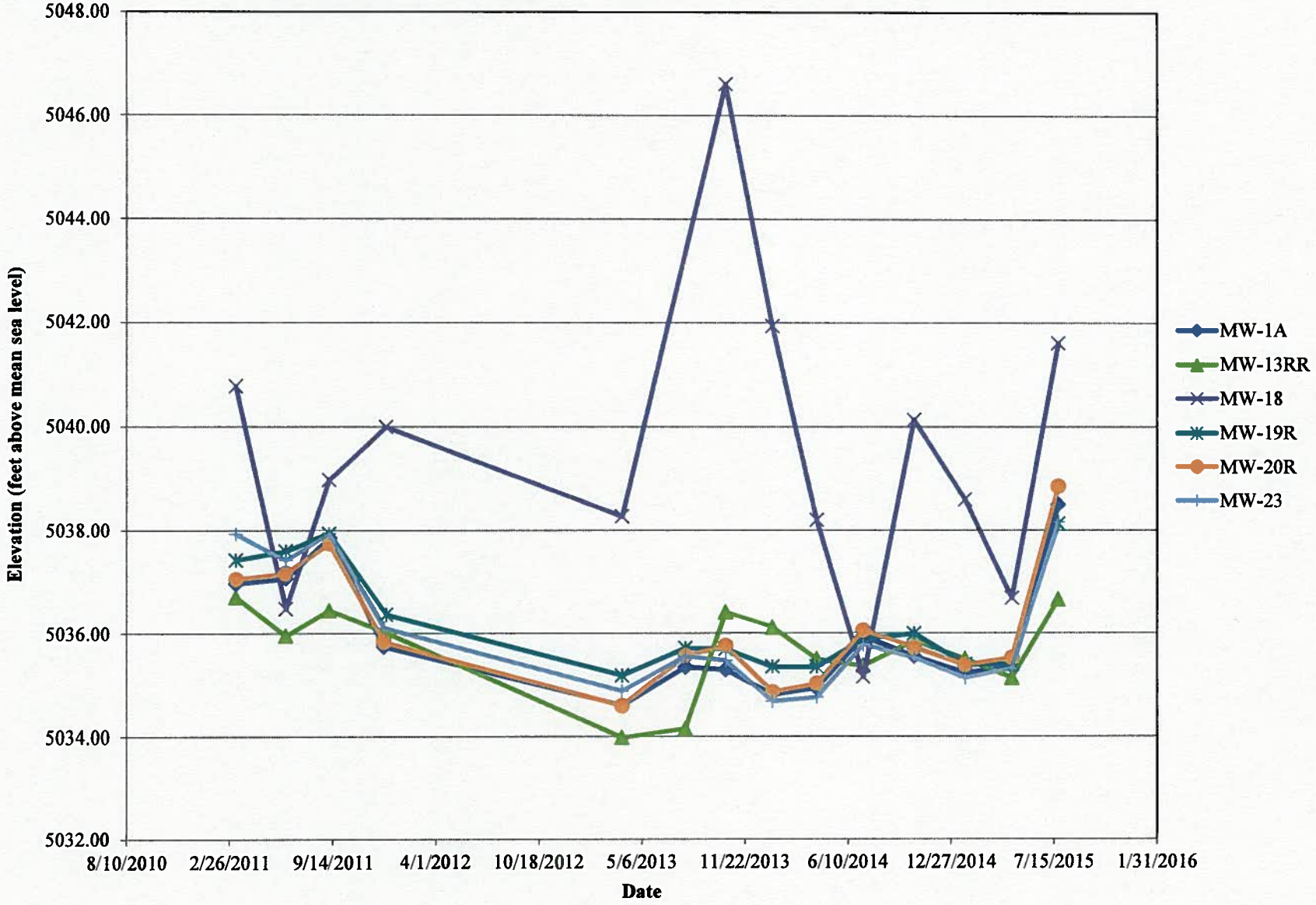
Date:	Time:	Relinquished by:	Received by:	Date	Time
8/6/15	1400			08/12/15	1455
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

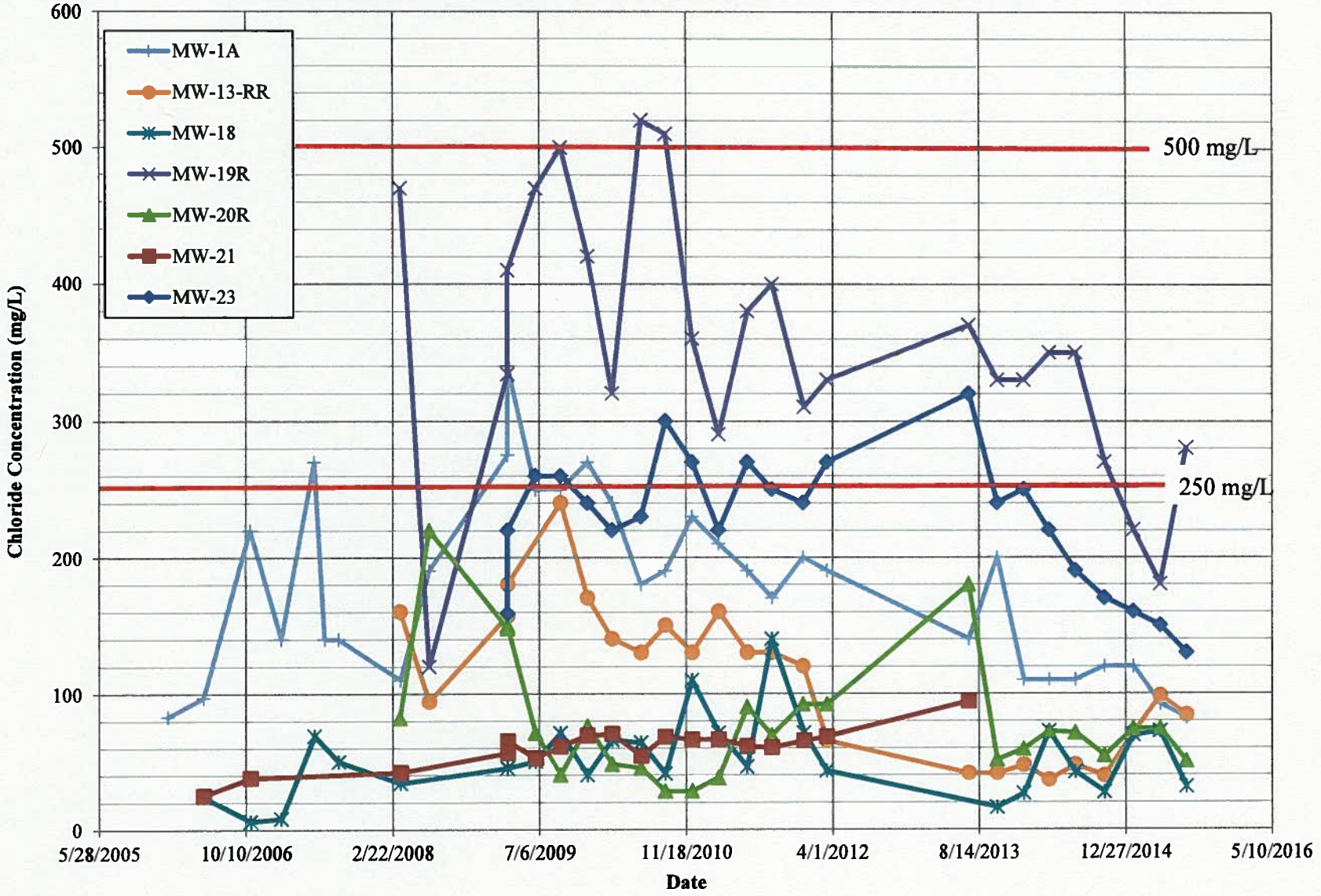
APPENDIX C
HYDROGRAPHS VALLEY FILL AQUIFER

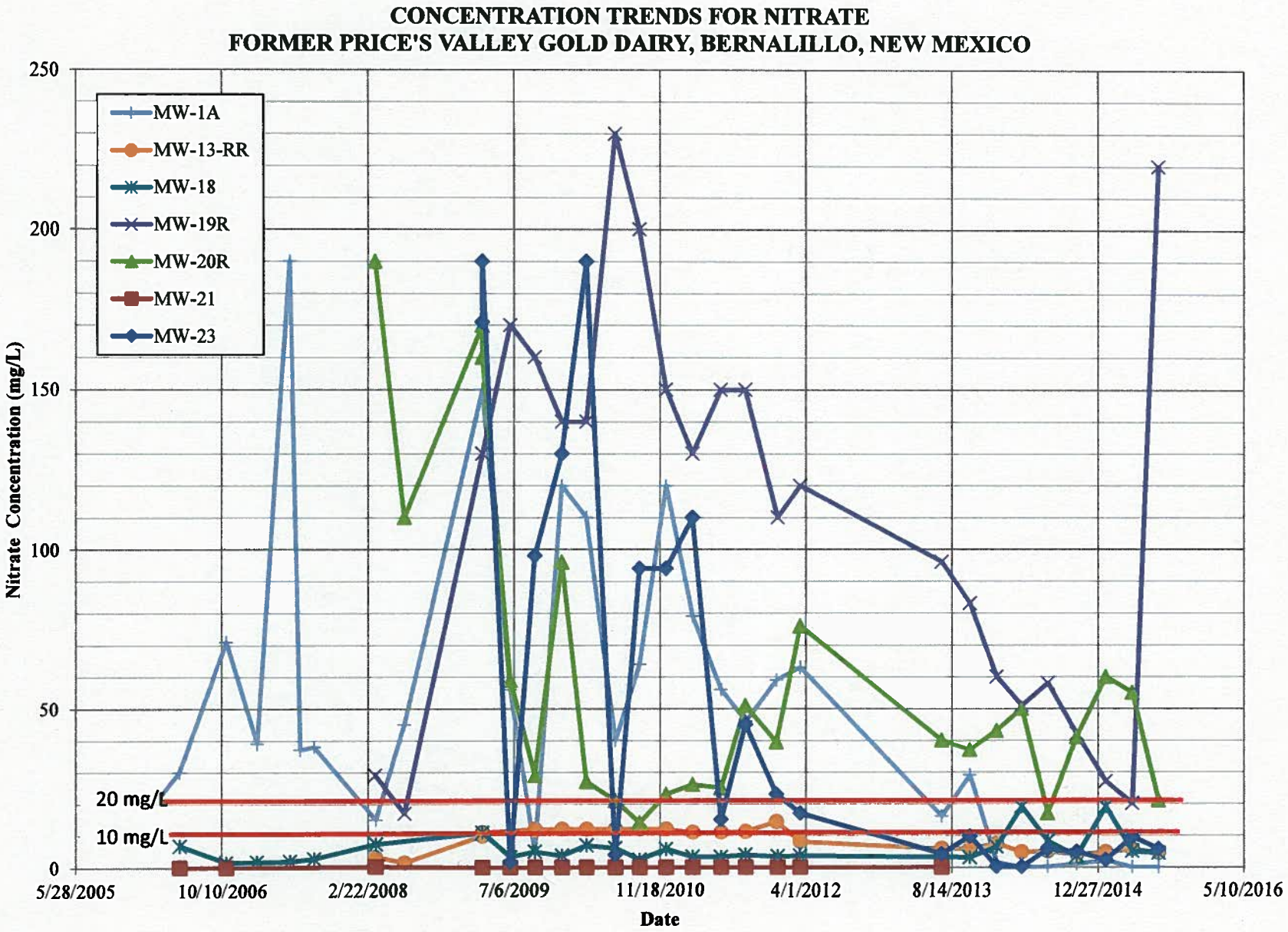
HYDROGRAPH - VALLEY FILL AQUIFER
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

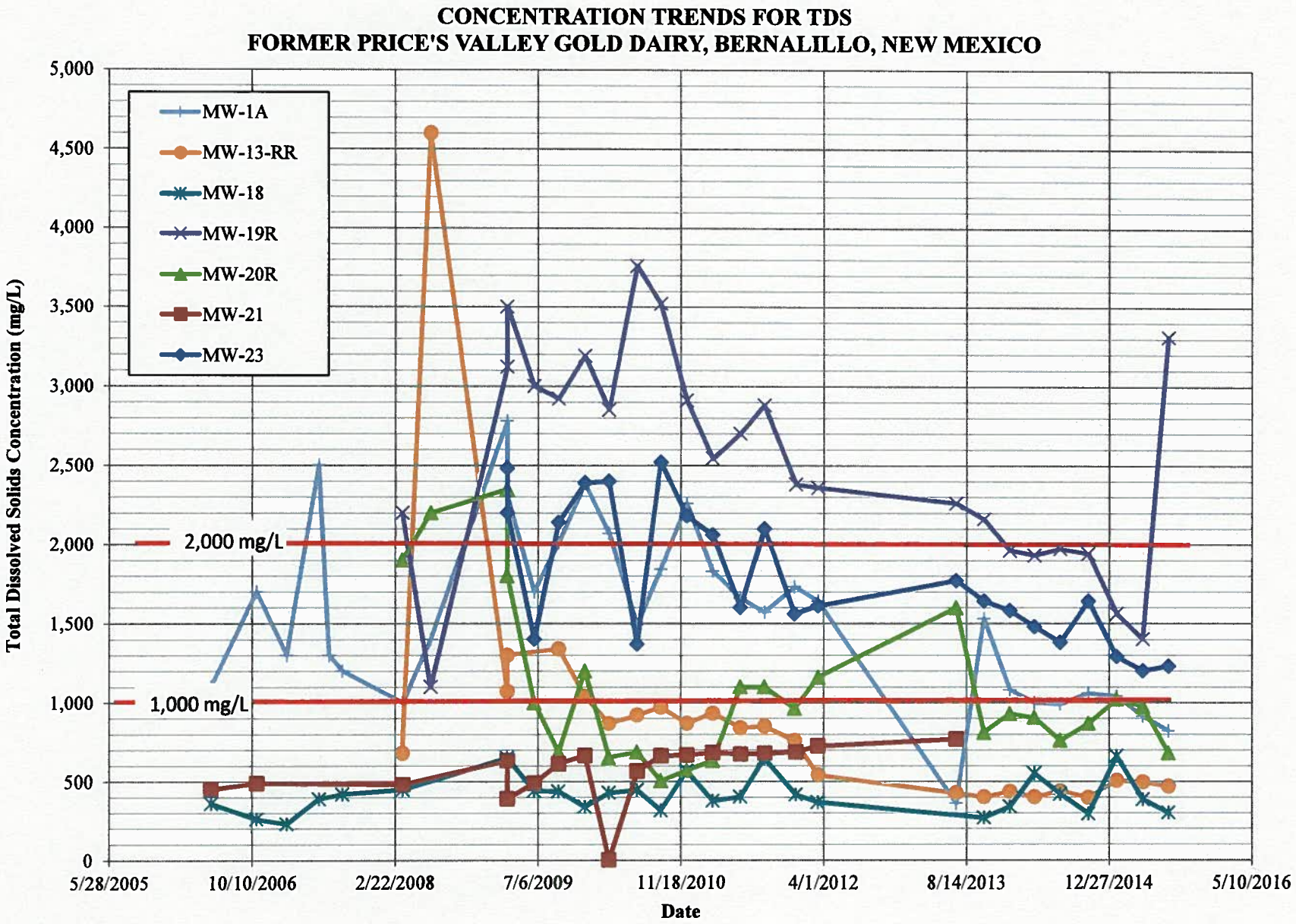


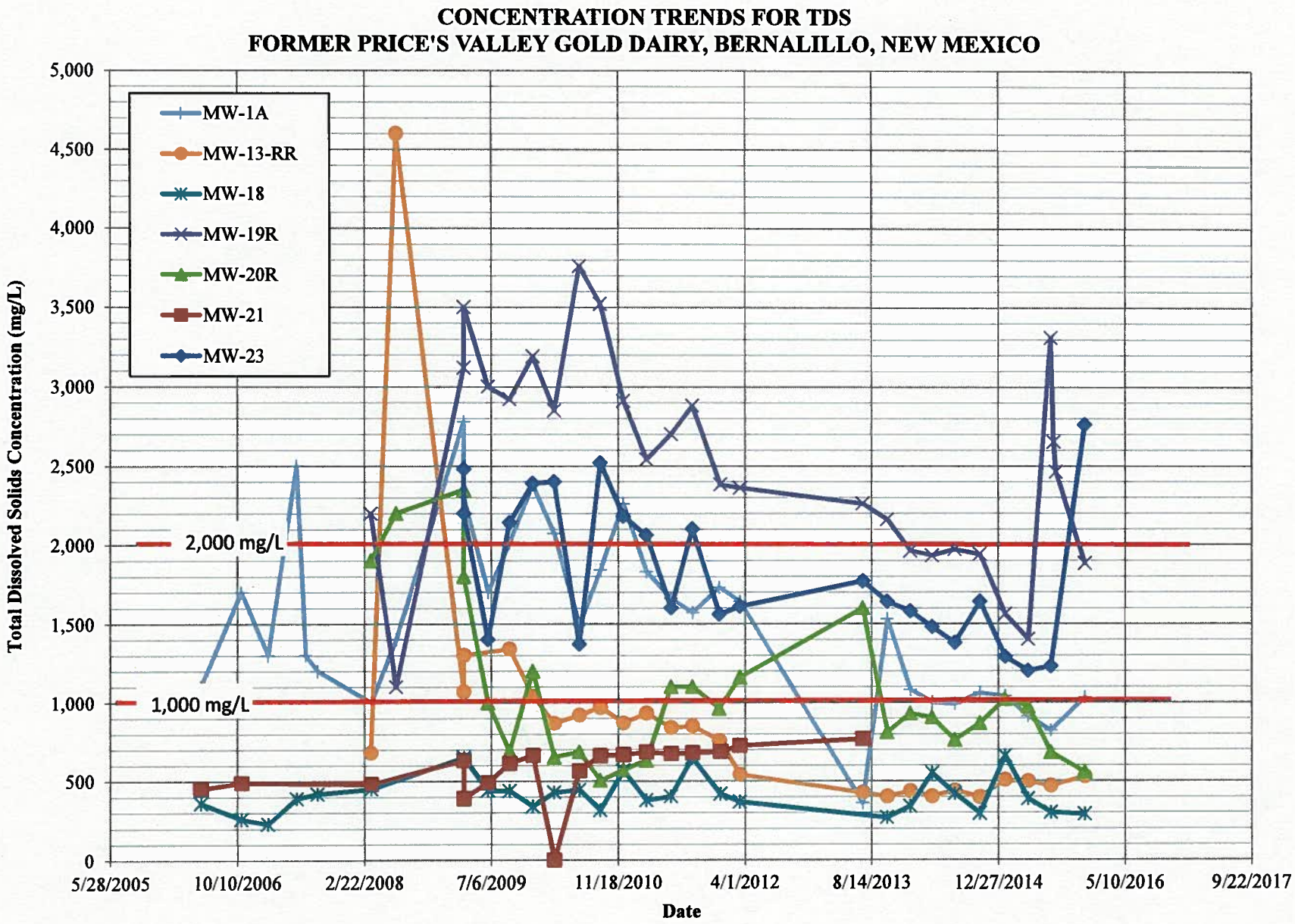
APPENDIX D
CONCENTRATION TRENDS

CONCENTRATION TRENDS FOR CHLORIDE
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO




CONCENTRATION TRENDS FOR NITRATE
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO
MW-1A
MW-13-RR
MW-18
MW-19R
MW-20R
MW-21
MW-23
20 mg/L
10 mg/L
Nitrate Concentration (mg/L)
250
200
150
100
50
0
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
Date


CONCENTRATION TRENDS FOR TDS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO
Total Dissolved Solids Concentration (mg/L)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
MW-1A
MW-13-RR
MW-18
MW-19R
MW-20R
MW-21
MW-23
2,000 mg/L
1,000 mg/L
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
Date


CONCENTRATION TRENDS FOR TDS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO
Total Dissolved Solids Concentration (mg/L)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
MW-1A
MW-13-RR
MW-18
MW-19R
MW-20R
MW-21
MW-23
2,000 mg/L
1,000 mg/L
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017
Date

APPENDIX C

DECEMBER 2015
QUARTERLY GROUNDWATER MONITORING REPORT

EA Engineering, Science, & Technology, Inc., PBC
320 Gold Avenue SW, Suite 1300
Albuquerque, New Mexico 87102
Phone: (505) 224-9013

January 22, 2016

Justin Ball
New Mexico Environment Department
Ground Water Quality Bureau
Remediation Oversight Section
121 Tijeras Ave. NE, Suite 1000
Albuquerque, New Mexico 87102

Dear Mr. Ball:

On behalf of D&G Price Limited Partnership, EA Engineering, Science, and Technology, Inc., PBC is submitting the Quarterly Groundwater Monitoring Report for the Former Price's Valley Gold Dairy located in Sandoval County, New Mexico. The report discusses the 9th quarterly groundwater sampling event since approval of the *Work Plan for Groundwater Extraction* dated May 24, 2013.

Please let me know if you have any questions regarding the information provided in this report.

Sincerely,

Jay Snyder
Senior Hydrogeologist

Enclosure

Cc: John Price
Dudley Price
File

QUARTERLY GROUNDWATER MONITORING REPORT
FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY, NEW MEXICO

Prepared for:

Former Price's Valley Gold Dairy
Bernalillo, Sandoval County, New Mexico

Prepared by:

EA Engineering, Science,
and Technology, Inc., PBC
320 Gold Avenue SW, Suite 1210
Albuquerque, New Mexico 87102

January 2016

EA Project No. 1505701.02

EA Engineering, Science, & Technology, Inc., PBC
320 Gold Avenue SW, Suite 1300
Albuquerque, New Mexico 87102
Phone: (505) 224-9013

QUARTERLY GROUNDWATER MONITORING REPORT
FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY, NEW MEXICO

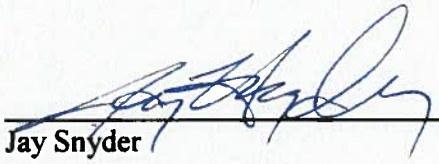
Prepared for:

Former Price's Valley Gold Dairy
Bernalillo, Sandoval County, New Mexico

Prepared by:

EA Engineering, Science,
and Technology, Inc., PBC
320 Gold Avenue SW, Suite 1210
Albuquerque, New Mexico

January 2016



1/22/16
Date

Jay Snyder
Senior Hydrogeologist

EA Project No. 1505701.02

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1.0 INTRODUCTION

On behalf of Former Price's Valley Gold Dairy (Price's Dairy), EA Engineering, Science, and Technology, Inc., PBC (EA) has prepared this 9th Quarterly Groundwater Monitoring Report for Price's Dairy located in Sandoval County, New Mexico. This report was completed in accordance with the *Groundwater Extraction Work Plan* dated May 24, 2013. The Work Plan (WP) was prepared to satisfy requirements stated in the New Mexico Administrative Code (NMAC), Title 20, 6.2 §4106 through §4110.

Price's Dairy is located on the east side of New Mexico Highway 528 in Bernalillo, New Mexico. Originally Ridge Dairy, a 200-cow dairy, was operated on the site from 1960 to 1973 and was owned by Stanley and Ron Ridge. In June 1973, Mr. Dudley Price purchased the Dairy and renamed it Price's Valley Gold Dairy. Mr. Price increased the size of the dairy to 1,000 to 1,200 cows and subsequently purchased 183 acres to the south to accommodate the increased discharge from the enlarged facility. Mr. Price closed the dairy in June 1998. The property was cleared of all structures by 2006. The property, except for Lot 5-B, has been sold and redeveloped into various lots that contain commercial businesses, including Wal-Mart, Firestone Tires, a gasoline station, a strip mall and several fast food restaurants. There are undeveloped lots within the southeastern portion of the Property.

The following scope of work was performed during this monitoring period:

- Gauged 7 monitoring wells;
- Collected groundwater samples from 7 monitoring wells, and analyzed samples for nitrate, chloride, and total dissolved solids (TDS) using EPA Method 300 and SM 2540 C, respectively;
- Prepared this Quarterly Groundwater Monitoring Report.

2.0 GROUNDWATER MONITORING ACTIVITIES

Groundwater monitoring activities included gauging and sampling 7 monitoring wells (MW-1A, MW-11R, MW-13RR, MW-18, MW-19R, MW-20R, and MW- 23). All wells are completed in Valley Fill Aquifer except MW-11R, which is in the Upper Santa Fe Aquifer.

2.1 Well Gauging

On December 4, 2015, 7 wells were gauged with an electronic water level indicator. Table 1 provides a summary of the groundwater gauging data collected from the monitoring network including historical data. A potentiometric surface map (Figure 2) was constructed based on the most recent data.

2.2 Groundwater Sampling

On December 4, 2015, 7 monitoring wells were sampled. Prior to sampling, the monitoring wells were purged using disposable bailers and new disposable rope or twine. Monitoring wells were purged three well volumes to the extent possible without bailing dry prior to sample collection. During purging, EA measured and recorded on sampling field forms field parameters (specific conductance, pH, dissolved oxygen, and temperature) with an Oakton or YSI water quality meter and an YSI dissolved oxygen meter. The meters were calibrated and/or checked against a standard in accordance with manufacturers' specifications prior to use. Purge water from the wells was ground discharged.

Groundwater samples were collected in the sample containers provided by Hall Environmental Analysis Laboratory (HEAL). Sample containers, preservatives, analytical methods, and holding times are specified in Table 2. All samples were preserved in accordance with method requirements, labeled, then immediately cooled to <6°C with ice and delivered under chain-of-custody to HEAL in Albuquerque, New Mexico. Wells were sampled from clean to dirty to the extent possible to minimize cross-contamination. All equipment was decontaminated between wells with an Alconox™ solution to further ensure sample quality. Copies of field forms are included in Appendix A. The analytical laboratory reports are provided in Appendix B.

3.0 GROUNDWATER MONITORING RESULTS

3.1 Hydraulic Gradient and Direction of Groundwater Flow

During this quarter groundwater elevations have increased in three wells (MW-1A, MW-11R, MW-20R) ranging between 0.11 ft. and 0.02 ft. Groundwater elevations have decreased in 4 wells (MW-13RR, MW-18, MW-19R, and MW-23) ranging between 1.39 ft. and 0.21 ft. Hydrographs for the Valley Fill Aquifer monitoring wells are included in Appendix C. Figure 2 provides the potentiometric surface map, as indicated by the contours the groundwater flow direction is towards the northeast. This reflects a reversion to the natural variable gradients that reverse from east to west, then west to east, based on water levels and hydraulic interaction with the river bed aquifer to the south east.

3.2 Groundwater Analytical Results and Trend Analysis

During this quarter concentrations of chloride, nitrate and total dissolved solids (TDS) were found above the New Mexico Water Quality Control Commission (NMWQCC) standards. Current and historical contaminant concentrations can be found in Table 3. Concentration trends can be found in Appendix D.

Chloride was below the NMWQCC standard of 250 milligrams per liter (mg/L) in all monitoring wells except for MW-19R. A map of the chloride distribution can be found in Figure 3.

Nitrate was above the NMWQCC standard of 10 mg/L in wells MW-11R (27 mg/L), MW-19R (50 mg/L), and MW-20R (27 mg/L). Concentrations in wells MW-19R decreased by 120 mg/L, while the concentrations in wells MW-11R and MW-20R increased by 5 and 6 mg/L respectively. Nitrate concentrations in wells MW-1A, MW-13RR, and MW-18 are below the standard of 10 mg/L. A map of the nitrate distribution can be found in Figure 4. Trend plots of nitrate concentrations are provided in Appendix D.

TDS concentrations were above the NMWQCC standard of 1,000 mg/L in wells MW-11R (1,080 mg/L), MW-1A (1,030 mg/L), MW-19R (1,880 mg/L), and MW-23 (2,760 mg/L). TDS concentrations in wells MW-1A, and MW-23 have been generally decreased since the 1st quarter sampling event. During this quarter TDS in wells, MW-1A and MW-23 increased by 210 mg/L, and 1530 mg/L, respectively. All other well TDS concentrations either decreased or remained below the standard. A map of the TDS distribution can be found in Figure 5. TDS concentration trends are provided in Appendix D.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This groundwater monitoring event included gauging and sampling 7 monitoring wells. Based on the data collected the following conclusions and recommendations are presented:

- The hydraulic gradient appears to have reverted to its variable pattern of east to west and west to east depending of water levels in the river bed aquifer, and is currently to the northeast;

- Nitrate and TDS concentrations within the Valley Fill Aquifer exceed the NMWQCC standards; however, TDS concentrations are below the standard in all wells except MW-13RR, MW-18, and MW-20R;

- Except for well MW-19R, Chloride concentrations with in the Valley Fill Aquifer do not exceed the NMWQCC standards;

- MW-11R, completed in Upper Santa Fe Aquifer, had a concentration of 27 mg/L nitrate this event.

TABLES

TABLE 1. VALLEY FILL AQUIFER GROUNDWATER ELEVATION
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date Gauged	Casing Elevation (amsl)	Depth to Water (feet)	Groundwater Elevation (amsl)
MW-1A	12/4/2015	5072.26	33.88	5038.38
	7/23/2015		33.77	5038.49
	4/24/2015		36.91	5035.35
	1/23/2015		37.03	5035.23
	10/16/2014		36.71	5035.55
	7/9/2014		36.34	5035.92
	4/10/2014		37.32	5034.94
	1/14/2014		37.45	5034.81
	10/15/2013		36.97	5035.29
	7/29/2013		36.92	5035.34
	3/28/2013		37.66	5034.60
	12/22/2011		36.52	5035.74
	9/8/2011		34.41	5037.85
	6/15/2011		35.20	5037.06
	3/10/2011		35.30	5036.96
MW-11R	12/4/2015	5110.54	83.97	5026.57
	7/23/2015		83.95	5026.59
	4/24/2015		84.42	5026.12
	1/23/2015		84.69	5025.85
	10/16/2014		84.33	5026.21
	7/9/2014		84.52	5026.02
	4/10/2014		84.35	5026.19
	1/14/2014		84.72	5025.82
	7/29/2013		85.19	5025.35
	3/28/2013		85.12	5025.42
	12/22/2011		84.22	5026.32
	9/8/2011		84.07	5026.47
	6/15/2011		83.95	5026.59
	3/10/2011		83.89	5026.65

TABLE 1. VALLEY FILL AQUIFER GROUNDWATER ELEVATION
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date Gauged	Casing Elevation (amsl)	Depth to Water (feet)	Groundwater Elevation (amsl)
MW-13RR	12/4/2015	5090.20	53.34	5036.86
	7/23/2015		53.55	5036.65
	4/24/2015		55.07	5035.13
	1/23/2015		54.70	5035.50
	10/16/2014		54.35	5035.85
	7/9/2014		54.83	5035.37
	4/10/2014		54.70	5035.50
	1/14/2014		54.09	5036.11
	10/15/2013		53.80	5036.40
	7/29/2013		56.05	5034.15
	3/28/2013		56.22	5033.98
	12/22/2011		54.17	5036.03
	9/7/2011		53.76	5036.44
	6/15/2011		54.25	5035.95
	3/10/2011		53.50	5036.70
MW-18	12/4/2015	5080.80	37.81	5042.99
	7/23/2015		39.20	5041.60
	4/24/2015		44.13	5036.67
	1/23/2015		42.21	5038.59
	10/16/2014		40.67	5040.13
	7/9/2014		45.65	5035.15
	4/10/2014		42.61	5038.19
	1/14/2014		38.87	5041.93
	10/15/2013		34.20	5046.60
	7/29/2013		Dry	Dry
	3/28/2013		42.54	5038.26
	12/26/2011		40.81	5039.99
	9/7/2011		41.83	5038.97
	6/15/2011		44.33	5036.47
	3/10/2011		40.03	5040.77

TABLE 1. VALLEY FILL AQUIFER GROUNDWATER ELEVATION
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date Gauged	Casing Elevation (amsl)	Depth to Water (feet)	Groundwater Elevation (amsl)
MW-19R	12/4/2015	5072.69	33.90	5038.79
	7/23/2015		34.57	5038.12
	4/24/2015		37.29	5035.40
	1/23/2015		37.30	5035.39
	10/16/2014		36.70	5035.99
	7/9/2014		36.81	5035.88
	4/10/2014		37.34	5035.35
	1/14/2014		37.34	5035.35
	10/15/2013		37.00	5035.69
	7/29/2013		36.98	5035.71
	3/28/2013		37.51	5035.18
	12/26/2011		36.33	5036.36
	9/7/2011		34.76	5037.93
	6/15/2011		35.10	5037.59
	3/10/2011		35.27	5037.42
MW-20R	12/4/2015	5072.57	33.77	5038.80
	7/23/2015		33.73	5038.84
	4/24/2015		37.05	5035.52
	1/23/2015		37.19	5035.38
	10/16/2014		36.85	5035.72
	7/9/2014		36.52	5036.05
	4/10/2014		37.55	5035.02
	1/14/2014		37.71	5034.86
	10/15/2013		36.82	5035.75
	7/29/2013		37.01	5035.56
	3/28/2013		37.98	5034.59
	12/22/2011		36.74	5035.83
	9/7/2011		34.83	5037.74
	6/15/2011		35.41	5037.16
	3/10/2011		35.52	5037.05

TABLE 1. VALLEY FILL AQUIFER GROUNDWATER ELEVATION
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Date Gauged	Casing Elevation (amsl)	Depth to Water (feet)	Groundwater Elevation (amsl)
MW-23	12/4/2015	5073.13	34.53	5038.60
	7/23/2015		34.98	5038.15
	4/24/2015		37.82	5035.31
	1/23/2015		38.00	5035.13
	10/16/2014		37.61	5035.52
	7/9/2014		37.36	5035.77
	4/10/2014		38.37	5034.76
	1/14/2014		38.45	5034.68
	10/15/2013		37.66	5035.47
	7/29/2013		37.58	5035.55
	3/28/2013		38.25	5034.88
	12/22/2011		37.03	5036.10
	9/7/2011		35.20	5037.93
	6/15/2011		35.72	5037.41
	3/10/2011		35.21	5037.92

NOTES:
amsl = feet above mean sea level

TABLE 2. SUMMARY OF SAMPLE ANALYTICAL AND QUALITY CONTROL REQUIREMENTS
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Analyte	Method	Medium	Container and Minimum Volume	Preservation	Holding Time	Storage
Chloride	EPA 300	Water	250 ml poly	None	28 days	Cool < 6 °C
Nitrate/Nitrite	EPA 300	Water	250 ml poly	H_2SO_4 pH <2	28 days	Cool < 6 °C
TDS	SM 2540 C	Water	250 ml poly	None	7 days	Cool < 6 °C

NOTES:
°C = degrees Celcius
< = less than
EPA = U.S. Environmental Protection Agency
mL = milliliter
VOC = Volatile organic compounds
TDS = total dissolved solids

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
EW-1	VF	7/23/2015	190	1,300	11
		4/24/2015	170	1,420	17
		1/23/2015	220	1,460	17
		10/31/2014	230	1,610	27
		7/9/2014	240	1,520	18
		4/10/2014	290	1,750	31
		1/14/2014	390	2,140	57
		10/15/2013	350	2,320	85
EW-2	VF	7/23/2015	140	1,040	<1.0
		4/24/2015	160	1,100	<1.0
		1/23/2015	170	1,140	1.1
		10/16/2014	190	1,200	<1.0
		7/9/2014	200	1,270	3
		4/10/2014	200	1,380	7.6
		1/14/2014	310	1,770	23
		10/15/2013	330	1,960	21
EW-3	VF	7/23/2015	120	995	4.8
		4/24/2015	120	939	1.5
		1/23/2015	130	1,010	2.5
		10/16/2014	130	1,010	3.2
		7/9/2014	150	1,090	3.4
		4/10/2014	170	1,210	3.2
		1/14/2014	220	1,410	6.3
		10/15/2013	320	1,780	0.35
EW-4	VF	7/23/2015	140	1,070	5.7
		4/24/2015	83	710	1.1
		1/23/2015	77	691	1.1
		10/16/2014	89	776	<1.0
		7/9/2014	110	894	1.1
		4/10/2014	110	891	1.5
		1/14/2014	130	977	1.4
		10/15/2013	210	1,300	<0.10

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-11R	USF	12/4/2015	250	1,080	27
		7/23/2015	230	1,250	22
		4/24/2015	200	1,070	20
		1/23/2015	210	1,070	20
		10/16/2014	190	1,120	19
		7/9/2014	230	1,110	20
		4/10/2014	210	1,060	19
		1/14/2014	220	1,020	20
		7/10/2013	220	1,030	21
		3/12/2012	190	1,060	29
		12/26/2011	190	1,030	26
		9/6/2011	220	1,180	33
		6/15/2011	240	1,260	38
		3/10/2011	240	1,180	41
		9/9/2010	210	1,180	38
		3/11/2010	260	1,190	42
		9/16/2009	270	1,210	35
		3/20/2009	270	2,000	34
		3/20/2009	230	1,270	36
		3/20/2008	200	1,000	19
MW-1A	VF	12/4/2015	110	1,030	7.9
		7/23/2015	82	820	<1.0
		4/24/2015	92	912	<1.0
		1/23/2015	120	1,040	2.1
		10/16/2014	120	1,060	1
		7/9/2014	110	990	0.14
		4/10/2014	110	1,000	<0.10
		1/14/2014	110	1,080	1.5
		10/15/2013	200	1,530	29
		7/10/2013	140	360	16
		3/13/2012	190	1,640	63
		12/22/2011	200	1,730	59
		9/8/2011	170	1,570	46
		6/15/2011	190	1,660	56
		3/10/2011	210	1,830	79
		12/9/2010	230	2,260	120
		9/9/2010	190	1,840	64
		6/18/2010	180	1,490	40
		3/11/2010	240	2,070	110
		12/17/2009	270	2,380	120
		9/16/2009	250	2,010	4.8

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-1A (continued)		6/23/2009	250	1,700	56
		3/20/2009	340	2,300	150
		3/20/2009	275	2,780	150
		6/26/2008	190	1,400	45
		3/20/2008	110	1,000	15
		8/22/2007	140	1,200	38
		7/6/2007	140	1,300	37
		5/31/2007	270	2,500	190
		2/8/2007	140	1,300	39
		10/25/2006	220	1,700	71
		5/19/2006	97	1,100	30
		1/17/2006	83	980	16
		8/22/2005	91	1,000	21
		4/27/2005	88	880	4.0
		11/16/2004	98	1,100	16
		7/15/2004	89	820	11
		3/31/2004	98	800	25
		7/28/2003	100	790	0.21
		2/7/2003	120	930	4.6
		11/7/2002	150	1,000	12
		8/12/2002	150	1,100	18
		5/22/2002	180	1 300	24
		2/11/2002	210	1,100	13
		12/13/2001	150	790	0.15
		9/11/2001	200	920	6
		6/25/2001	170	820	21
		3/28/2001	180	850	4.9
		1/26/2001	170	730	2.0
		12/28/2000	210	1,900	130
		5/4/2000	190	1,200	31
		2/24/2000	170	920	14
		10/28/1999	200	1,300	56
		7/27/1999	190	870	ND
		4/22/1999	140	1,100	40
		1/27/1998	152	1,324	42.5

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-13-RR	VF	12/4/2015	120	526	7.0
		7/23/2015	84	468	4.5
		4/24/2015	98	496	5.6
		1/23/2015	71	505	4.7
		10/16/2014	39	396	4.0
		7/9/2014	47	438	5.0
		4/10/2014	36	400	4.7
		1/14/2014	47	434	7.4
		10/15/2013	41	400	5.9
		7/10/2013	41	425	5.8
		3/13/2012	65	540	8.0
		12/22/2011	120	757	14.28
		9/7/2011	130	849	11.24
		6/15/2011	130	839	11
		3/10/2011	160	931	11
		12/9/2010	130	869	12
		9/9/2010	150	969	12
		6/18/2010	130	920	12
		3/11/2010	140	867	12
		12/17/2009	170	1,040	12
		9/16/2009	240	1,340	12
		3/20/2009	180	1,300	11
		3/20/2009	157	1,070	9.9
		6/26/2008	94	4,600	1.5
		3/18/2008	160	680	3.4

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-18	VF	12/4/2015	23	289	6.4
		7/23/2015	31	300	4.4
		4/24/2015	72	386	5.0
		1/23/2015	69	660	19
		10/16/2014	27	294	3.5
		7/9/2014	42	420	8.1
		4/10/2014	72	550	19
		1/14/2014	26	340	6.4
		10/15/2013	16	269	3.1
		3/12/2012	43	368	3.7
		12/26/2011	71	416	3.5
		9/7/2011	140	648	4.0
		6/15/2011	46	403	3.3
		3/10/2011	71	378	3.4
		12/9/2010	110	567	5.8
		9/9/2010	41	316	2.5
		6/18/2010	64	445	6.1
		3/11/2010	66	428	6.9
		12/17/2009	40	339	3.8
		9/16/2009	71	438	5.0
		6/23/2009	50	440	3.3
		3/20/2009	45	650	11
		3/20/2008	34	450	7.4
		8/22/2007	50	420	2.8
		6/1/2007	69	390	2.0
		2/8/2007	8	230	1.8
		10/26/2006	6	260	1.6
		5/20/2006	24	360	6.8

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-19R	VF	12/4/2015	230	1,880	50
		8/12/2015	260	2,460	170
		8/3/2015	210	2,650	140
		7/23/2015	280	3,310	220
		4/24/2015	180	1,400	20
		1/23/2015	220	1,560	27
		10/16/2014	270	1,940	42
		7/9/2014	350	1,970	58
		4/10/2014	350	1,930	51
		1/14/2014	330	1,960	60
		10/15/2013	330	2,160	83
		7/10/2013	370	2,260	96
		3/13/2012	330	2,360	120
		12/26/2011	310	2,380	110
		9/7/2011	400	2,880	150
		6/15/2011	380	2,700	150
		3/10/2011	290	2,540	130
		12/9/2010	360	2,910	150
		9/9/2010	510	3,520	200
		6/18/2010	520	3,760	230
		3/11/2010	320	2,850	140
		12/17/2009	420	3,190	140
		9/16/2009	500	2,920	160
		6/23/2009	470	3,000	170
		3/20/2009	410	3,500	130
		3/20/2009	334	3,120	130
		6/26/2008	120	1,100	17
		3/18/2008	470	2,200	29

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-20R	VF	12/4/2015	24	554	27
		7/23/2015	50	680	21
		4/24/2015	74	975	55
		1/23/2015	74	1,020	60
		10/16/2014	54	868	41
		7/9/2014	71	760	17
		4/10/2014	72	905	50
		1/14/2014	59	930	43
		10/15/2013	51	811	37
		7/10/2013	180	1,600	40
		3/13/2012	92	1,160	76
		12/22/2011	92	963	39.39
		9/7/2011	69	1,100	51
		6/15/2011	90	1,100	25
		3/10/2011	38	632	26
		12/9/2010	28	570	23
		9/9/2010	28	504	14
		6/18/2010	45	687	21
		3/11/2010	48	653	27
		12/17/2009	76	1,200	96
		9/16/2009	40	686	29
		6/23/2009	71	1,000	59
		3/20/2009	150	1,800	160
		3/20/2009	148	2,350	170
		6/26/2008	220	2,200	110
		3/18/2008	82	1,900	190

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

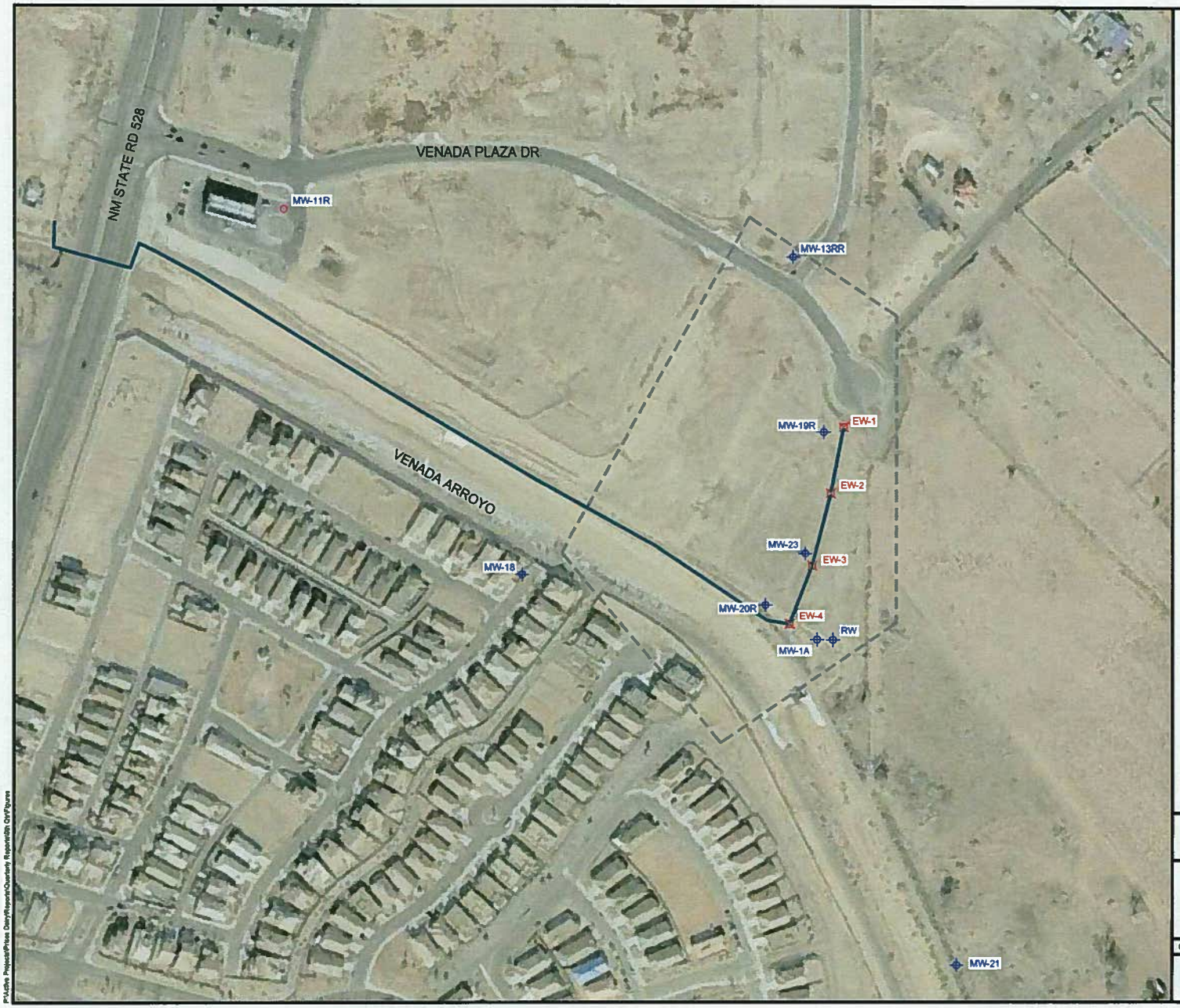
Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-21	VF	7/10/2013	94	768	<0.10
		3/12/2012	68	724	ND
		12/26/2011	65	686	ND
		9/7/2011	60	678	ND
		6/15/2011	61	673	ND
		3/10/2011	66	683	ND
		12/9/2010	66	667	ND
		9/9/2010	68	662	ND
		6/18/2010	54	565	ND
		3/11/2010	70	0	ND
		12/17/2009	69	663	ND
		9/16/2009	61	612	ND
		6/23/2009	52	490	ND
		3/20/2009	65	390	ND
		3/20/2009	56	632	ND
		3/20/2008	42	480	0.29
		10/26/2006	38	490	ND
		5/19/2006	25	450	ND

TABLE 3. SUMMARY OF ANALYTICAL DATA
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO

Well Identification	Aquifer	Sample Date	Chloride (mg/L)	TDS (mg/L)	Nitrate (mg/L)
MW-23	VF	12/4/2015	250	2,760	160
		7/23/2015	130	1,230	5.7
		4/24/2015	150	1,200	9.5
		1/23/2015	160	1,290	2.3
		10/16/2014	170	1,640	4.8
		7/9/2014	190	1,380	5.6
		4/10/2014	220	1,480	0.13
		1/14/2014	250	1,580	0.22
		10/15/2013	240	1,640	9.7
		7/10/2013	320	1,770	4.2
		3/13/12	270	1,610	17
		12/22/11	240	1,560	23
		9/7/11	250	2,100	45
		6/15/11	270	1,600	15
		3/10/11	220	2,060	110
		12/9/10	270	2,180	94
		9/9/10	300	2,520	94
		6/18/10	230	1,370	4.0
		3/11/10	220	2,400	190
		12/17/09	240	2,390	130
		9/16/09	260	2,140	98
		6/23/09	260	1,400	1.7
		3/20/09	220	2,200	190
		3/20/09	159	2,480	171
NMWQCC Standard			**250**	**1,000**	**10**

NOTES:
ate data are by EPA Method 300.0
EPA Method SM 2540 C
above NMWQCC standard if shaded
= milligrams per liter
= Total dissolved solids
ND = Non detect
Mexico Environment Department
w Mexico Water Quality Control
F = Upper Santa Fe
VF = Valley Fill

FIGURES



LEGEND:

- EXTRACTION WELLS
- MW-23 VALLEY FILL AQUIFER MONITORING WELL
- MW-11R UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE

N

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 1
SITE LAYOUT

PROJECT #:	1905701	PROJECT PHASE:	02	PROJECT MANAGER:	TC

320 Gold Avenue, SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9016
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

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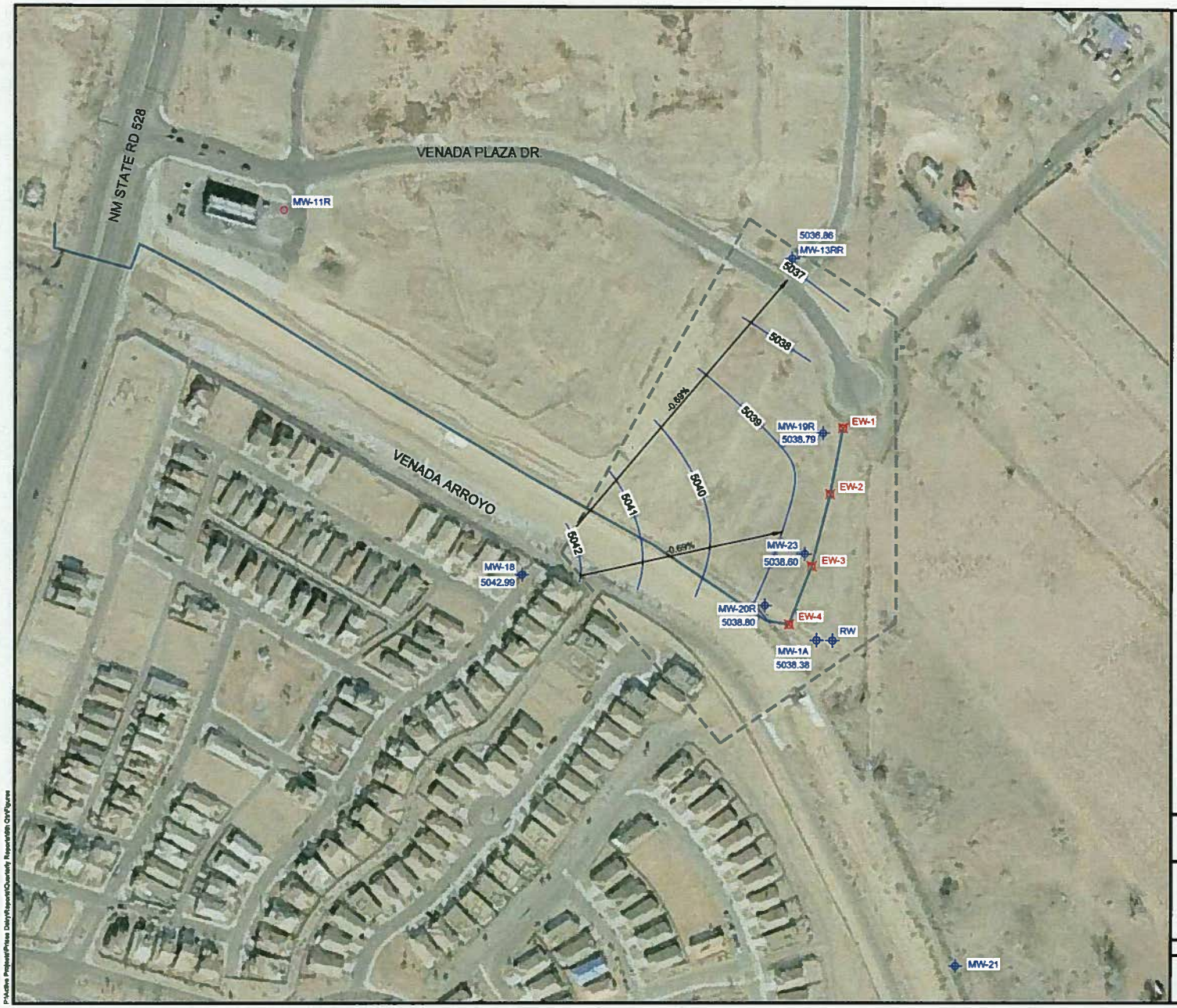

LEGEND:

- EXTRACTION WELLS
- MW-23 VALLEY FILL AQUIFER MONITORING WELL
- MW-11R UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE
- GROUNDWATER FLOW DIRECTION

NOTE:

GROUNDWATER LEVELS IN THE EXTRACTION WELLS EXPERIENCES FREQUENT CHANGES DUE TO THE CYCLING OF THE PUMPS. THEREFORE, THESE ELEVATIONS WERE NOT USED TO FOR CONTOURING.

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 2
GROUNDWATER ELEVATIONS
DECEMBER 2015

PROJECT #:	1505701	PROJECT PHASE:	02	PROJECT MANAGER:	TC

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Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9016

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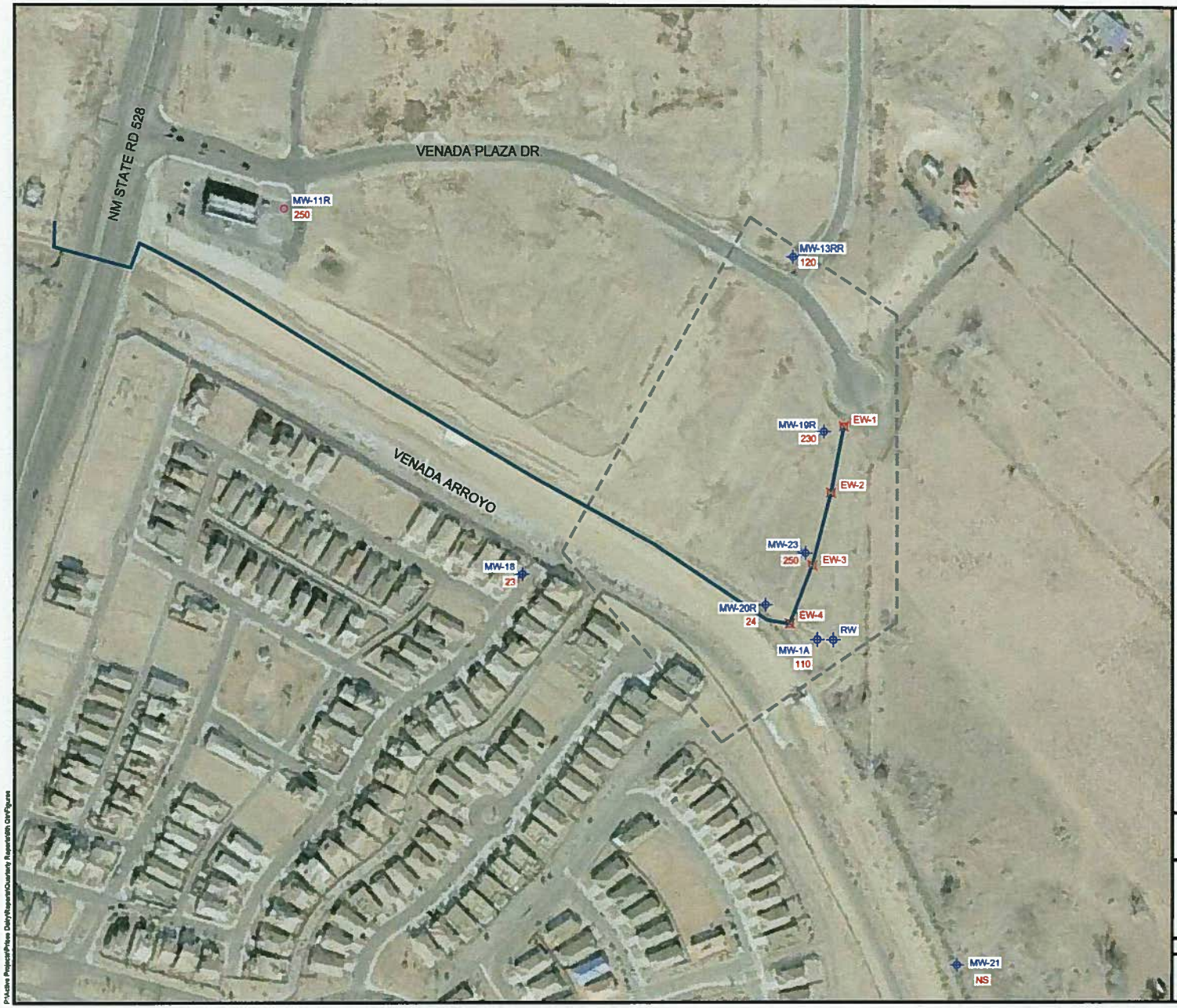

LEGEND:

- EXTRACTION WELLS
- MW-23 — VALLEY FILL AQUIFER MONITORING WELL
- MW-11R — UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE
- 250 — CHLORIDE CONCENTRATION CONTOUR
- NS — NOT SAMPLED

NOTE:

VALUES NEXT TO WELLS INDICATE CHLORIDE CONCENTRATIONS IN GROUNDWATER SAMPLES (mg/L).

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 3
CHLORIDE CONCENTRATIONS IN GROUNDWATER, DECEMBER 2015

PROJECT #:	1505701	PROJECT PHASE:	02	PROJECT MANAGER:	TC

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.
320 Gold Avenue, SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-0013
Fax: (505) 224-0016

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LEGEND:

- EXTRACTION WELLS
- MW-23 — VALLEY FILL AQUIFER MONITORING WELL
- MW-11R — UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE
- 10 — NITRATE CONCENTRATION CONTOUR MILLIGRAMS PER LITER (mg/L)
- NS — NOT SAMPLED

NOTE:

VALUES NEXT TO WELLS INDICATE NITRATE CONCENTRATIONS IN GROUNDWATER SAMPLES (mg/L).

N

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 4
NITRATE CONCENTRATIONS IN GROUNDWATER, DECEMBER 2015

PROJECT #:	1905701	PROJECT PHASE:	02	PROJECT MANAGER:	TC

320 Gold Avenue, SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9016
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

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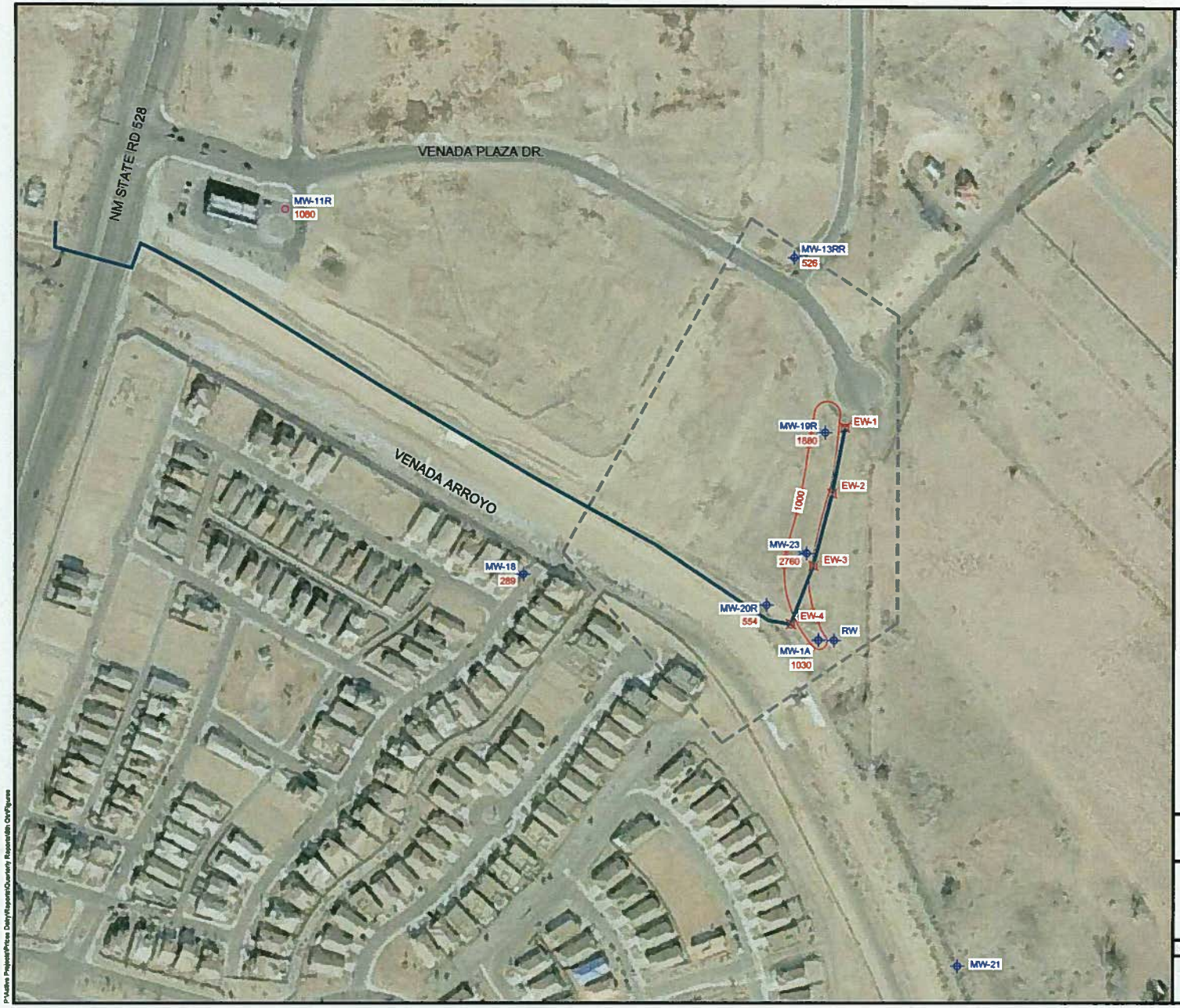

LEGEND:

- EXTRACTION WELLS
- MW-23 — VALLEY FILL AQUIFER MONITORING WELL
- MW-11R — UPPER SANTA FE AQUIFER MONITORING WELL
- BOUNDARY OF AFFECTED GROUNDWATER
- DISCHARGE LINE
- 1,000 — TOTAL DISSOLVED SOLIDS CONCENTRATION CONTOUR IN MILLIGRAMS PER LITER (mg/L)
- NS — NOT SAMPLED

NOTE:

VALUES NEXT TO WELLS INDICATE TOTAL DISSOLVED SOLIDS (TDS) CONCENTRATIONS IN GROUNDWATER SAMPLES (mg/L).

200 100 0 200

SCALE IN FEET

IMAGE SOURCE: GOOGLE 01/17/2013

FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, SANDOVAL COUNTY

FIGURE 5
TDS IN GROUNDWATER
DECEMBER 2015

PROJECT #:	1505701	PROJECT PHASE:	02	PROJECT MANAGER:	TC

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.
320 Gold Avenue SW Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9016

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APPENDIX A
FIELD FORMS

Chain-of-Custody Record

Client: EA Engineering

Mailing Address: 320 Gold Ave SW #1300
Abq

Phone #: 505 224 2013

email or Fax#: tcurley@eaest.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other ____

☐ EDD (Type) ____

Turn-Around Time:
☒ Standard ☐ Rush ____

Project Name: Prices Daily

Project #: 1505701

Project Manager: Tyler Curley

Sampler: Colton Pike

On Ice: ☒ Yes ☐ No

Sample Temperature: 8.7°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Nitrate	Chloride	TDS		Air Bubbles (Y or N)
12-4	1015	Aq	MW-1A	500 mL 1000 mL	None H_2SO_4													X	X			
	1050		MW-13RR																			
	1235		MW-18																			
	1305		MW-23																			
	1326		MW-11R																			
	1420		MW-19R																			
	1436		MW-20R																			

Date:	Time:	Relinquished by:	Received by:	Date	Time
12-4-15	1530	[signature]	Celina Su—	12/04/15	1530
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

EA Engineering, Science, and Technology
320 Gold Avenue SW, Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-1A
Site: Rios Dairy
Depth to PSH: — Feet
Depth to water: 33.88 Feet
Total depth: 51.70 Feet
NAPL thickness: — Feet

Date gauged: 12/4/15
Time gauged: 0955
Well diameter: 2 Inches
Height of fluid column: 17.82 Feet
Volume in well: 3.0 Gallons

(3 well volumes = 9.0 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: 1000
Purge Method: Hand bail

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1000	0.25	16.4	1280	7.48	/	2.96
1006	4.0	17.2	1274	7.07	/	/
1012	8.75	17.3	1260	7.11	/	/

Actual purge volume: 9.0 gal.
Field measurements stabilized within ± 10%? Y
Time/date sampled: 1015 12-4-15
Purged/sampled by:
Sample method: Disposable bailer
Requested analyses: Nitrate Chloride TDS
Comments/observations:

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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320 Gold Avenue SW, Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-13 RR
Site: Price Dairy
Depth to PSH: — Feet
Depth to water: 53.34 Feet
Total depth: 66.80 Feet
NAPL thickness: — Feet

Date gauged: 12/4/15
Time gauged: 1033
Well diameter: 2 Inches
Height of fluid column: 13.46 Feet
Volume in well: 2.2 Gallons

(3 well volumes = 6.6 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: 1035
Purge Method: Hand Bail

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1035	0.25	17.8	856	8.04		3.60
1042	3.25	17.6	840	7.79		"
1048	6.5	17.5	832	7.77		"

Actual purge volume: 6.75 gal.
Field measurements stabilized within ± 10%?
Time/date sampled: 1050 12-4-15
Purged/sampled by:
Sample method: Disposable Bailer
Requested analyses: Nitrate Chloride TDS
Comments/observations:

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID	MW-18	Date gauged	12/4/15
Site	Pitts Dairy	Time gauged	1215
Depth to PSH	— Feet	Well diameter	2 Inches
Depth to water	37.81 Feet	Height of fluid column	14.29 Feet
Total depth	52.10 Feet	Volume in well	2.4 Gallons
NAPL thickness	— Feet		

(3 well volumes = 7.2 gallons)

After Bailing NAPL

Depth to PSH	Feet
Depth to water	Feet
NAPL thickness	Feet
NAPL Recovered	Gallons

GROUNDWATER SAMPLING DATA

Time/date purged _____ Purge Method Hand Bail

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1218	0.25	16.3	520	8.09		7.92
1225	3.25	16.4	506	7.90		"
1232	7.0	16.4	500	7.83		"

Actual purge volume 7.25 gal. Field measurements stabilized within ± 10%? Y

Time/date sampled 1235 12-4-15 Purged/sampled by

Sample method Disposable Bailer

Requested analyses Nitrate Chloride TDS

Comments/observations

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

EA Engineering, Science, and Technology
320 Gold Avenue SW, Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-23
Site: Pilots Dairy
Depth to PSH: — Feet
Depth to water: 34.53 Feet
Total depth: 42.55 Feet
NAPL thickness: — Feet

Date gauged: 12/4/15
Time gauged: 1250
Well diameter: 2 Inches
Height of fluid column: 8.02 Feet
Volume in well: 1.3 Gallons

(3 well volumes = 3.9 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: 1255
Purge Method: Hand Bail

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1255	0.25	17.4	1840	7.11		5.18
1300	2.0	17.6	1817	7.10		1
1304	3.75	17.6	1812	7.09		1

Actual purge volume: 4.0 gal.
Field measurements stabilized within ± 10%? Y
Time/date sampled: 1305 12-4-15
Purged/sampled by:
Sample method: Disposable Bailer
Requested analyses: Nitrate Chloride TDS
Comments/observations: NI well cap

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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320 Gold Avenue SW, Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID	MW-11R	Date gauged	12/4/15
Site	Prices Dairy	Time gauged	1315
Depth to PSH	— Feet	Well diameter	2 Inches
Depth to water	83.97 Feet	Height of fluid column	7.43 Feet
Total depth	91.40 Feet	Volume in well	1.2 Gallons
NAPL thickness	— Feet		

(3 well volumes = 3.6 gallons)

After Bailing NAPL

Depth to PSH	Feet
Depth to water	Feet
NAPL thickness	Feet
NAPL Recovered	Gallons

GROUNDWATER SAMPLING DATA

Time/date purged 1318 Purge Method Hand Bail

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1318	0.25	17.2	1632	7.35		6.92
1324	2.0	17.2	1611	7.37		
1332	3.5	17.1	1607	7.41		

Actual purge volume ~3.75 gal. Field measurements stabilized within ± 10%? Y

Time/date sampled 1336 12-4-15 Purged/sampled by

Sample method Disposable Bailer

Requested analyses Nitrate Chloride TDS

Comments/observations

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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320 Gold Avenue SW, Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-19R
Site: Prices Dairy
Depth to PSH: — Feet
Depth to water: 33.90 Feet
Total depth: 40.40 Feet
NAPL thickness: — Feet

Date gauged: 12/4/15
Time gauged: 1410
Well diameter: 2 Inches
Height of fluid column: 6.5 Feet
Volume in well: 1.1 Gallons

(3 well volumes = 3.3 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: 1412
Purge Method: Hand Bail

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1412	0.25	17.3	3780	7.15	/	2.24
1415	2.0	17.8	3750	7.09	/	/
1417	3.25	17.9	3750	7.08	/	/

Actual purge volume: 3.5 gal.
Field measurements stabilized within ± 10%?: Y
Time/date sampled: 1420 12-4-15
Purged/sampled by:
Sample method: Disposable Bailer
Requested analyses: Nitrate Chloride TDS
Comments/observations:

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-20R
Site: Pitcs Dairy
Depth to PSH: — Feet
Depth to water: 33.77 Feet
Total depth: 40.65 Feet
NAPL thickness: — Feet

Date gauged: 12/4/15
Time gauged: 1425
Well diameter: 2 Inches
Height of fluid column: 6.88 Feet
Volume in well: 1.1 Gallons

(3 well volumes = 3.3 gallons)

After Bailing NAPL
Depth to PSH: _____ Feet
Depth to water: _____ Feet
NAPL thickness: _____ Feet
NAPL Recovered: _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged: 1428
Purge Method: Hand Bail

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1428	0.25	17.6	1230	7.52		2.30
1431	2.0	17.7	1156	7.36		
1434	3.25	17.7	1142	7.33		

Actual purge volume: 3.5 gal.
Field measurements stabilized within ± 10%? Y
Time/date sampled: 1436 12-4-15
Purged/sampled by:
Sample method: Disposable Bailer
Requested analyses: Nitrate Chloride TDS
Comments/observations:

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

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320 Gold Avenue SW, Suite 1210
Albuquerque, NM 87102
Phone: (505) 224-9013

MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID: MW-21 | Date gauged: 12/4/15

Site: Price Dairy | Time gauged: _____

Depth to PSH	_____ Feet	Well diameter	_____ Inches	After Bailing NAPL	
Depth to water	_____ Feet	Height of fluid column	_____ Feet	Depth to PSH	_____ Feet
Total depth	_____ Feet	Volume in well	_____ Gallons	Depth to water	_____ Feet
NAPL thickness	_____ Feet			NAPL thickness	_____ Feet
				NAPL Recovered	_____ Gallons

(3 well volumes = _____ gallons)

GROUNDWATER SAMPLING DATA

Time/date purged: _____ | Purge Method: _____

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)

Actual purge volume _____ gal. | Field measurements stabilized within ± 10%? _____

Time/date sampled _____ | Purged/sampled by _____

Sample method _____

Requested analyses _____

Comments/observations: Could not locate. Large piles of tumbleweed where it might be located

Well Casing Volumes
2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

APPENDIX B
ANALYTICAL LABORATORY RESULTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 15, 2015

Tyler Curlie
EA Engineering
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL:
FAX

RE: Prices Dairy OrderNo.: 1512240

Dear Tyler Curlie:

Hall Environmental Analysis Laboratory received 7 sample(s) on 12/4/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1512240-001
Matrix: AQUEOUS
Client Sample ID: MW-1A
Collection Date: 12/4/2015 10:15:00 AM
Received Date: 12/4/2015 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	110	5.0		mg/L	10	12/4/2015 7:06:41 PM	B30627
Nitrogen, Nitrate (As N)	7.9	1.0		mg/L	10	12/4/2015 7:06:41 PM	B30627
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	1030	40.0	*D	mg/L	1	12/13/2015 1:47:00 PM	22696

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1512240-002 **Matrix:** AQUEOUS

Client Sample ID: MW-13RR
Collection Date: 12/4/2015 10:50:00 AM
Received Date: 12/4/2015 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	120	5.0		mg/L	10	12/4/2015 7:31:30 PM	B30627
Nitrogen, Nitrate (As N)	7.0	1.0		mg/L	10	12/4/2015 7:31:30 PM	B30627
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	526	40.0	*D	mg/L	1	12/13/2015 1:47:00 PM	22696

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1512240-003
Matrix: AQUEOUS
Client Sample ID: MW-18
Collection Date: 12/4/2015 12:35:00 PM
Received Date: 12/4/2015 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	23	5.0		mg/L	10	12/4/2015 7:56:18 PM	B30627
Nitrogen, Nitrate (As N)	6.4	1.0		mg/L	10	12/4/2015 7:56:18 PM	B30627
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	289	20.0		mg/L	1	12/13/2015 1:47:00 PM	22696

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1512240-004

Client Sample ID: MW-23
Collection Date: 12/4/2015 1:05:00 PM
Matrix: AQUEOUS **Received Date:** 12/4/2015 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	250	50		mg/L	100	12/4/2015 8:58:21 PM	B30627
Nitrogen, Nitrate (As N)	160	10	*	mg/L	100	12/4/2015 8:58:21 PM	B30627
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SRM**
Total Dissolved Solids	2760	100	*D	mg/L	1	12/13/2015 1:47:00 PM	22696

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1512240-005
Matrix: AQUEOUS
Client Sample ID: MW-11R
Collection Date: 12/4/2015 1:36:00 PM
Received Date: 12/4/2015 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	250	50	*	mg/L	100	12/10/2015 5:22:20 AM	R30757
Nitrogen, Nitrate (As N)	27	10	*	mg/L	100	12/5/2015 5:19:56 AM	A30652
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SRM**
Total Dissolved Solids	1080	100	*D	mg/L	1	12/13/2015 1:47:00 PM	22696

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1512240-006 **Matrix:** AQUEOUS

Client Sample ID: MW-19R
Collection Date: 12/4/2015 2:20:00 PM
Received Date: 12/4/2015 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	230	50		mg/L	100	12/10/2015 5:34:45 AM	R30757
Nitrogen, Nitrate (As N)	50	10	*	mg/L	100	12/5/2015 5:44:45 AM	A30652
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SRM**
Total Dissolved Solids	1880	40.0	*D	mg/L	1	12/13/2015 1:47:00 PM	22696

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EA Engineering
Project: Prices Dairy
Lab ID: 1512240-007
Matrix: AQUEOUS
Client Sample ID: MW-20R
Collection Date: 12/4/2015 2:36:00 PM
Received Date: 12/4/2015 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	24	5.0		mg/L	10	12/10/2015 5:47:10 AM	R30757
Nitrogen, Nitrate (As N)	27	10	*	mg/L	100	12/5/2015 6:09:35 AM	A30652
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **SRM**
Total Dissolved Solids	554	40.0	*D	mg/L	1	12/13/2015 1:47:00 PM	22696

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512240**

15-Dec-15

Client: EA Engineering

Project: Prices Dairy

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **B30627**	RunNo: **30627**
Prep Date:	Analysis Date: **12/4/2015**	SeqNo: **935553** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **B30627**	RunNo: **30627**
Prep Date:	Analysis Date: **12/4/2015**	SeqNo: **935554** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.9	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R30757**	RunNo: **30757**
Prep Date:	Analysis Date: **12/10/2015**	SeqNo: **939434** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R30757**	RunNo: **30757**
Prep Date:	Analysis Date: **12/10/2015**	SeqNo: **939435** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512240**

15-Dec-15

Client: EA Engineering

Project: Prices Dairy

Sample ID **MB-22696**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **22696**	RunNo: **30818**
Prep Date: **12/9/2015**	Analysis Date: **12/13/2015**	SeqNo: **941671** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-22696**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **22696**	RunNo: **30818**
Prep Date: **12/9/2015**	Analysis Date: **12/13/2015**	SeqNo: **941672** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: EA Engineering Alb Work Order Number: 1512240 RcptNo: 1

Received by/date: CS 12/04/15

Logged By: Celina Sessa 12/4/2015 3:30:00 PM Celina Sessa

Completed By: Celina Sessa 12/4/2015 3:33:04 PM Celina Sessa

Reviewed By: 12/04/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples were collected the same day and chilled.
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐ # of preserved bottles checked for pH: 2 (<2 or >12 unless noted) Adjusted? No
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐ Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	8.9	Good	Not Present			

Chain-of-Custody Record

Client: EA Engineering

Mailing Address: 320 Gold Ave SW #1300
Abq

Phone #: 505 224 9013

Email or Fax#: tcurley@eaest.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☒ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Prices Dairy

Project #: 505701

Project Manager: Tyler Curley

Sampler: Colton Lake

On Ice: ☒ Yes ☐ No

Sample Temperature: 8.9°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

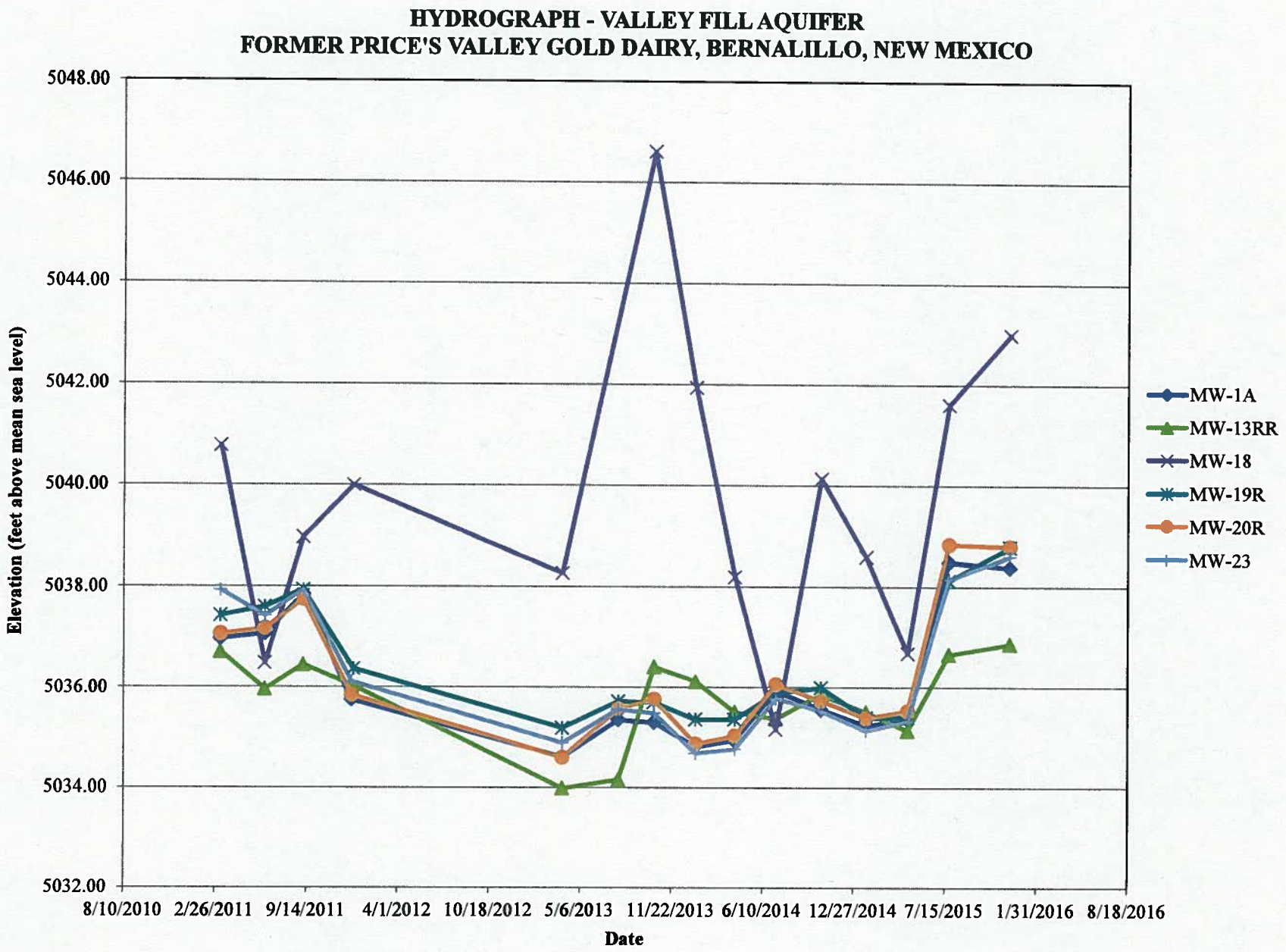
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1512240	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Nitrate	Chloride	TDS		Air Bubbles (Y or N)
12-4	1015	Aq	MW-1A	500 mL 1000 mL Poly	None H_2SO_4	-001												X	X	X		
	1050		MW-13RR			-002																
	1235		MW-18			-003																
	1305		MW-23			-004																
	1336		MW-11R			-005																
	1420		MW-19R			-006																
	1436		MW-20R			-007																

Date:	Time:	Relinquished by:	Received by:	Date	Time
12-4-15	1530		Celina Sanchez	12/04/15	1530
Date:	Time:	Relinquished by:	Received by:	Date	Time

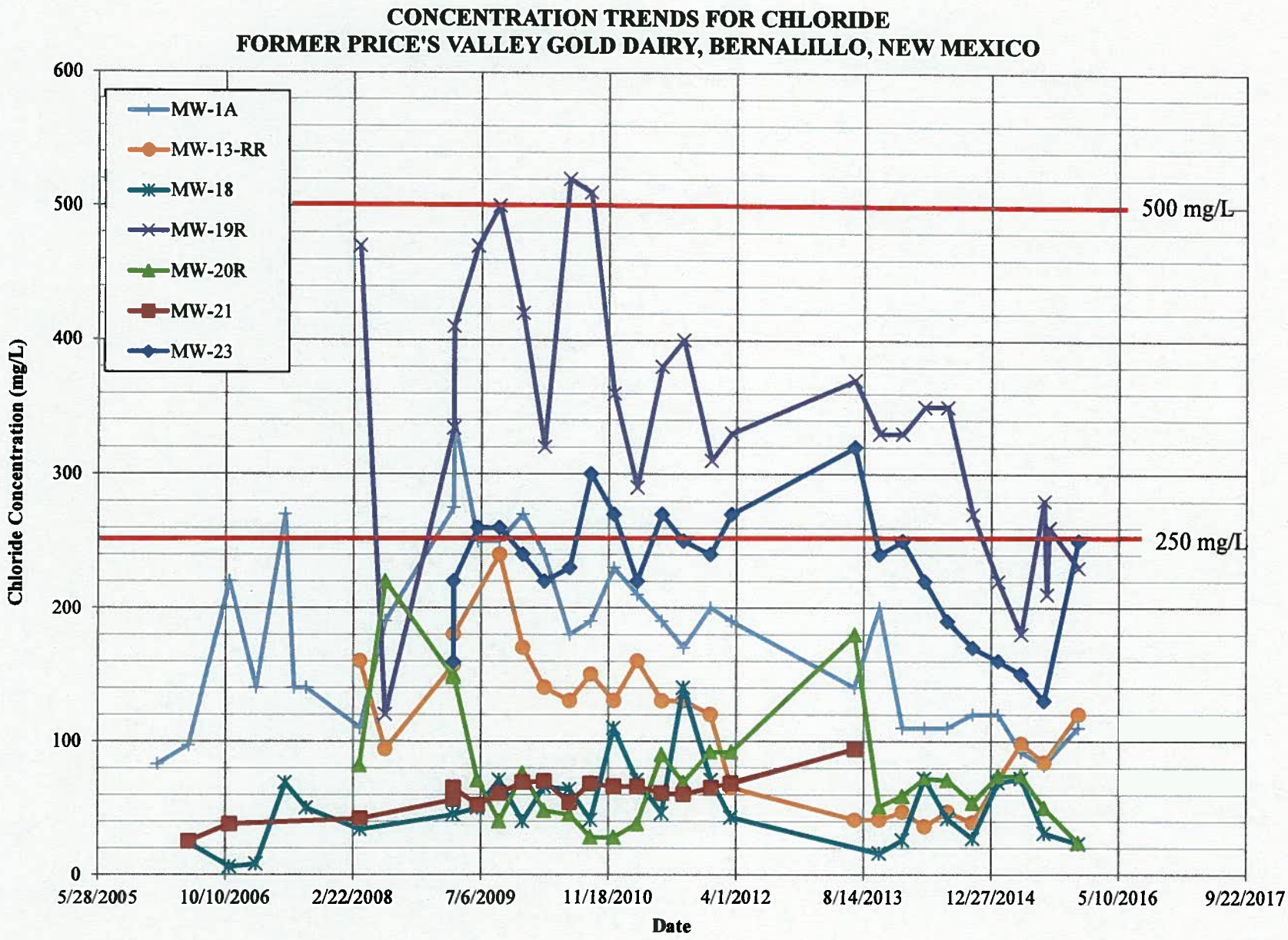
Remarks:

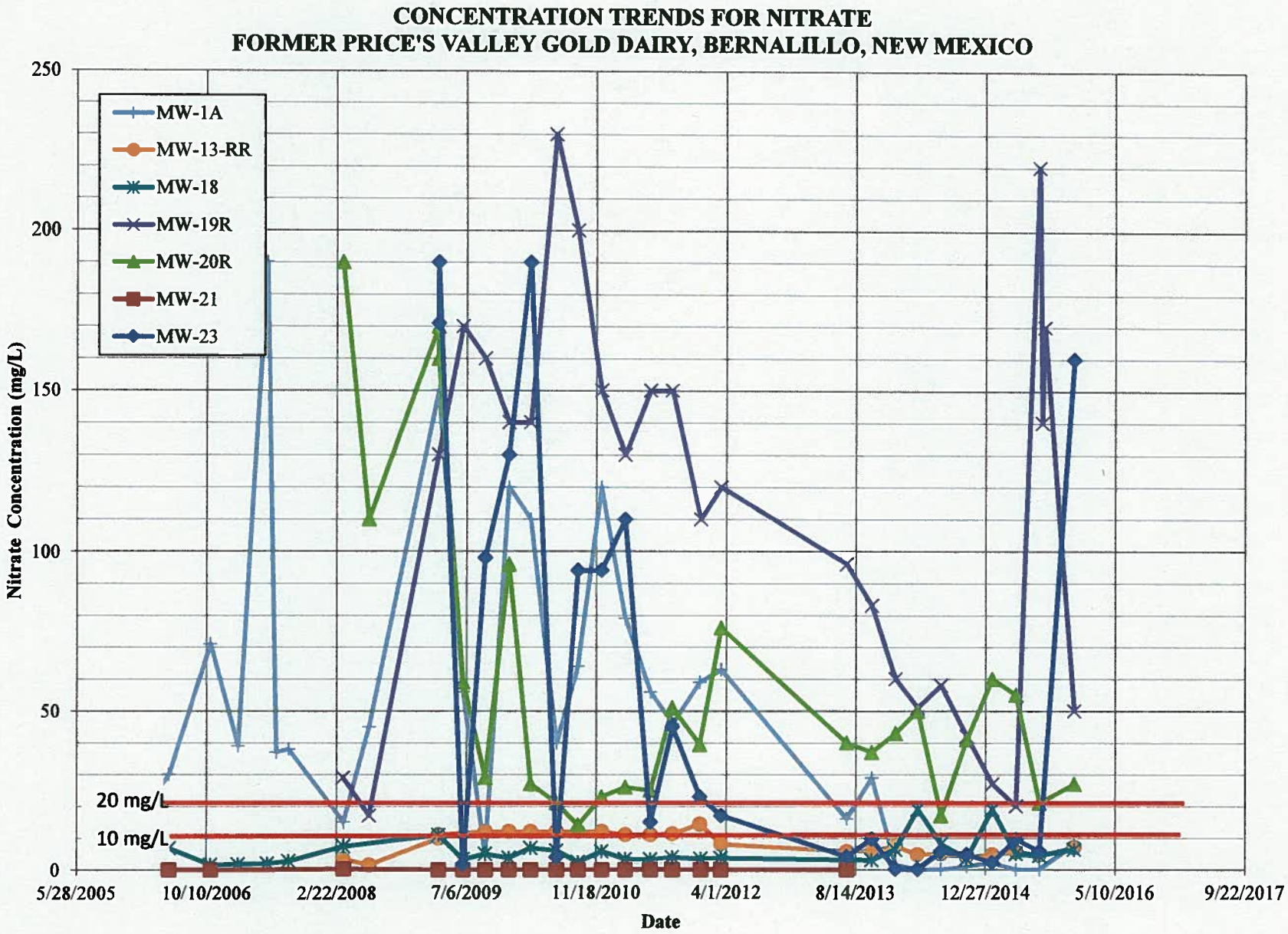
If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

APPENDIX C
HYDROGRAPHS VALLEY FILL AQUIFER


HYDROGRAPH - VALLEY FILL AQUIFER
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO
Elevation (feet above mean sea level)
5048.00
5046.00
5044.00
5042.00
5040.00
5038.00
5036.00
5034.00
5032.00
8/10/2010
2/26/2011
9/14/2011
4/1/2012
10/18/2012
5/6/2013
11/22/2013
6/10/2014
12/27/2014
7/15/2015
1/31/2016
8/18/2016
Date
MW-1A
MW-13RR
MW-18
MW-19R
MW-20R
MW-23

APPENDIX D
CONCENTRATION TRENDS


CONCENTRATION TRENDS FOR CHLORIDE
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO
Chloride Concentration (mg/L)
600
500
400
300
200
100
0
MW-1A
MW-13-RR
MW-18
MW-19R
MW-20R
MW-21
MW-23
500 mg/L
250 mg/L
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017
Date


CONCENTRATION TRENDS FOR NITRATE
FORMER PRICE'S VALLEY GOLD DAIRY, BERNALILLO, NEW MEXICO
MW-1A
MW-13-RR
MW-18
MW-19R
MW-20R
MW-21
MW-23
20 mg/L
10 mg/L
Nitrate Concentration (mg/L)
250
200
150
100
50
0
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017
Date

APPENDIX D

MODIFIED STAGE 2 ABATEMENT PLAN

AMENDED STAGE 2 ABATEMENT PLAN
FOR THE
PRICE'S VALLEY GOLD NORTH DAIRY SITE
SANDOVAL COUNTY, NEW MEXICO

Prepared For
VG Farms, Inc.
Albuquerque, New Mexico

Prepared By
METRIC Corporation
Los Lunas, New Mexico

October 2010

INTRODUCTION

The Price's Valley Gold North Dairy site is located on the east side of NM Hwy 528 in Bernalillo, New Mexico (FIGURE 1). A dairy was operated on the site from the late 1960's until 1998.

In February 1986 the New Mexico Environmental Improvement Division notified the Price's Valley Gold North Dairy that they were required to have a discharge plan. The dairy submitted an application in May 1986, and it was approved in July 1987. The initial samples collected from MW-1, near the dairy's East lagoon, had existing Nitrate concentrations of 43.8 mg/l in November 1986, 93.4 mg/l in February 1987 and 61.8 mg/l in December 1987 (average = 66 mg/l).

In June 1997, the New Mexico Environment Department was advised that the dairy was scheduled to be closed. As part of a site investigation conducted in June and August 1997, the New Mexico Environment Department provided guidance on the type of Corrective Action Plan it would require under the discharge permit in connection with the closure of the dairy. Initial work on the Corrective Activation Plan began in August 1997. The dairy was closed in June 1998. Beginning in October 1997, Glorieta Geoscience, Inc., Faith Engineering, Inc. and MJ Darr Consultant conducted numerous investigations and studies and developed at least three corrective action and abatement plans. The most recent corrective action, conducted during the summer of 2008, involved operating a nutrient injection system at the site. The objective of the injection system was to create a treatment wall within the aquifer which would de-nitrify the groundwater as it passed through the wall. In November 2008, METRIC Corporation was retained to conduct an independent evaluation of the historic investigation and remediation efforts at the site.

Successful remediation of any contaminated groundwater depends on five key factors. These factors are as follows:

- An accurate description of the geology and hydrology of the area.
- An accurate description of the sources of the contaminants.
- An accurate description of the horizontal and vertical extent of the contaminants in the aquifers.
- An accurate description of the movement of the contaminates in the aquifers.
- An accurate description of the fate of the contaminates in the aquifers. That is, are the contaminants subject to attenuation by processes occurring in the aquifer, or are they recalcitrant.

Any proposed remediation scheme can be judged by these factors.

Geology

John W. Hawley, PhD, CPG #2309 with Hawley Geomatters, Albuquerque, NM was retained by METRIC Corporation to develop a geologic model of the dairy site. Dr. Hawley was furnished the available soil boring and monitoring well logs for the site. He was also furnished with historic reports, historic water level data and historic water quality data.

Dr. Hawley's geologic model of the site is presented in APPENDIX A. The model is presented in the form of ten cross sections. Referring to Sections I-I' and J-J', which are oriented along the geologic dip in the upper Santa Fe beds (USF) and are located along the north bank of Venada Arroyo, five relevant geologic formations are identified. Starting with the oldest, the upper Santa Fe (USF) consists of alternating clay and sand beds and is dipping to the southeast at about 2° to 5°.

Overlying the USF in the western part of the cross section is older axial valley fill (VAO).

Overlying the upper Santa Fe (USF) on the terrace previously occupied by the dairy, is the Los Durans Gravel (TAd). The Los Durans Gravel consists of a clean gravel to cobble layer with its base at about elevation 5057.

The younger Venada Arroyo Fill (VAy) is inset into the VAO, TAd and USF. The Venada Arroyo Fill consists of sand and gravel derived from the Venada Arroyo watershed and from the Los Durans Gravel.

The Rio Grande Valley fill (RG) overlies the Upper Santa Fe (USF) in the eastern part of the cross section. The Rio Grande Valley Fill consists of gravel, sand, and clay and has a base elevation of about 4990.

Hydrology

Evaluation of the site geology and historic water level data indicates that there are two distinct aquifers at the site. Referring to FIGURES 1, 2 and 3, the two aquifers are identified as follows.

The older upper Santa Fe aquifer is designated the USF-aquifer, Monitoring Wells 6, 8, 9, 11, 12, 14, 15 and 19 were completed in USF aquifer. Recharge to the USF aquifer probably occurs along it's subcrop beneath the older valley fill (VAO) and Los Durans Gravel (TAd) to the west and north of the site.

The younger valley fill aquifer (designated VF aquifer) consists of the combined Venada Arroyo Fill (VAy) and the Rio Grande Valley fill (RG). The two units are hydraulically connected and exhibited an average water level elevation of about 5040. Monitoring Wells 1, 18, and 20 were completed in this aquifer. The VF aquifer is hydraulically separated from USF aquifer by a "red clay" in the upper Santa Fe as shown in FIGURE 2 and FIGURE 3. The "red clay" was identified in the logs for MW-8, 12, 15, 18, and 19.

The presence of the "red clay" in the Upper Santa Fe (USF) explains the approximate 20ft. water level difference between the VF aquifer and the USF aquifer.

Groundwater flow in the USF aquifer is to the Southeast as depicted in FIGURE 4, which represents conditions in June 2010. Hydrographs of the USF monitoring wells (FIGURE 5) indicate water levels are stable.

Regional data indicates the groundwater flow direction in the Rio Grande Valley Fill aquifer (RG) is to the south-southwest (generally parallel to the Rio Grande). Water levels presented in Glorieta Geoscience, Inc. April 1998, which included Monitoring Wells MW-1a, 2, 2a and 3 (FIGURE 1) support that point. A comparison of water levels in MW-18 and MW-1A indicates the Venada Arroyo Fill portion of the VF-aquifer is acting in a manner analogous to an estuary.

When the water levels in the Rio Grande Valley Fill aquifer rise, groundwater flows to the west in the Arroyo Fill, and when water levels in the Rio Grande Valley Fill fall, ground water flows to the east in the Arroyo Fill. Recharge to the Rio Grande Valley fill aquifer in this area comes primarily from leakage out of the Rio Grande. Recharge to the Venada Arroyo Fill portion of the aquifer (VAy) comes primarily from the Rio Grande Valley Fill and to a lesser extent from direct infiltration of stormwater into the bottom of Venada Arroyo. FIGURE 6 depicts the eastward groundwater flow direction in the VF aquifer in March 2010. FIGURE 7 depicts the westward groundwater flow direction in the VF aquifer in June 2010. Hydrographs of the VF monitoring wells (FIGURE8) show two reversals in groundwater flow direction which occurred in May and July 2010.

Potential Sources of Nitrate in the Groundwater

Since 1997, several potential sources of Nitrate to the groundwater have been suggested. Potential sources include the following:

- The three dairy lagoons located along the north bank of Venada Arroyo (FIGURE 1).
- The dairy corral area located on the terrace north of Venada Arroyo (FIGURE 1).
- Sewage lift stations and associated sewer pipes located southwest and northeast of the dairy corral area (FIGURE 1).
- Individual septic systems associated with housing areas located west of NM Hwy. 528 and east of the dairy corral area.
- The Town of Bernalillo wastewater treatment plant located about 1 mile southeast of the dairy corral area.

- The irrigated fields located on the Rio Grande Flood Plain south of Venada Arroyo where water from the dairy lagoons was used as irrigation water (FIGURE 1).

Based on review of the available data, it is believed that the most likely source of Nitrate to the VF aquifer near the mouth of Venada Arroyo is the dairy lagoons. Leakage from the dairy lagoons would infiltrate directly in to the VF aquifer, and Nitrate and TKN concentrations observed in the groundwater are consistent with leakage from dairy lagoons.

The most likely sources of the Nitrate observed in the USF aquifer are infiltration from the corral area and leakage from the municipal sewer pipe and lift station located on the west side of Hwy 528. Both sources are hydraulically positioned to infiltrate into the USF aquifer (FIGURE-3). In March 2009, samples from all of the existing monitoring wells were analyzed for byproducts of chlorination (tri halo methans and halo acetic acids). No such compounds were detected in significant quantities, suggesting that the municipal sewer and lift station on the west side of Hwy 528 are not significant contributors to the Nitrate observed in the USF aquifer.

Both the sewage lift station located near the northeast corner of the site and the individual septic systems located to the east of the corral area might have contributed to the Nitrate concentrations observed in the VF aquifer near the mouth of Venada Arroyo. Both sources are upgradient from the observed contamination. The lift station, however, may not have been in place long enough to have contributed.

The individual septic systems located west of NM Hwy 528 might possibly have contributed to the Nitrate in the USF aquifer. However, if they did, most of the contamination would be deeper in the USF aquifer than the depth at which the site monitoring wells are completed, due to the southeastward dip of the USF beds.

It is extremely unlikely that the discharge from the Bernalillo wastewater treatment plant has contributed to the observed Nitrate contamination, because infiltration from the Rio Grande acts as a hydraulic barrier between the wastewater treatment plant and the site.

Previous investigators (Glorieta Geoscience, Inc., April, 1998) have concluded that irrigation of the fields south of Venada Arroyo with water from the dairy lagoons did not cause significant Nitrate contamination of the groundwater.

Extent of Elevated Nitrate in the Groundwater

The existing concentration of Nitrate in the Upper Santa Fe (USF) aquifer prior to approval of D.P.-437 in July 1987 is not known because no monitoring wells had been installed in that aquifer by that date. The most recent groundwater monitoring, in March 2010 (TABLE 1), indicates that the WQCC numeric standard (allowable limit) for Nitrate (10 mg/l) is exceeded at three wells in the USF aquifer. These exceedences are 42 mg/l (MW-11R), 14 mg/l (MW-14R) and 18 mg/l (MW-15R).

A review of the Nitrate concentrations in MW-1 and subsequently MW-1A (its' replacement) indicates substantial temporal fluctuations in Nitrate concentrations in the VF aquifer in response to the flow in the Rio Grande, which is located to the east of the site. TABLE 2 and FIGURE 9 indicate a good correlation exists between the maximum annual monthly flow in the Rio Grande at San Felipe, NM (USGS gage 08319000) and the subsequent minimum annual Nitrate concentration in monitoring well MW-1 (FIGURE 1). The gage at San Felipe, NM is about 12 miles upstream from the project site.

Simply, when the flow in the Rio Grande is high, the groundwater in the VF aquifer in the vicinity of MW-1 (and the old dairy lagoon) flows to the west (FIGURE 7) moving the Nitrate plume with it. When the flow in the river is low, the ground water flow in VF aquifer is to the east (FIGURE 6) which moves the Nitrate plume back around MW-1. This phenomenon explains the widely fluctuating Nitrate, TDS and Chloride concentrations that have been observed at MW-1, MW-1A, MW-20, MW-20R and MW-23 during the past 23 years.

In recent years high Nitrate concentrations have been observed in MW-1A (150 mg/l), MW-19R (230 mg/l), MW-20R (190 mg/l), and MW-23 (190 mg/l). Based on the previously described hydrologic conditions the size of the Nitrate plume in the VF aquifer remains relatively constant, however the location changes with time. In years of high river flow, the plume is pushed to the west, and in years of low river flow, it moves back to the east. Current data suggests the locus of the Nitrate plume locations covers an area about 1000 feet long in the northeast/southwest direction and about 800 feet long in the northwest/southeast direction.

Based on a comparison of Nitrate concentrations at MW-2 and 2A and MW-20 and 20R, the high Nitrate concentrations in VF aquifer appear to be confined to the upper part of the aquifer.

Movement of Nitrate in the Groundwater

In the concentrations observed at the site, Nitrate moves as a dissolved ion with the groundwater. Thus, Nitrate in the USF aquifer will move to the southeast with the groundwater flow (FIGURE 4).

Nitrate in the VF aquifer will likewise move with the groundwater. Nitrate in the VF aquifer near the mouth of Venada Arroyo may move either eastward or westward depending on the direction of groundwater flow at the time.

Fate of Nitrate in the Groundwater

The primary natural process that will tend to diminish Nitrate concentrations at the site are dispersion and the associated dilution. Nitrate is not subject to significant

adsorption on soil particles, nor is it subject to chemical or biological reduction due to relatively high dissolved oxygen concentrations in the shallow groundwater.

Effectiveness of the Injection System

A nutrient injection system was installed and operated at the site during the summer and fall of 2008. It appears the objective of the injection system was to develop an insitu treatment wall across the VF aquifer. The effectiveness of such a remediation scheme depends on two elements. First, the Nitrate contaminated groundwater must pass through the treatment wall, and second chemical or biological processes must denitrify the groundwater.

Development of a biomass within the aquifer shouild reduce the permeability of the aquifer. If the treatment wall does not extend to the base and lateral limits of the aquifer, and if there are holes in it, the groundwater will tend to flow under, around or through the wall, those being paths of lesser resistance.

Theoretically, if the contaminated groundwater passes through the treatment wall, denitrafication will occur. Too many unknowns exist to allow determination of whether or not the treatment wall has had a beneficial affect on the Nitrate in the VF aquifer, although some reduction in Nitrate mass may yet occur.

AMENDED STAGE 2 ABATEMENT PLAN

Since the nutrient injection system operated at the site in the summer and fall of 2008 does not appear to have achieved significant reductions in groundwater Nitrate concentrations, VG Farms, Inc. has re-evaluated the available options.

Abatement Options

The USF aquifer and the VF aquifer have been shown to be hydraulically separate. As a result, different abatement options are appropriate for each aquifer. The following options have been reconsidered:

- Continue nutrient injection
- Investigate potential off-site sources
- Pump, treat and onsite re-injection
- Substitute abatement standards
- Alternate abatement standards
- Natural attenuation
- Pump and discharge to municipal wastewater plant
- Pump and irrigate an agricultural crop

Preferred Abatement Options

VG Farms proposes monitored natural attenuation for the USF aquifer. The Nitrate concentrations in this aquifer are generally declining, and are less than 200% of the WQCC Numeric Standards in all but one of the wells (MW-11R). If the concentration in that well drops below the 200% threshold, substitute abatement standards may be proposed in the future.

Since January 2009, V G Farms has been working with the Town of Bernalillo to develop an agreement to discharge pumped groundwater to the Town's waste water treatment plant as a means of remediating the VF aquifer. Those efforts have been unsuccessful. As a result, V G Farms proposes to remediate the VF aquifer by pumping up to four containment/remediation wells to irrigate between three and four acres of alfalfa on their remaining 7.7 acres of land known as lot 5-B (FIGURE 10).

Based on V G Farms' recent experience raising alfalfa at their South Valley farm, they expect to produce between 12 and 14 tons/acre/yr of alfalfa. According to NRCS, NM, February, 2002, alfalfa will remove 47.75 pounds of Nitrogen per ton of hay harvested. If the production is 12 tons/ac/yr and 4 ac-ft/ac/yr of irrigation water is applied, the alfalfa will fully utilize all the Nitrogen in irrigation water having up to 53 mg/l of Nitrate as Nitrogen.

An analysis of the groundwater monitoring data since March 2008 suggests the 66 mg/l Nitrate plume has an aerial extent of about 2.5 ac (APPENDIX B) and an average thickness of about 20 ft. A porosity of 40% yields a plume pore volume of about 20 ac-ft. It is estimated that the 66 mg/l Nitrate plume has an average concentration of about 135 mg/l. In order to maintain the Nitrate concentration in the pumped irrigation water at or below 53 mg/l, it will be necessary to pump about 2.5 times as much or about 50 ac-ft of water from the aquifer.

The site will accommodate two rectangular fields totaling about 3.5 ac. If 3.5 ac of alfalfa is irrigated with 4.0 ac-ft/ac/yr of water, the total pumpage would be 13.6 ac-ft/yr. Ideally, this would require about 4 yr to remove the 66 mg/l Nitrate plume.

Up to four containment/irrigation wells are proposed. Existing well RW will be utilized plus up to three additional wells. Blending of water from the wells will be used to control the Nitrate concentration of the irrigation water applied to the fields. The area to be irrigated consists of two level benches shown on Figure 10. Each bench will be surrounded by a berm to prevent surface runoff, and the irrigation water will be applied with a sprinkler system to assure uniform distribution of the water and to minimize deep percolation.

V G Farms plans to begin raising alfalfa on the approximate 3.5 ac area shown on FIGURE 10 in the spring of 2011. V G Farms does not plan to apply for or obtain a discharge permit under NMAC 20.6.2.3104 and 3106 because NMAC 20.6.2.3105 exempts irrigated agriculture from those requirements. Additionally, any deep percolation of Nitrate containing irrigation water would not contaminate any previously uncontaminated groundwater.

Nitrate concentrations in the applied irrigation water and alfalfa production will be monitored during the growing season to assure that no more than 47.75 lb of Nitrogen per ton of alfalfa harvested will be applied to the fields. As long as deep percolation is minimized, elevated TDS and Chloride in the VF aquifer will coincidently be remediated.

Modified Monitoring Program

The following table summarizes the proposed modified groundwater monitoring program. Monitoring frequency in the in the USF aquifer is less frequent because that aquifer exhibits very small fluctuations in water levels and water quality.

Well	Aquifer	Water Level Frequency	Sampling Frequency
MW-1A	VF	Quarterly	Quarterly
MW-6R	USF	Annually	Annually
MW-8R	USF	Annually	Annually
MW-11R	USF	Annually	Annually
MW-13RR	VF[1]	Quarterly	Quarterly
MW-14R	USF	Annually	Annually
MW-15R	USF	Annually	Annually
MW-16R	USF	Annually	Annually
MW-18	VF	Quarterly	Quarterly
MW-19R	VF	Quarterly	Quarterly
MW-20R	VF	Quarterly	Quarterly
MW-21	VF	Quarterly	Quarterly
MW-23	VF	Quarterly	Quarterly
MW-24	VF	Quarterly	Quarterly
MW-25	VF	Quarterly	Quarterly
MW-26	VF	Quarterly	Quarterly
MW-27	VF	Quarterly	Quarterly
Irrig/Cont	VF	NA	Monthly[2]

[1]MW-13RR is completed geologically in the USF aquifer above the red clay, thus it is hydraulically connected to the VF aquifer.

[2]During the growing season only.

Shaded portions represent modifications to the presently approved monitoring program.

All samples will be analyzed for NO_2+NO_3, TKN, TDS and Cl.

Performance Standards

All the monitoring wells are designated compliance wells. When all monitoring wells in the USF aquifer are below the numeric standards or substitute standards as may be

approved by the NMED for Nitrate, TDS and Chloride for two consecutive years, an abatement completion report will be submitted to the NMED for that aquifer.

When all monitoring wells and containment/irrigation wells in the VF aquifer are below the allowable limit for Nitrate (66 mg/l), TDS (1000 mg/l) and Chloride (250 mg/l) for two consecutive years, an abatement completion report will be submitted to the NMED for that aquifer.

When the Secretary of the NMED notifies VG Farms, Inc. that an abatement completion report is approved, all monitoring wells in that aquifer will be plugged and abandoned in accordance with NMED and NMOSE requirements. In the case of the VF aquifer, the containment/irrigation wells will also be plugged and abandoned.

Schedule

V G Farms plans to begin raising irrigated alfalfa on the site in the spring of 2011, contingent upon NMOSE approval of a water rights permit and provision of temporary power by Public Service Company of New Mexico.

Annual progress reports will be submitted to the NMED for the duration of the abatement activities in each aquifer.

Public Notice

V G Farms believes that public notice required by NMAC 20.6.2.4108.B. has been satisfied by the previous public notice related to the December 18, 2006 Stage 2 Abatement Plan, because both plans rely on pumpage of shallow groundwater for remediation . Therefore this amended Stage 2 Abatement plan does not constitute a significant modification to the December 18, 2006 plan. The previous public notice is presented in Appendix C.

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Appendix A

Hawley, J.W., January 12, 2009

APPENDIX A

Hawley, J. W., January 12, 2009

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DRAFT REPORT ON THE HYDROGEOLOGIC SETTING OF THE PRICE'S VALLEY GOLD-NORTH DAIRY SITE IN AND NEAR SECTION 36, T13N, R3E, SANDOVAL COUNTY, NEW MEXICO[1]

JANUARY 12, 2009

[1] Prepared in cooperation with Gary A Richardson, P.E., Metric Corporation

Introduction

This report is an independent characterization of the Price's Valley Gold-North Dairy (**PVGND**) site's hydrogeologic setting in and near Section 36, T13N, R3E, Sandoval County, NM (USGS Bernalillo 7.5 minute quadrangle). The primary study area is located at the southwestern edge of the Town of Bernalillo and along the western border of the inner Rio Grande Valley east of NM-528 and south of NM-505. The general area of interest is in the northern part of the Albuquerque Basin of the Rio Grande rift tectonic province, and includes the zone of structural transition between the Santo Domingo and Calabacillas subbasins (Hawley 1978, Keller and Cather 1994, Hansen and Gorbach 1998; Bartolino and Cole 2002; Connell et al. 2005, 2007; Connell 2008). Upper Cenozoic Santa Fe Group basin fill (Ceja Fm) and late Pleistocene to Holocene river-valley fill (Los Padillas Fm) comprise the major aquifer systems of this "alluvial-basin" (Hawley et al. 1995, Kernodle et al. 1995, Hawley and Kernodle 2000, McAda and Barrow 2002). Emphasis here is on hydrogeologic characterization of aquifers and overlying deposits in the unsaturated (vadose) zone in order to develop better geohydrologic-hydrochemical treatment strategies for remediation of any groundwater contamination that may be associated with previous operations at or near the **PVGND** site.

Key references* on the local geologic and hydrogeologic setting and related publications of a more general nature are cited at the end of the report, and include unpublished reports by consultants and State agencies on monitoring-well installation and soil-borings. More-detailed geologic interpretations are provided by the 1:24,000-scale geologic map of the Bernalillo and Placitas quadrangles (Connell et al., 1995-1998), and a new 1:50,000-scale compilation of geologic and hydrogeologic mapping in the entire Albuquerque-Rio Rancho metropolitan area (Connell, 2008).

Report Plate 1 is an index map showing locations of 1) ten schematic cross sections (Plates 2 to 4) that illustrate shallow-subsurface hydrogeologic conditions at the **PVGND** site, and 2) forty-five well- and borehole-control points used in construction of the cross sections. This map is a 1:6,000-scale enlargement of the USGS Bernalillo 7.5 minute topographic quadrangle (10 ft contour interval). Plate 1 also shows the

approximate location of the north-south trending "Venada" fault that borders the study area on the west. Section vertical exaggeration is 5x, and primary base elevation is 4,900 ft asl (about 150 ft blw the river floodplain). *Note that southward to eastward dips of Upper Santa Fe Group beds of 2° to 5.5° (Plates 2 to 4) are in the dip range inferred from geologic mapping in the general area of interest (Connell et al. 1995-1998); however, basin-fill dips at the actual* ***PVGND*** *site have never been specifically measured (due to unit burial) and may range from nearly flat to gently westward dipping.*

Additional supporting materials include general explanations (Fig. 1, Tables 1 to 3) of the basic hydrogeologic components (hydrostratigraphic units and lithofacies assemblages) of the basin-fill aquifer system illustrated on the attached schematic cross-sections (Plates 2 to 4). For example: Lithofacies-assemblage (***LFA***) units are the basic building blocks of the Santa Fe Group hydrogeologic framework. Their general attributes are illustrated and defined in Figure 1 and Table1; and their geohydrologic properties are summarized in Table 2. The major hydrostratigraphic units (**HSUs**) are subdivisions of the Upper Santa Fe Group basin fill and Rio Grande Valley fill (Fig. 2, Table 3: **HSU-USF, and HSUs-RG, VA, VAY, VAO,** and **TAd**). *See Hawley and Kernodle (2000) for more detailed discussion of hydrogeologic mapping concepts basin-fill aquifer systems throughout the Rio Grande rift province of New Mexico and Colorado. Figure 2, modified from Figure 6 in the latter report, summarizes Cenozoic chronology and correlates major lithostratigraphic and hydrostratigraphic units of the Rio Grande rift region.*

Overview of Local Hydrogeologic Framework

The ten schematic hydrogeologic cross-sections (Plates 2 to 4) illustrate the general subsurface conditions at the **PVGND** site inferred from our hydrostratigraphic interpretations of 1) previous geologic field studies in the general area of interest, and 2) forty-five lithologic logs of monitoring wells and soil borings in the specific site area (in and adjacent to Sec. 36, T13N, R3E). Of special local interest is the location of a north-south-trending intra-rift-basin fault, here designated the "Venada" fault, located near the western edge of the study area (unnamed fault mapped by Connell (2008) that located approximately at sharp N-S to E-W bends in lower Arroyo Venada-NE¼, NW¼, Sec. 36). Inferred down-to-the-east displacement of this fault ranges from hundreds of feet offset of Pliocene **USF** beds to less than 20 feet offset of middle to upper Pleistocene **HSUs-VAO/TAd** (Connell et. al. 1995-1998; Connell, 2008, 01/2009 personal communication). As also noted in the **Introduction**, the less than 6° southward to eastward dips of **HSU-USF** beds (schematically shown on Plates 2 to 4) are in the general dip range inferred from geologic mapping by Connell and others (1995-1998). Because unit **USF** is buried by valley-fill deposits (**HSUs-VAY. VAO, and TAd**) at all but one small outcrop at the **PVGND** site, basin-fill deformation has not been measured and may range from nearly flat to gently dipping in any direction. This inference is supported by published dip and strike measurements at Upper Santa Fe-Ceja Formation outcrops within two miles of the study area (Connell et. al. 1995-1998).

The primary aquifer systems at the site comprise 1) basin-fill hydrostratigraphic unit (**HSU**) **USF**, which is dominated by lithofacies assemblage (***LFA*** *3*; and 2) valley-fill **HSU-RG**, which is mainly ***LFA a1-2*** (Fig. 1, Tables 1 to 3, Plates 2 to 4). The basin-fill (**USF-*LFA 3***) hydrogeologic component of the regional aquifer system exhibits a

wide range in permeability. However, estimated horizontal-hydraulic conductivities (K_h) in the Albuquerque groundwater basin are commonly in the "moderate" range (3-30 ft/d, Table 2; Hawley and Kernodle 2000), while model-K_h estimates in the **PVGND** site area are about 4 ft/d (Kernodle et al. 2005, McAda and Barrow 2002). Silty clay to sandy mudstone interbeds in ***LFA 3*** are as much as 20 ft thick, and appear to act as effective confining beds (aquitards and aquicludes) beneath much of the site area. The potentiometric surface (pressure head) in monitoring wells screened in unit **USF** is usually significantly less than local unconfined water-table elevations in **HSU-RG** of the river-valley-floor area (about 5,040 ft asl, Plates 2 to 4).

Geohydrologic/hydraulic properties of Rio Grande valley-fill hydrostratigraphic unit (**HSU-RG**) and the saturated basal part of contiguous tributary alluvium of Arroyo Venada (**HSU-VAY**) contrast markedly with those of **HSU-USF**. Estimated horizontal-hydraulic conductivities (K_h) are commonly in the "high to moderate" range in these valley-fill units (***LFAs a1-2*** and ***b***) throughout the northern Rio Grande Valley region (Hawley and Kernodle 2000-Table 3), with model-K_h estimates of about 40 ft/d in the Bernalillo-**PVGND** site area (Kernodle et al. 1995). As noted above, the potentiometric surface in the upper unconfined aquifer system of the inner Rio Grande Valley (**HSUs RG** and basal **VAY**) is within 10 to 15 feet of the local river-floodplain surface (about 5,050 ft asl), except near major pumping centers. Valley-fill groundwater heads (about 5, 040 ft) are therefore significantly higher than those in the adjacent/subjacent confined basin-fill (**UFS**) aquifer system in most parts of the study area.

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Table 1. Summary of depositional settings and dominant textures of major lithofacies assemblages (***LFAs***) in basin and valley fills of the Rio Grande rift region: Santa Fe Group basin fill (***1-10***), and post-Santa Fe river-valley and basin fill (***a-c***). Modified from Hawley and Kernodle (2000)

Lithofacies Assemblages	Dominant depositional settings and process	Dominant textural classes
1	Basin-floor fluvial plain	Sand and pebble gravel, lenses of silty clay
2	Basin-floor fluvial, locally eolian	Sand; lenses of pebble sand, and silty clay
3	Basin-floor, fluvial-overbank, fluvial-deltaic and playa-lake; eolian	Interbedded sand and silty clay; lenses of pebbly sand
4	Eolian, basin-floor alluvial	Sand and sandstone; lenses of silty sand to clay
5	Distal to medial piedmont-slope; alluvial fan	Gravel, sand, silt, and clay; common loamy (sand-silt-clay)
5a	Distal to medial piedmont-slope, alluvial fan; associated with large watersheds; alluvial-fan distributary-channel primary; sheet-flood and debris-flow secondary	Sand and gravel; lenses of gravelly, loamy sand to sandy loam
5b	Distal to medial piedmont-slope, alluvial fan; associated with small steep watersheds, debris-flow sheet-flood, and distributary-channel	Gravelly, loamy sand to sandy loam; lenses of sand, gravel, and silty clay
6	Proximal to medial piedmont-slope, alluvial-fan	Coarse gravelly, loamy sand and sandy loam; lenses of sand and cobble to boulder gravel
6a	Like 5a	Sand and gravel; lenses of gravelly to non-gravelly, loamy sand to sandy loam
6b	Like 5b	Gravelly, loamy sand to sandy loam; lenses of sand, gravel, and silty clay
7	Like 5	Partly indurated 5
8	Like 6	Partly indurated 6
9	Basin-floor-alluvial flat, playa, lake, and fluvial-lacustrine; distal-piedmont alluvial	Silty clay interbedded with sand, silty sand and clay
10	Like 9, with evaporite processes (paleophreatic)	Partly indurated 9, with gypsiferous and alkali- impregnated zones
a	River-valley, fluvial	Sand, gravel, silt and clay
a1	Basal channel	Pebble to cobble gravel and sand (like 1)
a2	Braided plain, channel	Sand and pebbly sand (like 2)
a3	Overbank, meander- belt oxbow	Silty clay, clay, and sand (like 3)
b	Arroyo channel, and valley-border alluvial-fan	Sand, gravel, silt, and clay (like 5)
c	Basin floor, alluvial flat, cienega, playa, and fluvial-fan to lacustrine plain	Silty clay, clay and sand (like 3,5, and 9)

Table 2. Summary of major sedimentary properties that influence groundwater-production potential of Santa Fe Group river-valley and basin fill (***LFAs 1-10***). Modified from Haase and Lozinsky (1992)

Lithofacies	Ratio of sand plus gravel to silt plus clay[1]	Bedding thickness (meters)	Bedding configuration[2]	Bedding continuity (feet)[3]	Bedding connectivity[4]	Hydraulic conductivity (K)[5]	Groundwater production potential
1	High	>1.5	Elongate to planar	>1000	High	High	High
2	High to moderate	>1.5	Elongate to planar	>1000	High to moderate	High to moderate	High to moderate
3	Moderate	>1.5	Planar	500 to 1000	Moderate to high	Moderate	Moderate
4	Moderate to low*	>1.5	Planar to elongate	100 to 500	Moderate to high	Moderate	Moderate
5	Moderate to high	0.3 to 1.5	Elongate to lobate	100 to 500	Moderate	Moderate(l-h)	Moderate(l-h)
5a	High to moderate	0.3 to 1.5	Elongate to lobate	100 to 500	Moderate	Moderate to high	Moderate to high
5b	Moderate	0.3 to 1.5	Lobate	100 to 500	Moderate to low	Moderate to low	Moderate to low
6	Moderate to low	0.3 to 1.5	Lobate to elongate	100 to 500	Moderate to low	Moderate to low	Low to moderate
6a	Moderate	0.3 to 1.5	Lobate to elongate	100 to 500	Moderate	Moderate to low	Moderate to low
6b	Moderate to low	0.3 to 1.5	Lobate	<100	Low to moderate	Low to moderate	Low
7	Moderate*	0.3 to 1.5	Elongate to lobate	100 to 500	Moderate	Low	Low
8	Moderate to low*	>1.5	Lobate	<100	Low to moderate	Low	Low
9	Low	>5	Planar	>500	Low	Very low	Very low
10	Low*	>5	Planar	>500	Low	Very low	Very low

[1]High >2; moderate 0.5-2; low <0.5

[2]Elongate (length to width ratios >5); planar (length to width ratios 1-5); lobate (asymmetrical or incomplete planar beds).

[3]Measure of the lateral extent of an individual bed of given thickness and configuration.

[4]Estimate of the ease with which groundwater can flow between individual beds within a particular lithofacies. Generally, high sand + gravel/silt + clay ratios, thick beds, and high bedding continuity favor high bedding connectivity. All other parameters being held equal, the greater the bedding connectivity, the greater the groundwater production potential of a sedimentary unit (Hawley and Haase 1992, VI).

[5]10 to 30 m/day; moderate, 1 to 10 m/day; low, <1 m/day; very low, <0.1 m/day.

*Significant amounts of cementation of coarse-grained beds (as much as 30%)

TABLE 3. Major Hydrostratigraphic Units of the Valley Gold Dairy Site Area, Sandoval County, New Mexico (See Figures 1 and 2, Tables 1 and 2, and Plates 1 to 3)

Post-Santa Fe Group Hydrostratigraphic Units (HSUs), and Major Lithofacies-Assemblage Components (*LFAs*)

RG—Los Padillas Formation (historic to uppermost Pleistocene, Connell et al. 2007)—Pinkish-gray to grayish-brown sand, sandy pebble to cobble gravel, and silty to sandy clay; contains paleochannel, point-bar, and overbank floodplain deposits that underlie the floor of the inner Rio Grande Valley; gravel dominated by rounded quartzite and volcanic clasts; very weak to no soil development; commonly 60 to 80 ft thick in the study area, and mostly in the zone of saturation. Lithofacies Assemblages (***LFAs***) ***a1-3*** (Fig. 1, Tables 1 and 2). Correlative with **Qrp** of Connell (2008).

VA—Alluvium of arroyo systems tributary to the Rio Grande Valley-undivided **VAY** and **VAO** (Middle Pleistocene to Holocene). Valley-border deposits with local veneers of eolian silty sand; primarily pebbly sand to silty sand and sandy silt; usually less than 20 ft thick in the study area, and entirely in vadose (unsaturated) zone. Lithofacies Assemblage (***LFA***) ***b*** (Fig. 1, Tables 1 and 2).

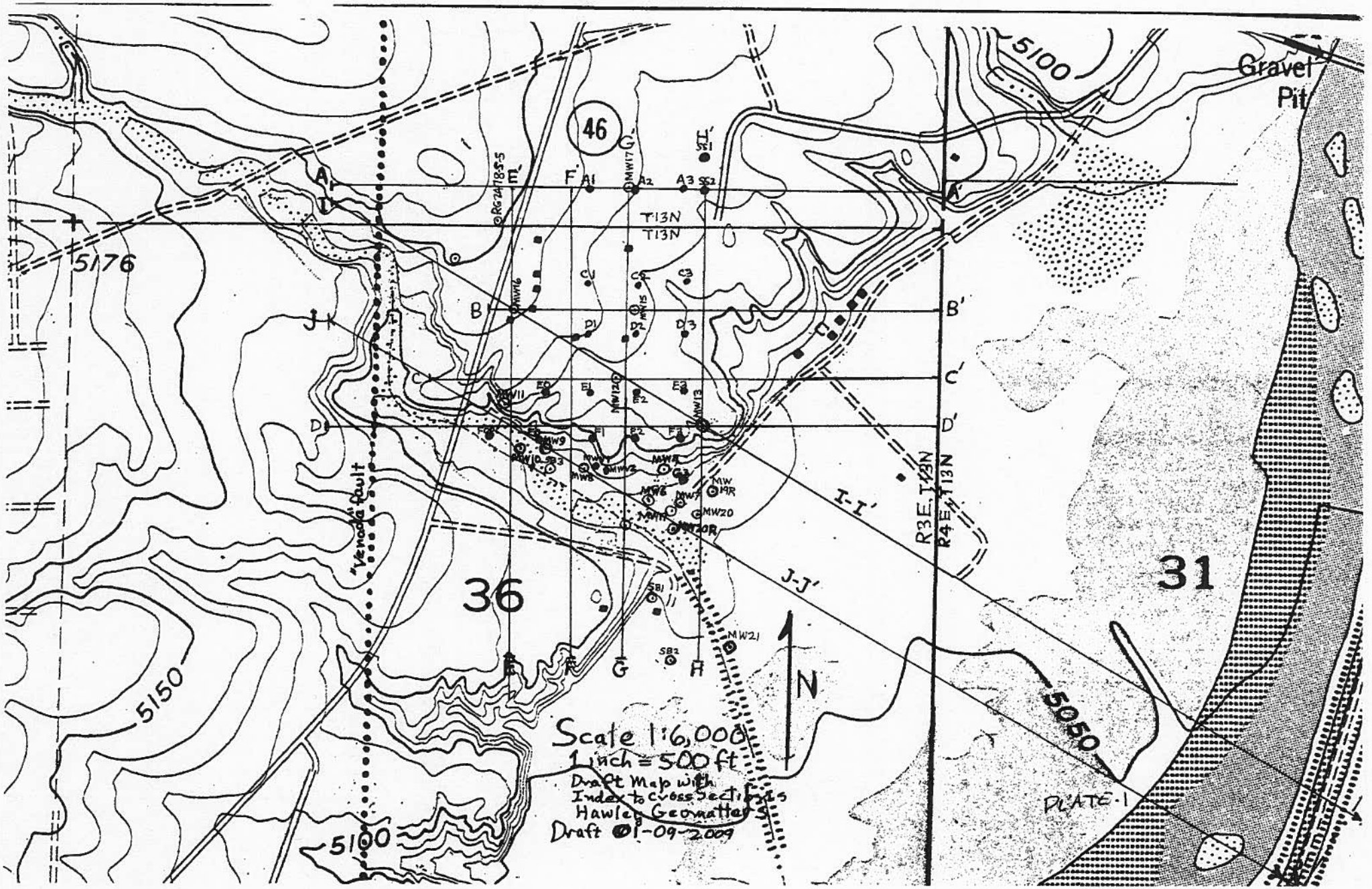
VAY—Younger arroyo-valley alluvium (Holocene to upper Pleistocene)—Pale- to light-brown sand, muddy sand, and pebble to cobble gravel associated with tributary streams graded to the Rio Grande (**HSU-RG**); variable quartzose-feldspathic lithology with gravel dominated by chert, volcanic, and reddish granitic clasts; weakly developed soils with stage I and II carbonate morphology (Gile et al., 1966); depositional surface as much as 10 ft above local-arroyo base level, and less than 70 ft thick in lower reaches of major tributary valleys; mostly in vadose zone, with basal beds partly saturated in valley of Arroyo Venada. Lithofacies Assemblage (***LFA***) ***b*** (Fig. 1, Tables 1 and 2). Correlative with **Qay** of Connell (2008).

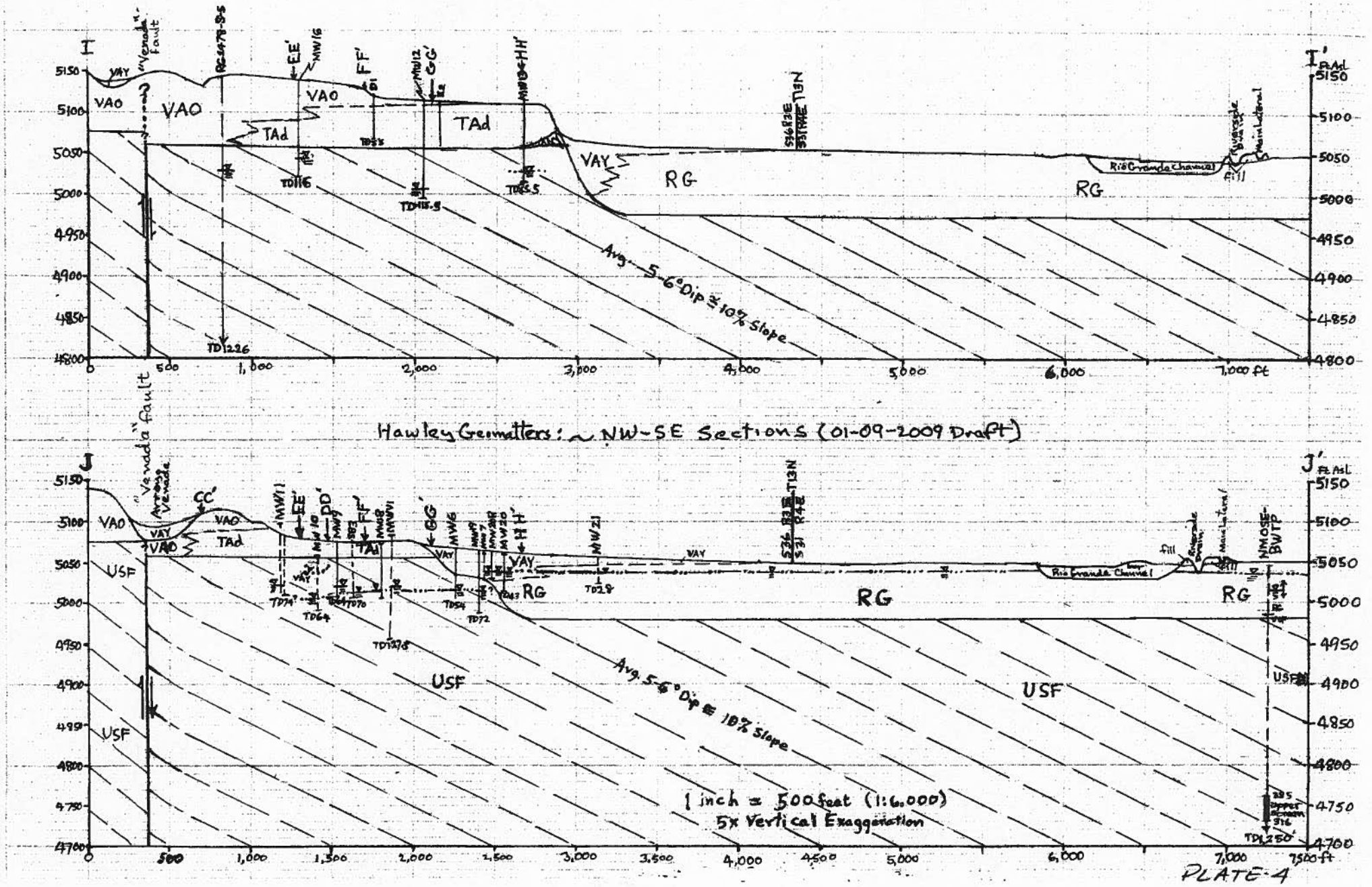
VAO— Intermediate valley-border alluvium (upper to middle Pleistocene)—Alluvial deposits associated with geomorphic surfaces (e.g. fans and terraces) bordering the inner Rio Grande Valley and graded to ancestral- river (**HSU-TAd**) base levels. Yellowish-brown to reddish-yellow sand, muddy sand, silty clay, and pebble to cobble gravel; variable quartzose-feldspathic lithology with gravel dominated by chert, volcanic, and reddish granitic clasts; surface commonly veneered with eolian silty sand; moderately developed soils with stage II to weak stage III carbonate morphology (Gile et al., 1966); 25-100 ft above local-arroyo base level, and as much as 100 ft thick, and entirely in the vadose zone. Lithofacies Assemblage (***LFA***) ***b*** (Fig. 1, Tables 1 and 2). Correlative with **Qam** of Connell (2008).

TAd—Los Duranes Formation (middle Pleistocene, Connell et al. 2007)—Pale-brown to light-reddish-brown sand, sandy pebble to cobble gravel, and silty to sandy clay; fluvial-terrace (channel and floodplain) deposits of the ancestral Rio Grande; gravel dominated by rounded quartzite and volcanic clasts; surface commonly veneered with eolian silty sand; moderately developed soils with stage II to weak stage III carbonate morphology (Gile et al., 1966). Terrace surface is 50-70 ft above historic floodplain base level in the study area; deposits are as much as 70 ft thick, with a minimum elevation in the 5,050 to 5,060-ft range thick and entirely in the vadose zone. Lithofacies Assemblages (***LFAs***) ***a1-3*** (Fig. 1, Tables 1 and 2). Unit intertongues with **HSU-VAO** along valley margins, and is correlative with **Qrd** of Connell (2008).

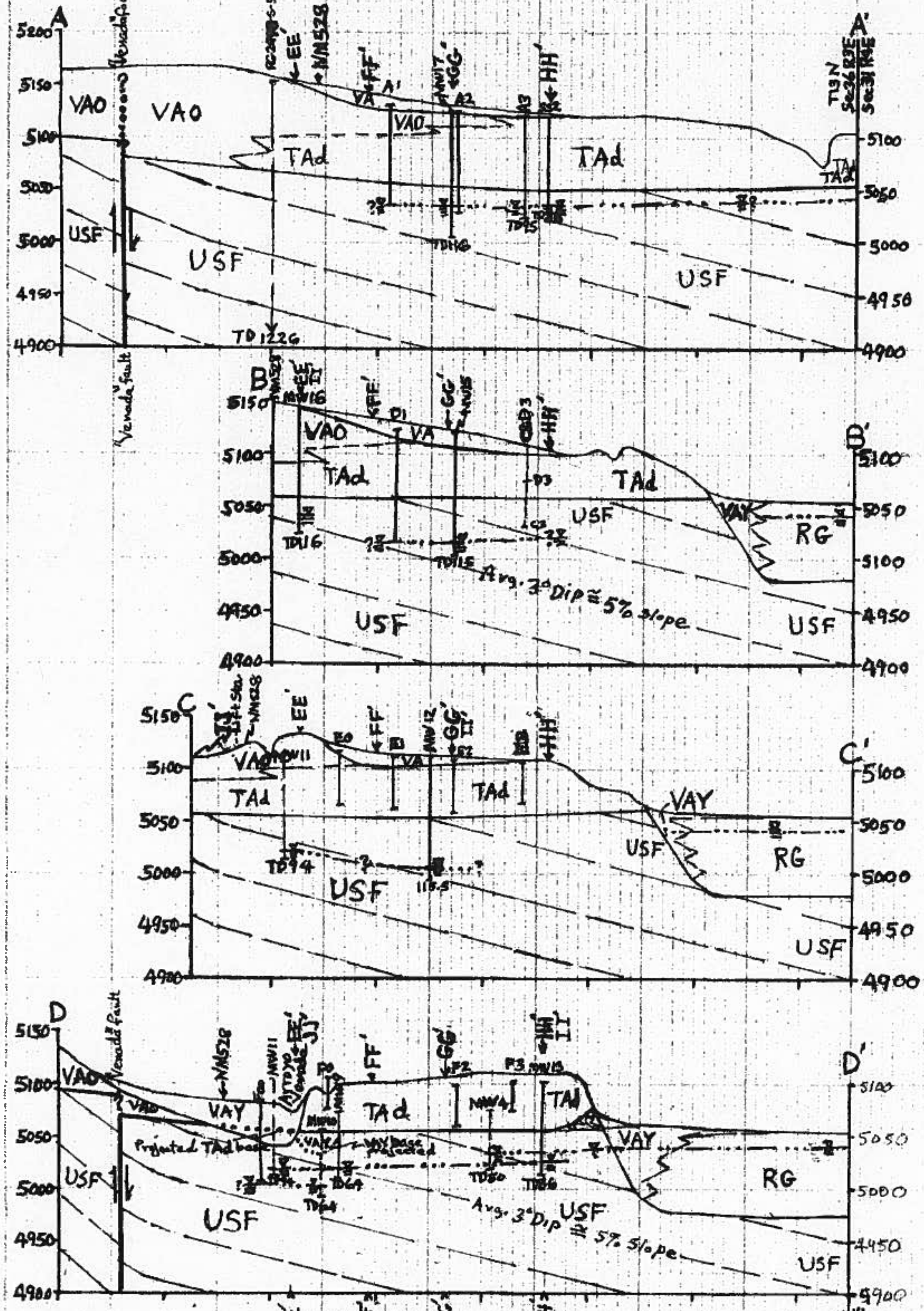
Santa Fe Group Hydrostratigraphic Units (HSUs), and Major Lithofacies-Assemblage Components (*LFAs*)

USF—Upper Santa Fe Gp **HSUs**-undivided intermontane-basin fill (Pliocene): Unit includes intertonguing distal piedmont-slope (**USF3**) and basin-floor (**USF2**) alluvium deposited prior to incision of the present valley systems of the Rio Grande and its major tributaries (e.g. Arroyo Venada). Primarily Lithofacies Assemblage (***LFA***) ***3*** (Fig. 1, Tables 1 and 2) in the study area: Interbedded reddish-brown to yellowish-red silty clay, mudstone, and weakly cemented sandstone and pebbly sandstone derived from pre-Valles caldera Jemez-Nacimiento Mountain area; variable quartzose-feldspathic lithology with gravel dominated by chert, volcanic, and reddish granitic clasts. Correlative with the Santa Ana Mesa Member of the Ceja Formation (**Tcs**) as mapped by Connell (2008) and Connell and others (1995-1998). *Major Santa Fe Group aquifer, with saturated thickness locally exceeding 1000 ft.*


5100
Gravel Pit
46
T13N
T13N
5176
Venada fault
36
31
R3E, T13N
R4E, T13N
I-I'
J-J'
5150
5100
5050
N
Scale 1:6,000
1 inch = 500 ft
Draft Map with
Index to Cross Sections
Hawley Geomatters
Draft @1-09-2009
PLATE-1

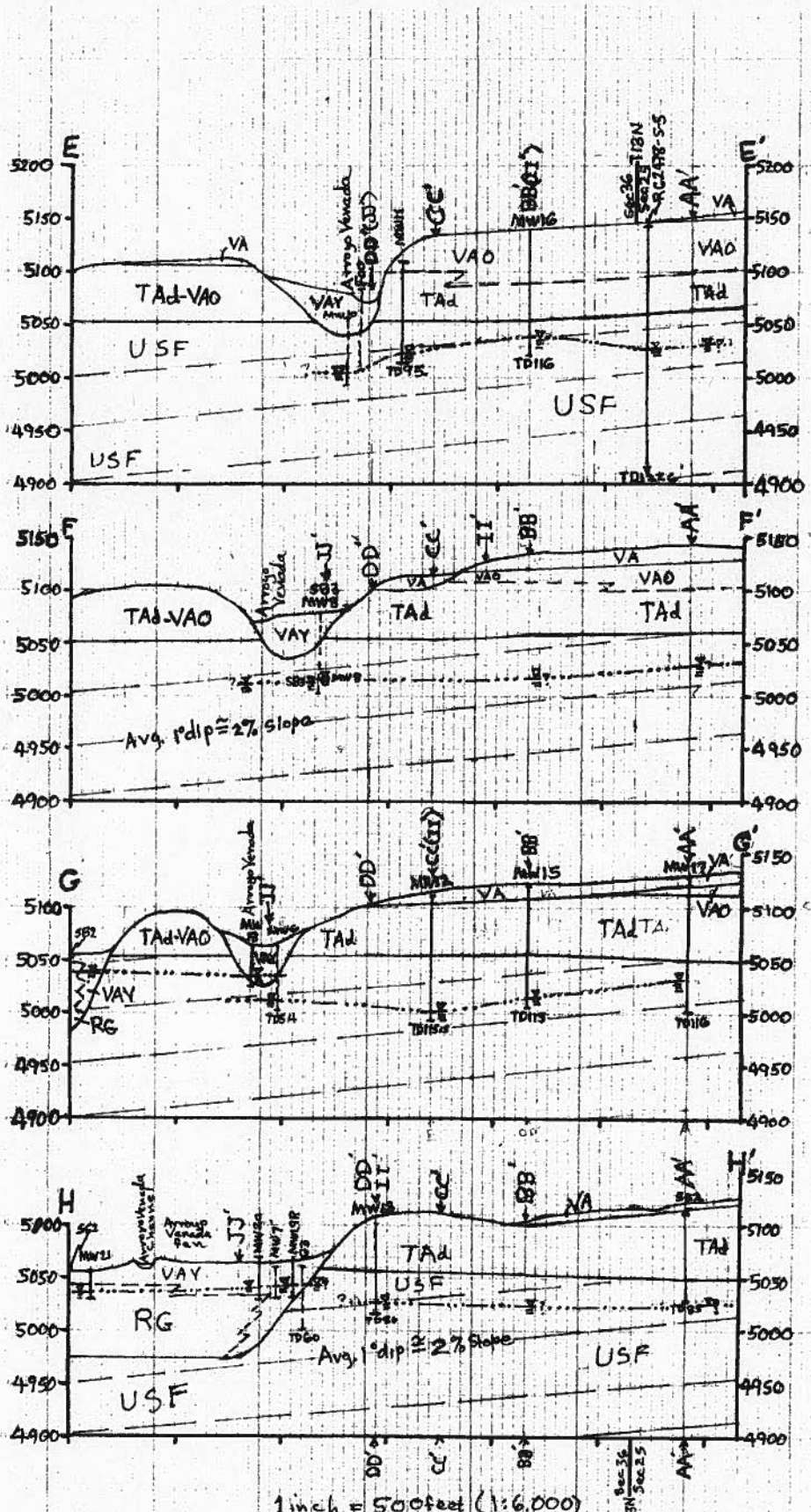


Hawley Geomatters: ~ NW-SE Sections (01-09-2009 Draft)



1inch = 500feet (1:6,000)
5x Vertical Exaggeration
East-West Sections
Hawley Geomatters
01-09-2009
Draft

PLATE-2



1 inch = 500 feet (1:6,000)
5x Vertical Exaggeration
North-South Sections
Hawley Geomatters
01-09-2009
Draft

PLATE-3

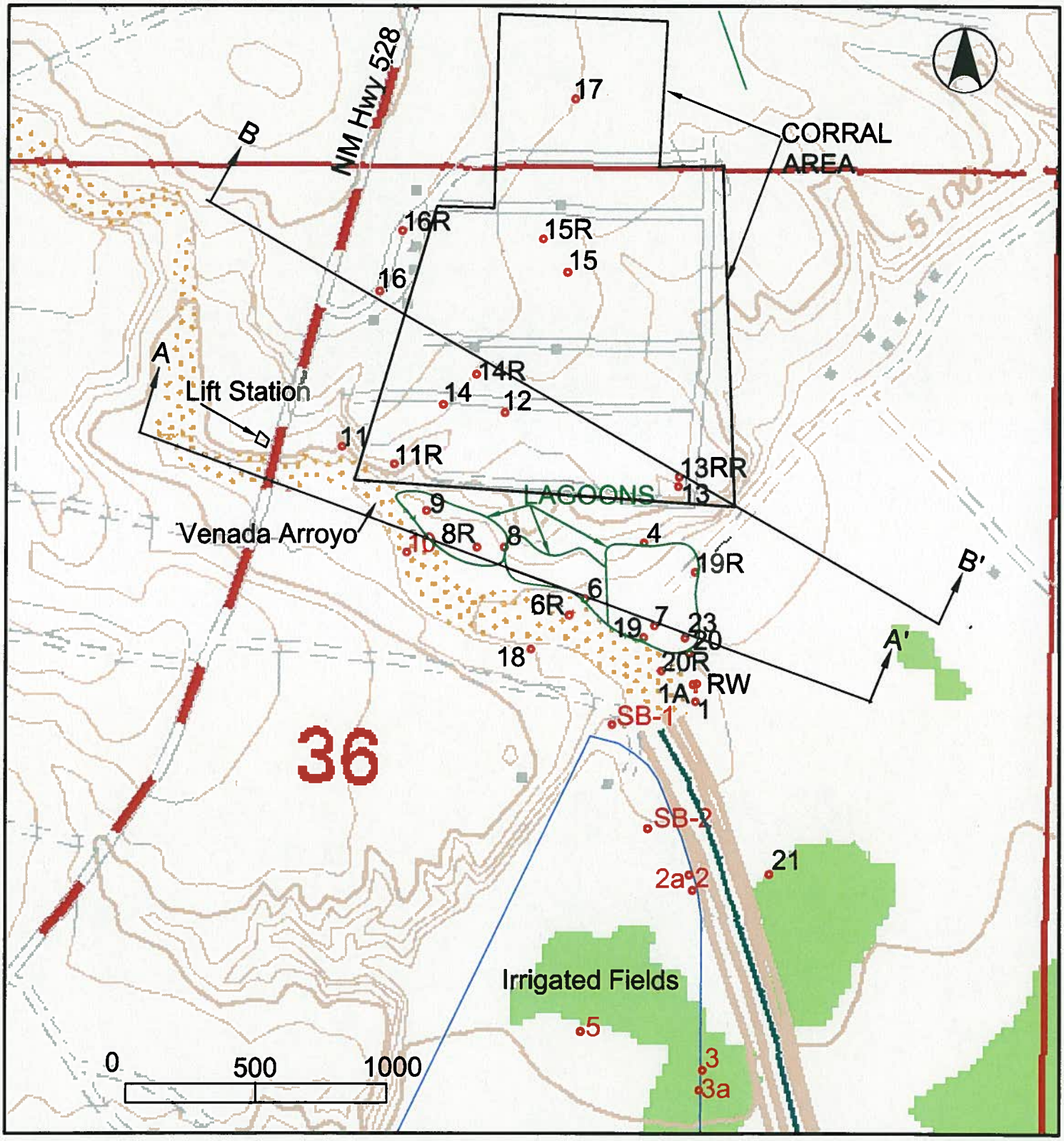


FIGURE 1

Monitor Well and Cross Section Locations

9 March 2010

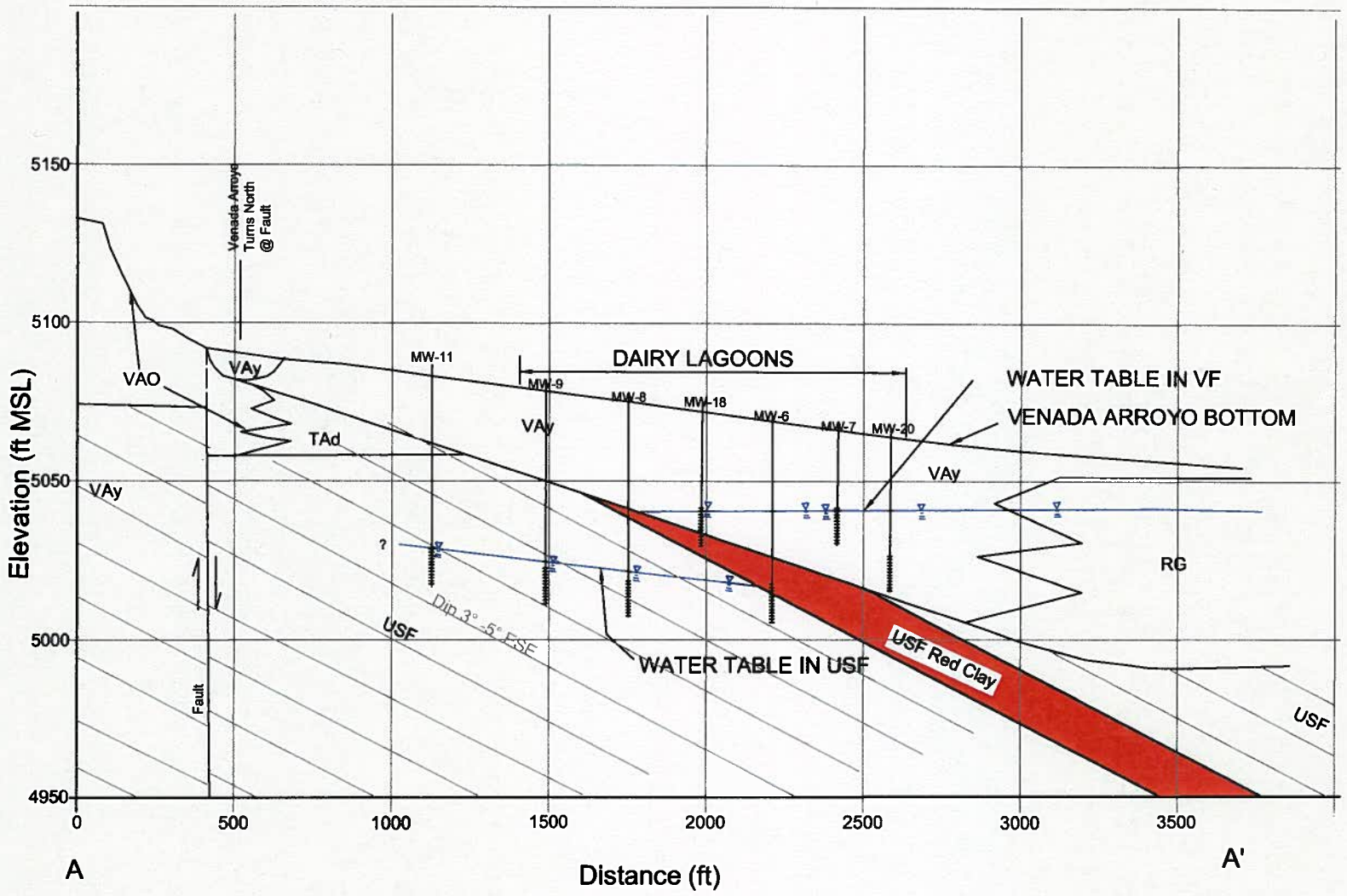


FIGURE 2
Geo-Hydrologic Section Along
Venada Arroyo

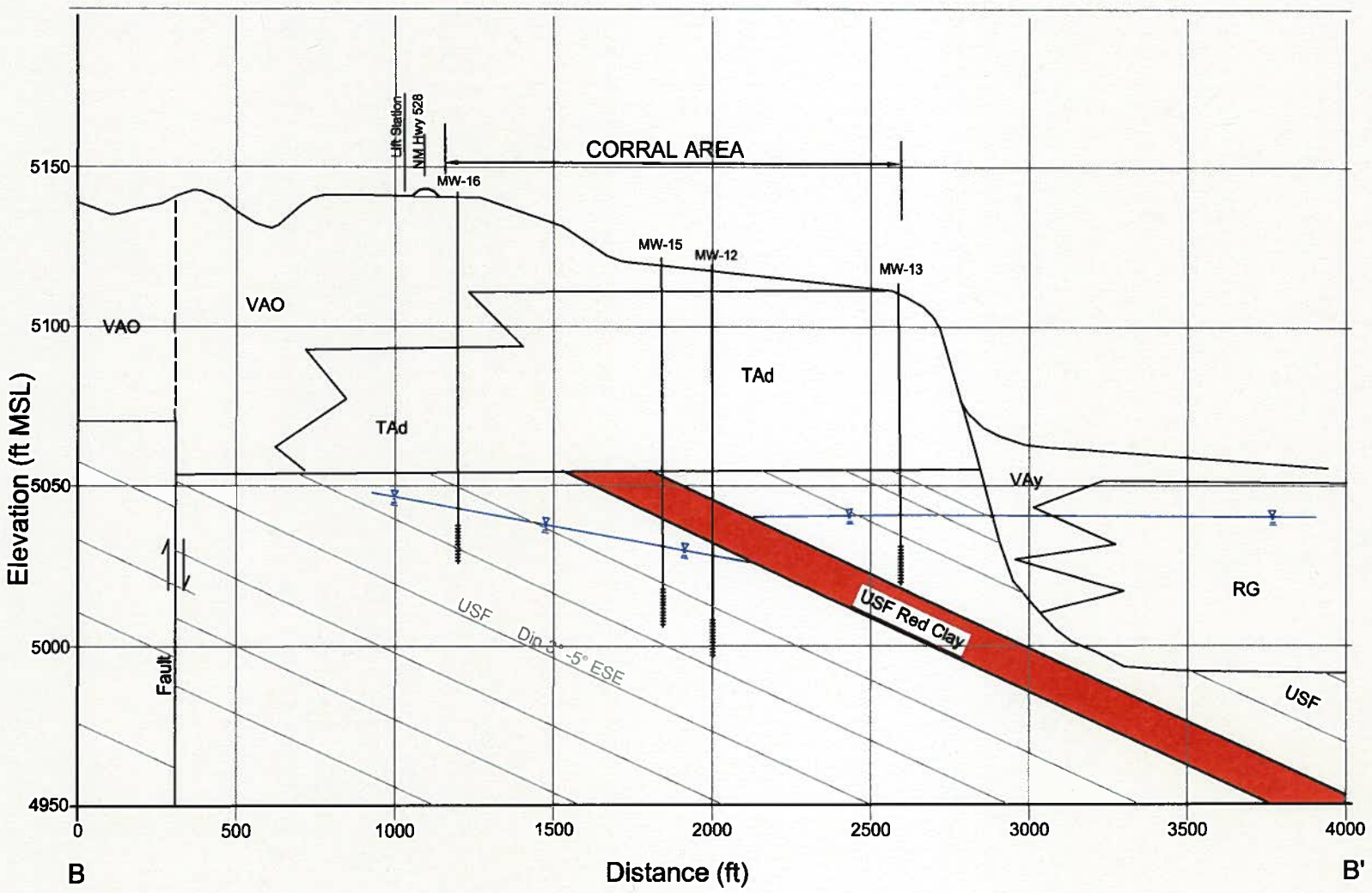


FIGURE 3
Geo-Hydrologic Section
Across The Terrace

PVGND
Hydrographs (Upper Santa Fe Aquifer)
2010

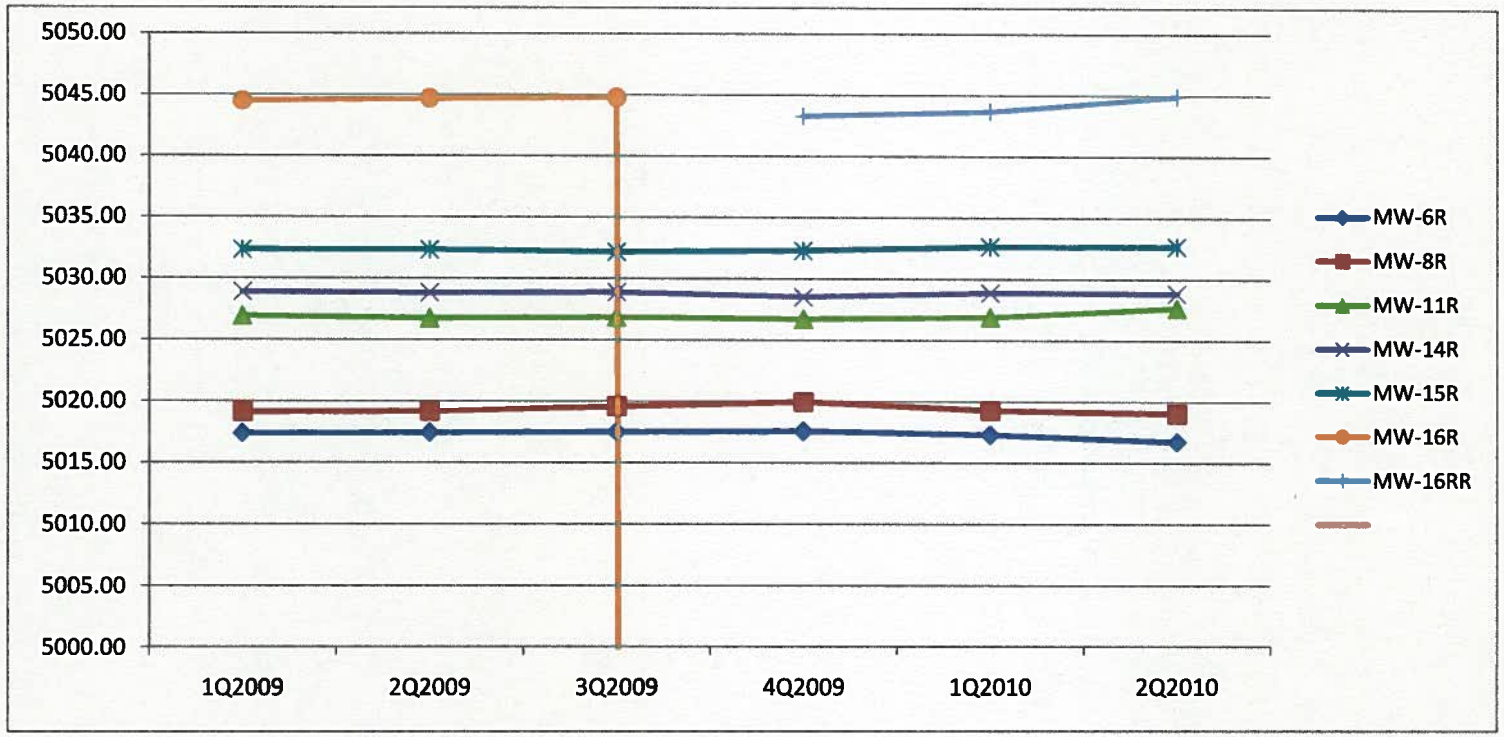


Figure 4

PVGND
Hydrograph (Valley Fill Aquifer)
August 2010

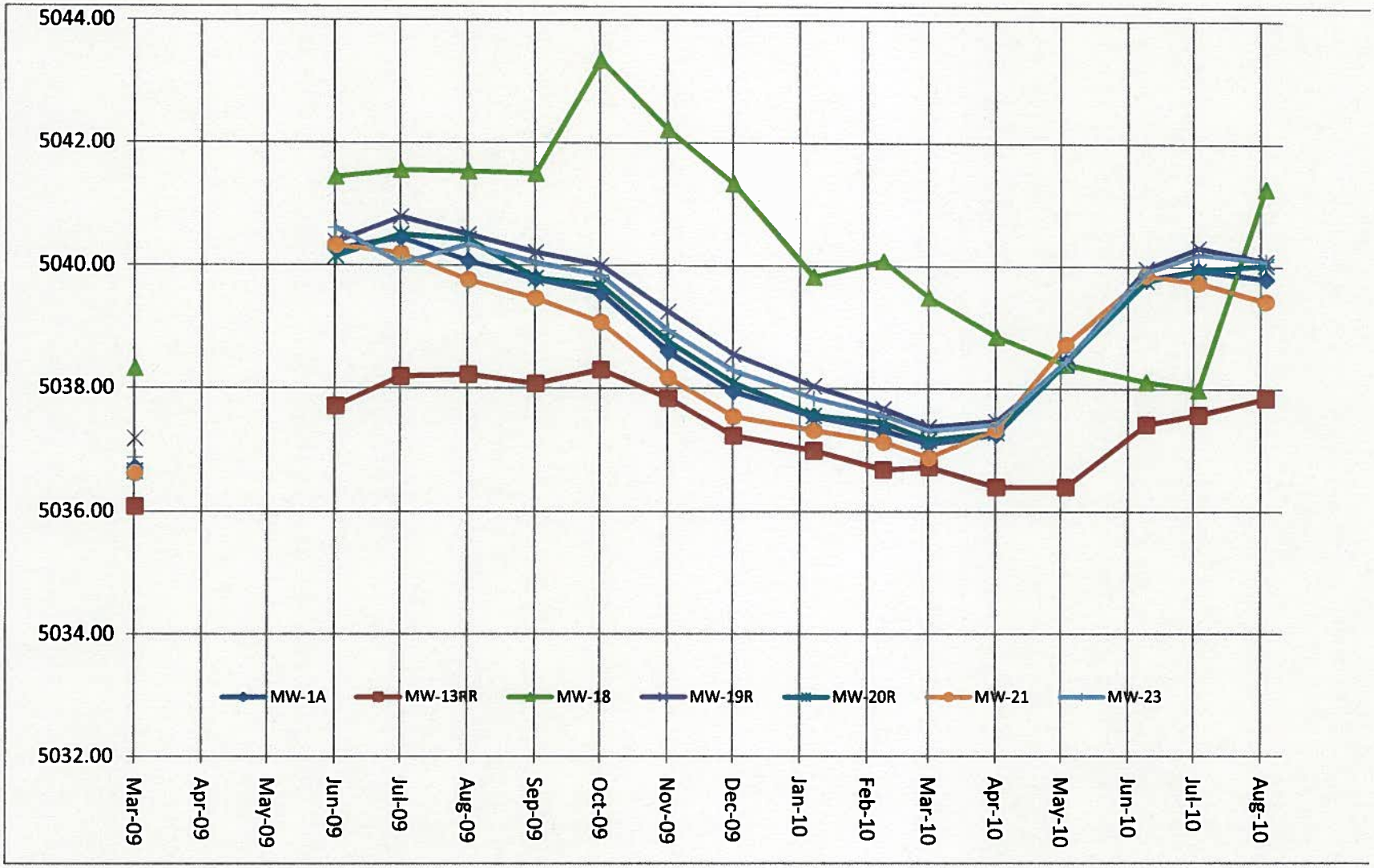
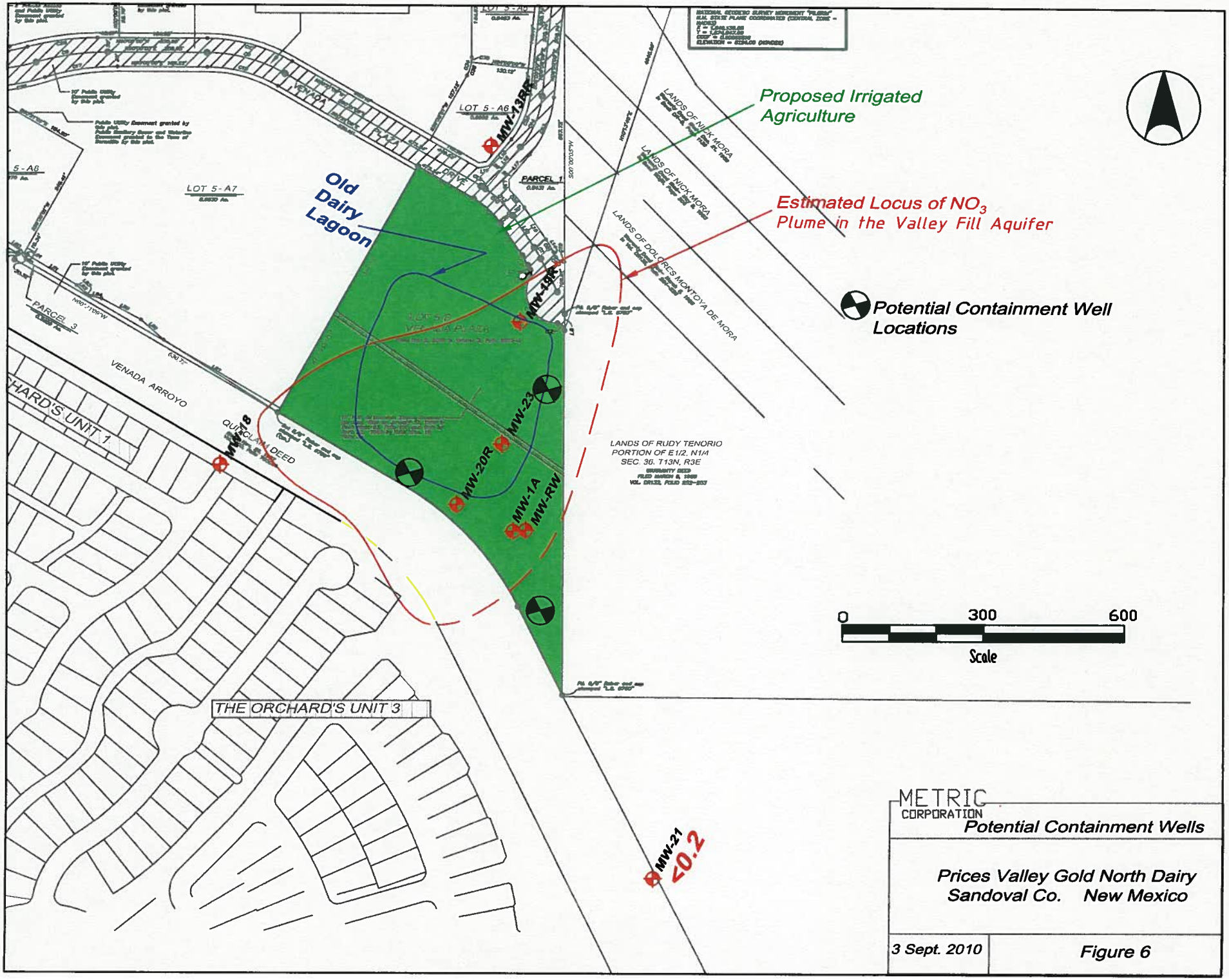


Figure 5


Proposed Irrigated Agriculture
Old Dairy Lagoon
Estimated Locus of NO_3 Plume in the Valley Fill Aquifer
Potential Containment Well Locations
LOT 5 - A7
LOT 5 - A6
PARCEL 1
PARCEL 3
VENADA ARROYO
LANDS OF NICK MORA
LANDS OF DOLORES MONTOYA DE MORA
LANDS OF RUDY TENORIO
PORTION OF E1/2, N1/4
SEC. 36, T13N, R3E
QUITCLAIM DEED
THE ORCHARD'S UNIT 1
THE ORCHARD'S UNIT 3
MW-13RF
MW-19R
MW-23
MW-20R
MW-1A
MW-RW
MW-18
MW-21
<0.2
0
300
600
Scale
METRIC CORPORATION
Potential Containment Wells
Prices Valley Gold North Dairy
Sandoval Co. New Mexico
3 Sept. 2010
Figure 6

APPENDIX E

UNAUTHORIZED LIFT STATION 15 DISCHARGE RECORDS

Lift Station #15 Spill Log

	Date of Spill	Reported Gallons Spilled	Ref	Estimated Spill Volume	Estimates for Plotting	Accumulate Volume	Comments
1.	7/23/1996	3,000			3,000	3,000	Each spill was treated with granular chlorine (HTH)
2	3/1/1997	200	1		200	3,200	
3	4/15/1997	100,000	1		100,000	103,200	
4	4/20/1997	200	2		200	103,400	
5	7/27/1997	300	2		300	103,700	
6	8/13/1997	4,000		45,000 - 100,000	45,000	148,700	Venada Arroyo wet for 1500 ft - 1" of water = 46,500 gal
7	8/14/1997	?		30,000-60,000	30,000	178,700	Venada Arroyo wet for 900 ft
8	8/24/1997	40,000-50,000	2		40,000	218,700	
9	9/5/1998	35,640	5	100,000-500,000	100000	318,700	Venada Arroyo wet 0.6 miles below LS #15 - 1" of water =98,000 gal, 6" = 550,000 gal
10	5/7/2003	600-700	7		600	319,300	
11	11/11/2003	<5,000	9	10,000-60,000	10000	329,300	Venada Arroyo wet 300' - 1" of water = 9,300 gal, 6"= 56,000 gal
12	7/28/2004	?	11		500	329,800	
13	3/3/2005	2000	15		2,000	331,800	
14	3/4/2005	10,000	20	10,000-30,000	10000	341,800	Lift station out of operation for 30 minutes @ 1000 gpm = 30,000 gal
15	5/24/2005	1600	17		1,600	343,400	
16	6/1/2005	1000	21		1,000	344,400	
17	8/9/2005	2000	19		2,000	346,400	
18	1/28/2006	2000	24		2,000	348,400	
19	1/30/2006	3000	23		3,000	351,400	
20	3/24/2006	<100	25		100	351,500	
21	4/15/2006	2500	30		2,500	354,000	
22	4/29/2006	500	31		500	354,500	
23	6/14/2007	200	33		200	354,700	
24	9/13/2010	30,000	39	150,000-1,000,000	150000	504,700	Venada Arroyo wet all the way to the river - 1" of water =150,000 gal, 13 hrs at 2000 gpm = 1,500,000 gal
25	9/24/2010	300	40		300	505,000	

Note: the containment area west of the lift station appears to be an unlined shallow pit. There have been over 20 spills into this area with subsequent HTH treatments.

Pete V. Domenici, Jr.
pdomenici@domenicilaw.com

Jeanne Cameron Washburn
jwashburn@domenicilaw.com

Lorraine Hollingsworth
lhollingsworth@domenicilaw.com

Reed Easterwood[1]
reasterwood@domenicilaw.com
[1] Law Clerk, Licensed to practice law in OR

DOMENICI LAW FIRM, P.C.
ATTORNEYS AT LAW
320 Gold Avenue SW, Suite 1000
Albuquerque, New Mexico 87102-3228

(505) 883-6250 Telephone
(505) 884-3424 Facsimile

June 30, 2011
VIA FAX AND US MAIL

City of Rio Rancho,
Public Works Department,
ATTN: Lisa Vornholt, or
current Director
3200 Civic Center Circle NE
Rio Rancho, NM 87124
Tel 505-891-5016
Fax 505-891-5203

Public Records Request

Dear Director:

Pursuant to the *Inspection of Public Records Act*, NMSA 1978 § 14-2-1 et seq., the Domenici Law Firm requests any and all records of spills regarding the City of Rio Rancho sewer lift station # 15 located west of New Mexico state road 528 adjacent to the Venada Arroyo. Any records responsive to this request include any spills associated with past, existing, or future locations of the City of Rio Rancho sewer lift station # 15.

We understand reasonable fees for copying may be assessed and we also are willing to accept responsive documents in electronic format if available. Please **stop** work on this request and advise me if copy or other fees to execute this request exceed $150.00.

Thank you for your attention.

Sincerely,
Domenici Law Firm, P.C.

Reed Easterwood, legal assistant

cc: file 2036//client

RioRancho
City of Vision

July 15, 2011

Reed Easterwood
Domenici Law Firm
320 Gold Ave SW.
Suite 1000
Albuquerque, NM 87102

Re: Inspection of Public Record Request

Mr. Easterwood on June 30, 2011 you submitted an inspection of public records request regarding sewer lift station #15. The requested documents are available for inspection. Please contact our office at (505) 891-5004 to set up a time to view.

Thank you,

Yolanda Lucero
Records Technician
City Clerks Office
3200 Civic Center Cir NE
Rio Rancho, NM 87144
(505) 891-5004

Appendix C

NMED Corrective Action Reports Approval
November 10, 1997 Correspondence

State of New Mexico
ENVIRONMENT DEPARTMENT
Harold Runnels Building
1190 St. Francis Drive, P.O. Drawer 26110
Santa Fe, New Mexico 87502-0110
(505) 827-2855
Fax: (505) 827-2836

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

Reviewed
12-16-97

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

November 10, 1997

RECEIVED
DEC 15 1997
ECO RESOURCES, INC.

Gary Rose, General Manager
ECO Resources, Inc.
P. O. Box 15940
Rio Rancho, NM 87174

RE: Corrective Action Reports Approval, City of Rio Rancho

Dear Mr. Rose:

The Ground Water Pollution Prevention Section of the New Mexico Environment Department (NMED) has received the Corrective Action Reports for the five sewage spills that occurred on March 1, April 15, April 20, July 27, and August 24 of 1997. The Corrective Action Reports are hereby approved pursuant to the New Mexico Water Quality Control Commission (WQCC) Regulations, Section 1203.A.7.

The spill incidents along with the response actions taken by the City of Rio Rancho are briefly described as follows:

1. A sewage spill of approximately 200 gallons occurred on March 1, 1997, due to an over flowing manhole located on Villa Verde Drive. The spillage was caused due to a blockage in the collection line caused by accumulation of roots and grease. Response actions for the spill included using a VACTOR truck to vacuum the collection line and spreading granular chlorine on the spillage.

2. A 10 inch sewer line which conveys raw sewage between lift station #2 and lift station #10 developed an 18 inch split on the side causing approximately 100,000 gallons to spill into the Black Arroyo on April 15, 1997. The break occurred at the intersection of Southern Boulevard and Nicklaus Drive. Response actions for the spill included replacement of the four foot section of the damaged pipe with a new section and spreading granular chlorine along the spill (350 yards). Three soil samples were collected from three different depths from two locations on the spillage area. One of the sampling locations was the site

immediately next to the force main break and one downstream from the break in the arroyo. The soil samples were analyzed for total kjeldahl nitrogen, ammonia, nitrate as nitrogen and nitrite as nitrogen. The analytical results indicate that surface soils at the two sites were impacted by the spill to a depth of 10.3 feet. The concentration of total nitrogen at the depth of 10.3 feet in the sample collected immediately next to the force main break was 76 milligrams per kilogram. The concentration of total nitrogen at the depth of 10.3 feet in the sample collected downstream from the break in the arroyo was 29 milligrams per kilogram. However, no additional correction actions are being required at this time as NMED does not believe that the spill will be a considerable threat to ground water.

3. A sewage spill of approximately 200 gallons occurred at 2345 Southern Boulevard on April 20, 1997, due to a blockage in the manhole. The blockage was cleared using a VACTOR truck and the spill was disinfected. Immediately after cleaning the first spill, another backup of sewage was reported at 2006 Southern Blvd-Garden Plaza in which 300 to 400 gallons of sewage was spilled onto the ground. The sewer blockage was caused due to chunks of concrete and asphalt that fell in when Hale Construction Company crew broke out the manhole cover and ring to lower the grade of pavement. Response actions for the spill included disinfection with granular chlorine and cleaning the blockage using the VACTOR truck.

4. A sewage spill of approximately 300 gallons occurred at lift station #12 due to tripping of all the pumps on July 27, 1997. Response actions for the spill included resetting all pumps, using a VACTOR truck to pump the ponded sewage and disinfection with granular chlorine.

5. A sewage spill of approximately 40,000 to 50,000 gallons occurred at lift station #15 on August 24, 1997, due to lack of power which may have been caused by shorting of the phase-monitor or inadequate wiring. Sewage spilled onto the ground and into the Berrendo Arroyo. Response actions for the spill included restoring power to the lift station and disinfection with granular chlorine down the entire length of spillage (1500 yards east of Highway 528 within the arroyo) and discing of contaminated soil. The lift station was constructed by AMREP Corporation and there has not been a transfer of ownership to the City of Rio Rancho. Until the discrepancies over ownership can be resolved, a Radio Transmitter unit (RTU) will be installed to sound an alarm if failure occurs at the lift station.

Additional corrective actions may be required if ground water contamination occurs as a result of the described spills, or if additional information becomes available indicating that the proposed corrective actions are inadequate.

NMED is concerned about the volume and frequency of spills from the Rio Rancho sewer system. Please provide NMED with an update of your February 21, 1997 letter and the actions taken to date to prevent future spills. If you require any further information or wish to discuss this further, please

feel free to contact Kavitha Casula of my staff at (505)-827-0629.

Sincerely,

Marcy Leavitt, Chief
Ground Water Quality Bureau

ML:KC/kc

xc: Lloyd W. Bartels, NMED District I, Manager
Nora Romero, Environmentalist, District I, Rio Rancho
Michael S. Castillo, AMREP SOUTHWEST INC., 333 Rio Rancho Dr. NE, Rio Rancho, NM 87124

ST. 04143

copy:
DT
NA
HO
12-16-97

Appendix D

Lift Station #15 Overflow
September 9, 1998 Notification

Marchell Schulman, Permit Specialist
UIC Program, Ground Water Specialist
State of New Mexico Environment Department
1190 St. Francis Dr. - Harold Runnels Building
Sante Fe, New Mexico 87502

September 9, 1998

Re : Sanitary Sewer Spillage

Location : Lift Station # 15 Hwy 528

Dear Marchell,

As required by discharge plan 215, Systems Maintenance shall provide notification of all wastewater seeps, spills, and / or leaks located within the City of Rio Rancho operating area. This letter provides notice that on September 5, 1998 at approximately 2 pm, the manhole containing the pumps located at Lift Station # 15 overflowed, 35,640 gallons of raw sewage to run into the arroyo adjacent to Price's Dairy Inc. The following description provides details regarding the spill for your information:

Date : 9-05-98 **Time :** 2 pm **Duration :** 10 hours

Estimated Volume : 35,640 gallons raw sewage (no solids observed)

Cause: The SCADA System at WWTP # 2 showed a data failure at lift station # 15, which caused a no power condition. The pumps didn't come on. The data failure was not responded to by the operator. There was no common alarm page. The manhole containing the wet well did not overflow. The cause of the leak appears to be a faulty seam at approximately 8 feet down in the wet well. The crack in the seam filtered all solids, which allowed the solids to be contained within the wet well. The lift station battery back-up failed.

Environmental Impact : The sewage spilled into the arroyo, from the northwest side of lift station, down through the 3 section box culvert (concrete bottom), east down the SCAFCA channel for approximately .6 miles. There were some small areas of water ponding noted near the spill sight in the arroyo.

Mitigation : HTH was spread along the effected area of the sewage spill for disinfection.

Corrective Actions : The construction of this lift station should be re-evaluated to resolve any future problems with this lift station that may arise. It has been the center of controversy for some time. The ownership of this lift station has not yet been established with either the City of Rio Rancho Utilities Department or Amrep Southwest Development Corp.

If you need any additional information, please contact myself or Chris Valdez, Assistant Manager at 505 891-1225.

Sincerely,

WYATT MISENHEIMER
SENIOR OPERATOR

cc: file
M. Lail, Manager. STE
L. Webb, Director of Water Resources, City of Rio Rancho
N. Romero. District 1 Field Office
USEPA

ST. 00163

Appendix E

Lift Station #15 Overflow
May 12, 2003 Notification

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 891-5019 • Fax (505) 891-5201

DEPARTMENT OF
UTILITIES

Jim Owen
Mayor

Acting City Administrator
Ed Chismar

Director of Utilities
Larry W. Webb

May 12, 2003

Kurt Frischkorn, Geo-Scientist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Lift Station #15 force main – Air Vacuum valve leak

Dear Kurt,

On Wednesday May 7, 2003 at approximately 1:30 p.m. we received a call from the Systems Maintenance department with a report of a leak from the force main discharge line of Lift Station #15. The collections crew was immediately dispatched to the site to further investigate and begin remediation.

Upon arrival, it was found that the leak was coming out of a manhole-covered vault approximately 2500 feet north of the lift station along the force main. When the manhole cover was removed, the leak was observed to be coming out of an air-vacuum (air-vac) relief valve. To facilitate repair of the leak, the lift station was turned off at the control panel with an on-site operator to monitor wetwell levels and control discharge from lift station. The VACTOR truck was then staged to remove the standing water from the air-vac vault and then inlet gate valve to the air vac was closed to stop the leak. The air-vac unit was noted to be defective internally and is scheduled for repair/replacement as soon as possible. The gate valve will remain closed until the air-vac repair is made to prevent any further spillage from the site.

Based on the extent of the spillage site, it is believed that no more than 600-700 gallons of sewage was discharged from the faulty air-vac unit. The area was disinfected with granular chorine as required and any standing liquid was picked up with the VACTOR for discharge back into the collection system. After cleanup of site, all controls of lift station and collection system were put back into normal operation with no further problems to report.

Please contact me at 896-8810 with any further questions in this regard.

Sincerely,

Rock Raiford, Project Manager
OMI, Inc.

C: Larry Webb, Director of Utilities, City of Rio Rancho
Chuck Morgan, Environmentalist, NMED District I
Nick Apodaca Jr., Operations Manager-Wastewater
Jeff Burkett, Operations Supervisor – Wastewater

FILE COPY

Appendix F

Lift Station #15 Overflow
November 18, 2003 Notification

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 891-5019 • Fax (505) 891-5201

Jim Owen
Mayor

City Administrator
James M. Palenick

Director of Utilities
Larry W. Webb

DEPARTMENT OF
UTILITIES

November 18, 2003

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station #15

Dear Kurt,

On Tuesday November 11th, at approximately 5:00 p.m. we received alarms for Lift Station (LS) #15. The Maintenance and Collection crews were immediately dispatched to the site to further investigate and begin remediation as necessary.

Upon arrival, it was noted that the lift station was close to overflow. A six thousand gallon tanker truck and a four thousand gallon tanker truck were used to help keep the LS wet well from overflowing excessively. However, since the incident occurred during a high inflow period, some of the sewage began to overflow its wetwell containment. During this same time, maintenance personnel were able to identify that the Lift Station was receiving no incoming power from PNM Electric Company. PNM was immediately contacted to provide a crew to check their power transformers and supply power. PNM indicated that their emergency crew would be dispatched to the site.

In order to establish emergency power with the portable generator, the tanker trucks were removed from the immediate area to allow generator tie-in. Once the generator was tied in, emergency power was initiated for the pumps to operate and pump the wetwell level down. Once the LS was under control with emergency power, the extent of the spillage area was determined and disinfected with granular chlorine.

The emergency crew from PNM arrived on site at approximately 8:00 p. m. The crew determined that two fuses on a transformer poll, which feeds the LS, were burnt out. The fuses were replaced and power was restored to the LS at approximately 8:30 p.m. The LS was found to be in good operational order before leaving the site.

Based on the extent of the spillage site, it is believed that <5000 gallons of sewage was lost from the overflowing LS. The overflowing sewage flowed into the Berrendo Arroyo, which is adjacent to the LS, and with its reach extending no more than approximately 100 yards East of Highway 528.

Please contact me at 896—8810 with any further questions in this regard.

Sincerely,

Paul Romero

Paul Romero, Acting Project Manager
OMI, Inc.

C: Larry Webb, Director of Utilities, City of Rio Rancho
Alex Puglisi, Environmental Office, Pueblo of Sandia
Chuck Morgan, Environmentalist, NMED District I
Nick Apodaca Jr., Operations Manager, OMI
Jeff Burkett, Operations Supervisor, OMI
Nora Romero, Compliance Officer, OMI

FILE COPY

Official Correspondence

Appendix G

Lift Station #15 Overflow
July 28, 2004 Notification

DEPARTMENT OF UTILITIES

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

Jim Owen
Mayor

City Administrator
James M. Palenick

Director of Utilities
Larry W. Webb

July 28, 2004

Certified No. 7002 2030 0003 3224 8653

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station #15

Dear Kurt,

On Friday July 23, at approximately 1800 hours, there was a power outage due to severe rain and thunderstorms that affected nearly the entire City of Rio Rancho. On call personnel were immediately dispatched to check all lift stations and the three major wastewater facilities. We managed to avoid spills at all lift stations except Lift Station #15 which is located on Highway 528, two miles south of Enchanted Hills. Tanker trucks were used to pump the lift station down, it is estimated that no more then 500 gallons of sewage was lost.

If you have any questions I can be reached at 896-8810.

Sincerely,

David Sohns, Project Manager
OMI, Inc.

C: Chuck Morgan, Environmentalist, NMED District I
Alex Puglisi, Pueblo Sandia
Jim Owen, Mayor, City of Rio Rancho
James Palenick, City of Rio Rancho Administrator
Larry Webb, Director of Utilities, City of Rio Rancho
Jeff Burkett, Operations Manager-Wastewater, OMI
Nora Romero, Compliance Officer, OMI

FILE COPY

Official Correspondence
2004

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 891-5019 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Jim Owen
Mayor

City Administrator
James M. Palenick

Director of Utilities
Larry W. Webb

November 18, 2003

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station #15

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The emergency crew from PNM arrived on site at approximately 8:00 p. m. The crew determined that two fuses on a transformer poll, which feeds the LS, were burnt out. The fuses were replaced and power was restored to the LS at approximately 8:30 p.m. The LS was found to be in good operational order before leaving the site.

Based on the extent of the spillage site, it is believed that <5000 gallons of sewage was lost from the overflowing LS. The overflowing sewage flowed into the Berrendo Arroyo; which is adjacent to the LS, and with its reach extending no more than approximately 100 yards East of Highway 528.

Please contact me at 896—8810 with any further questions in this regard.

Sincerely,

Paul Romero

Paul Romero, Acting Project Manager
OMI, Inc.

C: Larry Webb, Director of Utilities, City of Rio Rancho
Alex Puglisi, Environmental Office, Pueblo of Sandia
Chuck Morgan, Environmentalist, NMED District I
Nick Apodaca Jr., Operations Manager, OMI
Jeff Burkett, Operations Supervisor, OMI
Nora Romero, Compliance Officer, OMI

OC 530 2003

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Official Correspondence 2003 and NMED Copies.

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 891-5019 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Jim Owen
Mayor

Acting City Administrator
Ed Chismar

Director of Utilities
Larry W. Webb

May 12, 2003

Kurt Frischkorn, Geo-Scientist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Lift Station #15 force main – Air Vacuum valve leak

Dear Kurt,

On Wednesday May 7, 2003 at approximately 1:30 p.m. we received a call from the Systems Maintenance department with a report of a leak from the force main discharge line of Lift Station #15. The collections crew was immediately dispatched to the site to further investigate and begin remediation.

Upon arrival, it was found that the leak was coming out of a manhole-covered vault approximately 2500 feet north of the lift station along the force main. When the manhole cover was removed, the leak was observed to be coming out of an air-vacuum (air-vac) relief valve. To facilitate repair of the leak, the lift station was turned off at the control panel with an on-site operator to monitor wetwell levels and control discharge from lift station. The VACTOR truck was then staged to remove the standing water from the air-vac vault and then inlet gate valve to the air vac was closed to stop the leak. The air-vac unit was noted to be defective internally and is scheduled for repair/replacement as soon as possible. The gate valve will remain closed until the air-vac repair is made to prevent any further spillage from the site.

Based on the extent of the spillage site, it is believed that no more than 600-700 gallons of sewage was discharged from the faulty air-vac unit. The area was disinfected with granular chorine as required and any standing liquid was picked up with the VACTOR for discharge back into the collection system. After cleanup of site, all controls of lift station and collection system were put back into normal operation with no further problems to report.

Please contact me at 896-8810 with any further questions in this regard.

Sincerely,

Rock Rafford, Project Manager
OMI, Inc.

C: Larry Webb, Director of Utilities, City of Rio Rancho
Chuck Morgan, Environmentalist, NMED District I
Nick Apodaca Jr., Operations Manager-Wastewater
Jeff Burkett, Operations Supervisor – Wastewater

OC SSO 2003

FILE COPY

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Jim Owen
Mayor

City Administrator
James M. Palenick

Director of Utilities
Larry W. Webb

July 28, 2004

Certified No. 7002 2030 0003 3224 8653

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station #15

Dear Kurt,

On Friday July 23, at approximately 1800 hours, there was a power outage due to severe rain and thunderstorms that affected nearly the entire City of Rio Rancho. On call personnel were immediately dispatched to check all lift stations and the three major wastewater facilities. We managed to avoid spills at all lift stations except Lift Station #15 which is located on Highway 528, two miles south of Enchanted Hills. Tanker trucks were used to pump the lift station down, it is estimated that no more then 500 gallons of sewage was lost.

If you have any questions I can be reached at 896-8810.

Sincerely,

David Sohns, Project Manager
OMI, Inc.

C: Chuck Morgan, Environmentalist, NMED District I
Alex Puglisi, Pueblo Sandia
Jim Owen, Mayor, City of Rio Rancho
James Palenick, City of Rio Rancho Administrator
Larry Webb, Director of Utilities, City of Rio Rancho
Jeff Burkett, Operations Manager-Wastewater, OMI
Nora Romero, Compliance Officer, OMI

FILE COPY

Official Correspondence
2004

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Mayor
Jim Owen

City Administrator
James M. Palenick

Director of Public Infrastructure
John Kolessar

Director of Utilities
Larry W. Webb

March 8, 2005

Certified No. 7002 2030 0003 3226 4639

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station # 15, Calle Bona Tierra & NM 528.

Dear Kurt,

On Thursday March 3rd, at approximately 6:10 p.m., we received an alarm condition page from our SCADA system. The on call personnel responded and upon arrival found the Lift Station operating properly. Upon further investigation it was found that the lift station had already overflowed out of the wet well.

Based on the extent of the spillage site, approximately 2,000 gallons was discharged from the lift station into the arroyo just north of the area as indicated by our Sanitary Sewer Overflow Worksheet.

At 7:10 p.m. a crew from Public Service Company of New Mexico arrived at the lift station to inform us that all power was lost in the area due to a lighting strike to a transformer up the street from the lift station. After discussing the incident with PNM, it was determined that the cause of the overflow was due to the power outage.

The area around the lift station and the arroyo was disinfected with granular HTH. No further problems were noted at the site.

Please contact me at 896-8810 with any further questions in this regard.

Sincerely,

David Sohns, Project Manager
OMI, Inc.

C: John Kolessar, P.E., Director of Public Infrastructure
Larry Webb, Director of Utilities, City of Rio Rancho
Chuck Morgan, Environmentalist, NMED District I
Alex Puglisi, Pueblo of Sandia
Joel Lusk, Fish and Wildlife
File

From: JEFF BURKETT
To: LARRY webb
Date: 3/13/2005 1:21:57 PM
Subject: Lift Station #15

Larry,

We again have problems at lift station #15. We had high levels yesterday morning. Upon inspection of the lift station the crew found that it was having a difficult time keeping up with the flow at around 9:30 a.m. Saturday morning.

The crew (Eddie DeLara, Kyle Medders, Mark Baker, Lawrence Romero, Dennis Esquibel) began hauling tanker loads out of the station to lower the level in the wetwell. After pulling the pumps for inspection, and pumping the lift station down low enough to see what was going on with the pumps it was determined that one of the pumps stand was loose and no longer mounted to the floor.

An emergency bypass like we've done in the past was one alternative. However, with the completion of the new lift station hopefully being very close now, we wanted to avoid spending thousands of dollars to get AUI out here again to assist in a confined space entry for repairs.

I won't go into all the details, but the crew came up with an outstanding plan. They were able to retrofit an existing submersible pump. With assistance from Southwest repairs, JCH and Action Hose we are now have two pumps again operable at LS #15 and no confined space entry was done. (see pics)

I will submit all required paperwork first thing Monday a.m. for the emergency parts and assistance charges incurred for this job.

I want to thank the team for their outstanding response and innovative thinking to complete this job at our favorite lift station, once again avoiding a spill and without having to enlist AUI to assist. This was about a 15 hour job ending at 12:30 a.m. Sunday morning.

Mr. Ketchum, any idea of a completion date for the new lift station? This lift station is literally hanging on by a thread. Anything you can do to get the contractor to complete the job will be greatly by.

Thanks

Jeff

CC: ANTHONY MARTINEZ; DAVID SOHNS; EDDIE DELARA; JOHN KETCHUM; KYLE MEDDERS; LYNN KRONOWIT; MARK S BAKER; NITA GONZALES; PETE ENGLISH; RUBEN GONZALES; SCOTT SENSANBAUGHER; SUSAN DEMPSEY

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Mayor
Jim Owen

City Administrator
James M. Palenick

Director of Public Infrastructure
John Kolessar

Director of Utilities
Larry W. Webb

May 24, 2005

Certified No. 7002 2030 0003 3219 1966

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station # 15, Calle Bona Tierra & NM 528.

Dear Kurt,

On Tuesday May 24th, at approximately 5:25 p.m., we received an alarm condition page from Lift Station #15. The on call personnel responded and upon arrival found the lift station power to be off and the wetwell close to overflowing. An emergency generator was hooked up and power to the pumps restored, unfortunately not before some sewage spilled.

Based on the extent of the spillage site, we estimate that not more than 1600 gallons was discharged from the lift station into the arroyo just north of the area as indicated by our Sanitary Sewer Overflow Worksheet.

At 6:30 p.m. a crew from Public Service Company of New Mexico arrived on the scene. After discussing the incident with PNM, we determined the cause of the power outage was most likely attributed to a blown fuse located between PNM's power line and the lift station. The fuse was replaced and the lift station was put back in normal operational service.

Start up of the new lift station #15 should take place within the next two weeks. Fortunately the new station is equipped with an on-site emergency generator, which will automatically engage when PNM power is lost, greatly reducing the chances of spills occurring due to power loss.

The area around the lift station and the arroyo was cleaned and disinfected with granular HTH. No further problems were noted at the site.

Please feel free to contact me at 896-8810 if you have any questions.

Sincerely,

David Sohns, Project Manager
OMI, Inc.

C: John Kolessar, P.E., Director of Public Infrastructure
Larry Webb, Director of Utilities, City of Rio Rancho

FILE COPY

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Mayor
Jim Owen

City Administrator
James M. Palenick

Director of Public Infrastructure
John Kolessar

Director of Utilities
Larry W. Webb

June 8, 2005

Certified No. 7002 2030 0003 3219 1980

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: Lift Station # 15 Line Break, Calle Bona Tierra & NM 528.

Dear Kurt,

On Wednesday June 1st, at approximately 2:35 p.m., we received a call from Triad Construction Company. They are in charge of construction of the new Lift Station #15 and all related sewer line tie-ins. The Triad foreman informed us that after excavation of the force main at the manhole next to the original Lift Station #15 they began chipping away concrete around the force main to ready the line for final tie-in. During this procedure, they unintentionally punched a hole in the force main with a jack hammer causing sewage to flow into the 10' x 15' hole that had been dug out around the line. It was estimated that no more than 1000 gallons of sewage flowed into this contained holding area. It was then pumped back into the system by a tanker truck.

At that point Triad decided to go ahead and complete the tie-in, which was scheduled for the following night. The Lift Station was shut down and a fleet of 10 tanker trucks continued to pump out the wet well. They were able to maintain a low level of sewage in the wet well while transporting and releasing it into the sewer system on Willow Creek Road. The line tie-in went smoothly and the new Lift Station 15 is now on line and fully operational. The area was disinfected with HTH and backfilled with clean soil.

Please contact me at 896-8810 if you have any questions

Sincerely,

Paul A. Romero

Paul A. Romero, Acting Project Manager
OMI, Inc.

C: John Kolessar, P.E. Director of Public Infrastructure
Larry Webb, Director of Utilities, City of Rio Rancho

FILE COPY

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Mayor
Jim Owen

City Administrator
James M. Palenick

Director of Public Infrastructure
John Kolessar, P.E.

Utilities Division Manager
Larry W. Webb

August 12, 2005

Certified No. 7003 2260 0007 2282 1013

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr. / P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station # 15, Calle Bona Tierra and NM 528.

Dear Kurt,

On Tuesday August 9th, at approximately 1100 hours, Our office was notified by the contractor (TRIAD) who is in charge of construction and final line tie ins of the new lift station, when the final tie was taking place there crew had set a 4" hose from the east manhole into the lift station wet well to divert the flow the hose managed to break loose and spill sewage within the lift station containment area. After the pump was shut down the contractor proceeded to open vent areas in the containment wall and released sewage within the fenced area and into the arroyo just south of the lift station. The vactor crew responded immediately, cleaned up the lift station containment area and the wet well.

Based on the extent of the spillage site, we estimate that no more than 2,000 gallons was discharged from the lift station into a contained area around the lift station and no more than 100 gallons of the total estimate was discharged into the arroyo just south of the lift station. All standing sewage, which had overflowed, was removed with our VACTOR and discharged back into the lift station wet well.

The area around the lift station and the arroyo was disinfected with granular HTH. No further problems were noted at the site.

All proper agencies where notified in a timely manner.

Please contact me at 891-5025 with any further questions in this regard.

Sincerely,

David Sohns, Project Director OMI, Inc.

Cc: John Kolessar, P. E., Director of Public Utilities, City of Rio Rancho
Larry Webb, Utilities Division Manager, City of Rio Rancho

From: DAVID SOHNS
To: webb, LARRY
Date: Fri, Mar 4, 2005 2:44 PM
Subject: Re: SSO - Lift Station 15 Overflow

Larry,

Right now (Franco is still on it) it looks like a relay switch. And yes the pumps had restarted and the wet well was half way down when we arrived.

Also, after calculations, the actual spill was more like 2,000 gallons.

David

>>> LARRY webb 03/04/05 02:35PM >>>
Thanks for the information. Let me know when you find out why the SCADA system didn't alarm for loss of power. Did the pumps restart themselves or does it take a person on location to start the pumps at this site?

>>> <David.Sohns@omiinc.com> 03/04/05 09:00AM >>>
Larry,

Last night, due to a lightning strike in Enchanted Hills, lift station 15 was without power for 30 minutes. We did not receive an alarm until the power came back on (high level). We are investigating why we were not notified when the power failed.

The initial estimated discharge is 10,000 gallons. The required phone contacts have been made and we will submit a written report when all the facts are in.

The good news is that new lift station 15 should be on line within the next few weeks. At that point, we will have backup power and new SCADA equipment.

David Sohns

OMI, Inc.
Project Director
Rio Rancho, NM
Office - 505 896-8810
Fax - 505 891-1244
Cell - 505 975-1601

CC: BURKETT, JEFF; FRANCO, MIKE

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF
UTILITIES

June 8, 2005

Certified No. 7002 2030 0003 3219 1980

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr./ P.O. Box 26110
Santa Fe, NM 87502

RE: **Lift Station # 15 Line Break, Calle Bona Tierra & NM 528.**

Dear Kurt,

On Wednesday June 1st, at approximately 2:35 p.m., we received a call from Triad Construction Company. They are in charge of construction of the new Lift Station #15 and all related sewer line tie-ins. The Triad foreman informed us that after excavation of the force main at the manhole next to the original Lift Station #15 they began chipping away concrete around the force main to ready the line for final tie-in. During this procedure, they unintentionally punched a hole in the force main with a jack hammer causing sewage to flow into the 10' x 15' hole that had been dug out around the line. It was estimated that no more than 1000 gallons of sewage flowed into this contained holding area. It was then pumped back into the system by a tanker truck.

At that point Triad decided to go ahead and complete the tie-in, which was scheduled for the following night. The Lift Station was shut down and a fleet of 10 tanker trucks continued to pump out the wet well. They were able to maintain a low level of sewage in the wet well while transporting and releasing it into the sewer system on Willow Creek Road. The line tie-in went smoothly and the new Lift Station 15 is now on line and fully operational. The area was disinfected with HTH and backfilled with clean soil.

Please contact me at 896-8810 if you have any questions

Sincerely,

Paul A. Romero

Paul A. Romero, Acting Project Manager
OMI, Inc.

C: John Kolessar, P.E. Director of Public Infrastructure
Larry Webb, Director of Utilities, City of Rio Rancho

FILE COPY

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
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DEPARTMENT OF UTILITIES

Mayor
Jim Owen

City Administrator
James M. Palenick

Director of Public Infrastructure
John Kolessar, P.E.

Utilities Division Manager
Larry W. Webb

August 12, 2005

Certified No. 7003 2260 0007 2282 1013

Kurt Vollbrecht, Geologist
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr. / P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station # 15, Calle Bona Tierra and NM 528.

Dear Kurt,

On Tuesday August 9th, at approximately 1100 hours, Our office was notified by the contractor (TRIAD) who is in charge of construction and final line tie ins of the new lift station, when the final tie was taking place there crew had set a 4" hose from the east manhole into the lift station wet well to divert the flow the hose managed to break loose and spill sewage within the lift station containment area. After the pump was shut down the contractor proceeded to open vent areas in the containment wall and released sewage within the fenced area and into the arroyo just south of the lift station. The vactor crew responded immediately, cleaned up the lift station containment area and the wet well.

Based on the extent of the spillage site, we estimate that no more than 2,000 gallons was discharged from the lift station into a contained area around the lift station and no more than 100 gallons of the total estimate was discharged into the arroyo just south of the lift station. All standing sewage, which had overflowed, was removed with our VACTOR and discharged back into the lift station wet well.

The area around the lift station and the arroyo was disinfected with granular HTH. No further problems were noted at the site.

All proper agencies where notified in a timely manner.

Please contact me at 891-5025 with any further questions in this regard.

Sincerely,

David Sohns, Project Director OMI, Inc.

Cc: John Kolessar, P. E., Director of Public Utilities, City of Rio Rancho
Larry Webb, Utilities Division Manager, City of Rio Rancho

From: EDDIE DELARA
To: DAVID SOHNS; LARRY webb
Date: Mon, Jan 30, 2006 11:19 AM
Subject: Re: Lift Station #15 Spill

Larry,

Triad did respond in a timely manner, the problem was the cover to the check ball had come off when two of the bolts came loose and fell off, it was stated by Dwayne of Triad that the bolts were to short for the cover. We had to provide a cover for Triad to replace the old one since it was damaged. A total of about 3,000 gallons was spilled into the arroyo and excessive erosion was caused in and around the lift station. Triad is scheduled to be back out at the lift station on Monday morning to clean up and make repairs.

>>> LARRY webb 01/30/06 10:48AM >>>
Have you had time to ascertain what the problem was and fix is for the sewer overflow at L.S. #15 Saturday ? Did the contractor, Triad, respond in a timely manner?

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Mayor
Jim Owen

City Administrator
James M. Palenick

Director of Public Infrastructure
John Kolessar, P.E.

Utilities Division Manager
Larry W. Webb

January 31, 2006

Certified No. 7005 0390 0001 6089 7483

Mr. Robert George
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr. / P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station # 15, Calle Bona Tierra and NM 528.

Dear Robert,

On Saturday January 28th, at approximately 1530 hours, the Operations Manager was in route to Rio Rancho when he observed Lift Station #15 overflowing from the south wall area and into the arroyo. He made a call and dispatched all on call staff to the site immediately. Upon inspection it was found the main wet well was empty and both pumps were fully operational which explained why no alarms were sent out through the SCADA system alerting the on call staff. The dry well was completely full and overflowing. Once the flow into the wet well was diverted and it was pumped down, it was observed that the cover for check ball # 1 had broken off. The valve was then closed to isolate the line for repair of the cover, and once completed the Lift Station was put back into operation. The VACTOR crew cleaned up the lift station containment area and the dry well.

Based on the extent of the spillage site, we estimate that no more than 2,000 gallons was discharged from the lift station into a contained area west of the lift station and no more than 1000 gallons of the total estimate was discharged into the arroyo just south of the lift station. All standing sewage, which had overflowed into the contained area was removed with out VACTOR and discharged back into the lift station wet well. The area around the lift station, contained area and the arroyo was disinfected with granular HTH. No further problems were noted at the site.

All proper agencies where notified in a timely manner. Please contact me at 896-8811 if you have any questions.

Sincerely,

David Sohns, Project Director,
OMI, Inc.

Cc: John Kolessar, P. E., Director of Public Utilities, City of Rio Rancho
Larry Webb, Utilities Division Manager, City of Rio Rancho

FILE COPY

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Mayor
Jim Owen

City Manager
James M. Palenick

Director of Public Infrastructure
John Kolessar, P.E.

Utilities Division Manager
Larry W. Webb

March 27, 2006 Certified No. 7005 1820 0002 4758 3769

Mr. Robert J. George
Domestic Waste Team Leader
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr. / P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station # 15 Force Main, Santiago Way and NM 528

Dear Mr. George,

On Friday March 24, at approximately 1030 hours, we were notified of sewage coming out of a manhole east of NM 528 and Santiago Way. Upon our arrival we observed that sewage was coming from the Air-Vac valve that serves the force main from Lift Station #15. The 2" valve was closed until the Air-Vac valve was replaced. The VACTOR crew was immediately dispatched for cleanup.

Based on the extent of the spillage site, we estimate that no more than 100 gallons was discharged from the Air-Vac valve. All standing sewage, which had overflowed into the contained area was removed with our VACTOR and discharged back into our dump station at WWTP # 2. The area around the manhole and contained area was disinfected with granular HTH. No further problems were noted at the site.

All proper agencies where notified, Mary M. Gomez (NMED), Robert J. George (NMED), and Alex Puglisi (Sandia Pueblo).

Please contact me at 896-8811 with any questions.

Sincerely,

David Sohns, Project Director,
OMI, Inc.

Cc: John Kolessar, P. E., Director of Public Utilities, City of Rio Rancho
Larry Webb, Utilities Division Manager, City of Rio Rancho

FILE COPY

Utility Operations M...

Western Region E-mail Notice of Violation (NOV) Form

This form to be submitted for all regulatory non-compliance events at your project

Department: Delivery
Sub Region (Underline/Bold): NW, CA/NV, **AZ/NM/UT**

Report No. RR2006-02-SSO
Report Date: 3-27-06
Incident Date:3-24-06
Project Location: Rio Rancho

Project Involved: Rio Rancho

Department Involved: Wastewater

Description of violation: SSO

Overflow from manhole at NM 528 and Santiago Way

Initial Facts:

- Sewage was seeping from an air vac valve that serves the force main at Lift Station 15
- The air vac valve was replaced
- < than 100 gallons were discharged onto the west side of the lift station
- Affected areas disinfected with HTH

Correction Action	Responsibility	Timing
Closed the 2" valve at the Lift Station	Eddie DeLara	Immediately
Air vac valve replaced	Eddie DeLara	Immediately
Area disinfected with HTH	Eddie DeLara	Following Repair
Calls made to appropriate authorities	Eddie DeLara	Following Repair

Investigated by: Kyle Medders

Distribution via E-mail: RBM, RVP, RTM, CNR person

Timing: This NOV form should be completed and e-mailed within 24 hours.

* - For any incident that requires medical attention, or news media involvement, please call your RBM ASAP.

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Mayor
Jim Owen

City Manager
James M. Palenick

Director of Public Infrastructure
John Kolessar, P.E.

Utilities Division Manager
Larry W. Webb

March 27, 2006 Certified No. 7005 1820 0002 4758 3769

Mr. Robert J. George
Domestic Waste Team Leader
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr. / P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station # 15 Force Main, Santiago Way and NM 528

Dear Mr. George,

On Friday March 24, at approximately 1030 hours, we were notified of sewage coming out of a manhole east of NM 528 and Santiago Way. Upon our arrival we observed that sewage was coming from the Air-Vac valve that serves the force main from Lift Station #15. The 2" valve was closed until the Air-Vac valve was replaced. The VACTOR crew was immediately dispatched for cleanup.

Based on the extent of the spillage site, we estimate that no more than 100 gallons was discharged from the Air-Vac valve. All standing sewage, which had overflowed into the contained area was removed with our VACTOR and discharged back into our dump station at WWTP # 2. The area around the manhole and contained area was disinfected with granular HTH. No further problems were noted at the site.

All proper agencies where notified, Mary M. Gomez (NMED), Robert J. George (NMED), and Alex Puglisi (Sandia Pueblo).

Please contact me at 896-8811 with any questions.

Sincerely,

David Sohns, Project Director,
OMI, Inc.

Cc: John Kolessar, P. E., Director of Public Utilities, City of Rio Rancho
Larry Webb, Utilities Division Manager, City of Rio Rancho

FILE COPY

WR E-mail Incident Notification Form

This form to be submitted for any and all safety and vehicle incidents

Department: Delivery
Sub Region (Underline/Bold):
NW, CA/NV, and AZ/NM/UT

Report No. :RR2006-04-SSO
Report Date: 4-17-06
Incident Date: 4-15-06
Project Location: Rio Rancho

Project Involved: Rio Rancho

Department Involved: Wastewater

Description of Violation: SSO

OverFlow at L/S #15

Initial Facts

- 2500 gallons of sewage was spilled and contained in retention pond.
- 50 gallons was spilled into the adjacent arroyo.
- Cause of spill is due to control panel failure.
- Most of the sewage was pumped back into the lift station and area was cleaned and disinfected.
- Control panel dealer is working on a permanent repair.

Correction Action	Responsibility	Timing
Diverted flow to retention pond	Mark Baker	Immediately
Called On-call electrician and control panel manufacturer. Setup Hydraulic pump	Mark Baker	Immediately
Once control of pumps was regained spilled sewage was pumped back into wetwell and area was disinfected.	Mark Baker	Following Repair
All appropriate calls were made to regulatory agencies.	Pete English	Following cleanup

Investigated by: Kyle Medders
Date: 4-17-06

Distribution via E-mail: RBM, RVP, RTM, CNR person

Timing: This incident form should be completed and e-mailed within 24 hours. For any incident that requires medical attention, please **call** your RBM and e-mail ASAP.

From: "Bill Curb" <wtc@jchinc.com>
To: "'STEVE GALLEGOS'" <SGALLEGOS@ci.rio-rancho.nm.us>, "'MARK S BAKER'" <MSBAKER@ci.rio-rancho.nm.us>, <jketchum@ci.rio-rancho.nm.us>
Date: Tue, Apr 18, 2006 2:02 PM
Subject: Rio RAncho Lift station 15, Summary of events on 04/15/06

Saturday, April 15 - I received a call from Mark Baker at about 1245 PM that both Pumps in Lift Station 15 had failed to run and the station was overflowing.

At 2 PM, Rick Hobson and I arrived at the station. Controls indicated both pumps had failure on Bearing Over Temperature and Motor Over Temperature and one pump showing Mechanical Seal Failure. Both pumps were not being allowed to run by the controls based upon these failures.

Jim Stone from Metro Electric and myself were able to bypass the pump sensors and manually run the pumps to pump the station down. Over the next several hours we were able to determine that the pumps would run normally and reliably in automatic with all the above protective pump sensors by-passed (except the overloads and auto megging protection). Rick Hobson and I left the station around 8 PM with the plan to return on Monday to try and determine the cause of the failure.

Monday, April 17 - On Monday afternoon at approx. 3:30 PM, Russ Caskey from JCH service and I arrived at the station with our service truck to investigate the reason for the pump failure. We were able to determine that the pump power and control cables were not secured to the top of the station and the control cables had been sucked into the pump suction on each pump and severed, causing the sensing modules in the control panel to believe that the pump sensors were signaling high bearing temperature, high stator temperature, and mechanical seal failure, resulting in pump shutdown. Jim McCarthy and Rick Hobson arrived with our other service truck at 6 PM and we all assisted Mark Baker to remove one of the pumps and to install and test the owner's spare pump.

We left the station at 11 PM, station operating in automatic, with the newly installed spare pump running normally with all sensors connected, and the other pump running with all but the auto megging protection by passed. The power and control pump cables were pulled up and tied to the top of the station with rope on a temporary basis with a more permanent and secure attachment of the cables to be accomplished by others.

The removed pump is to be inspected and repaired by JCH and returned for installation by others.

Please call or email with any questions

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF
UTILITIES

April 20th , 2006

Certified No. 7005 0390 0001 6089 6905

Mr. Robert J. George
Domestic Waste Team Leader
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr. / P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station # 15 and NM 528.

Dear Mr. George,

On Saturday April 15, at approximately 1230 hours, we received an alarm condition from Lift Station # 15. Upon arrival it was observed that the wet well was about two feet from overflowing and both pumps were in fail mode. Operations staff and Vactor crew were immediately dispatched to set up our mobile pump and tanker trucks to contain overflow at a minimum.

The maintenance staff begin to trouble shoot the pumps and were able to replace one pump and pump down the wet well to prevent any further spillage, the maintenance staff continued to work on the lift station to resolve any other mechanical issues.

Based on the extent of the spillage site, we estimate that no more than 2500 gallons was discharged from the lift station and 50 gallons of that total was discharged into the arroyo just south of the lift station. All standing sewage, which had overflowed into the containment area was removed with our VACTOR and discharged back into the lift station.

The containment area and lift station was disinfected with granular HTH. No further problems were noted at the site.

All proper agencies where notified, Mary M. Gomez (Local NMED), Robert J. George (State NMED), Alex Puglisi (Sandia Pueblo Environmental Office), Joel Lusk (NM Fish & Wildlife).

Please contact me at 891-5022 with any further questions in this regard.

Sincerely,

Eddie De Lara Jr, Operations Manager,
OMI, Inc.

FILE

Cc: John Kolessar, P. E., Director of Public Utilities, City of Rio Rancho
Larry Webb, Utilities Division Manager, City of Rio Rancho

SAFETY begins with me OMI

WR E-mail Incident Notification Form

This form to be submitted for any and all safety and vehicle incidents

Department: Delivery
Sub Region (Underline/Bold):
NW, CA/NV, and AZ/NM/UT

Report No. :RR2006-06-SSO
Report Date: 5-1-06
Incident Date: 4-29-06
Project Location: Rio Rancho

Project Involved: Rio Rancho

Department Involved: Wastewater

Description of Violation: SSO

Overflow lift station #15

Initial Facts

- At 8:00 AM lift stations #15, 21, 22 all showed high levels. Lift stations had just been put back into service following a force main break on 4-28-06.
- Crews started to check air vacs thinking that the main might be air locked.
- Atlas pumping was contacted to pump out lift stations before they spilled.
- Lift station #15 spilled 500 gallons into a containment pond before pumping trucks could arrive.

Correction Action	Responsibility	Timing
Manually opened air vacs to relieve pressure	Mark Baker	Immediately
Contacted Atlas pumping service	Eddie DeLara	Immediately
Verified valves on force main and found one partially opened, opened valve fully.	Pete English	After Air Vacs were found to be OK
All appropriate calls were made to regulatory agencies.	Eddie DeLara	Following cleanup

Investigated by: Kyle Medders
Date: 4-30-06

Distribution via E-mail: RBM, RVP, RTM, CNR person
Timing: This incident form should be completed and e-mailed within 24 hours. For any incident

City of Rio Rancho

3900 Southern Blvd. SE • PO Box 15550
Rio Rancho, New Mexico 87174-0550
(505) 896-8715 • Fax (505) 891-5201

DEPARTMENT OF UTILITIES

Mayor
Kevin Jackson

City Manager
James M. Palenick

Director of Public Infrastructure
John Kolessar, P.E.

Utilities Division Manager
Larry W. Webb

May 2, 2006 Certified No. 7005 1820 0002 4758 3912

Robert George
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr. / P.O. Box 26110
Santa Fe, NM 87502

RE: Sanitary Sewer Overflow – Lift Station 15 at NM 528

Dear Mr. George,

On Saturday April 29th, at approximately 1030 hours, we received a high level alarm from Lift Station 15. Upon arrival at the lift station we found Pumps 1 and 2 were not pumping to full capacity. The VACTOR crew and tanker trucks were immediately dispatched to pump down the wet well and also the containment area at the lift station. Upon further investigation it was discovered that a valve on the 14" force main south of the lift station was left partially closed the previous night when emergency repairs were made to it. The valve was fully opened and the lift station pumps began to pump at full capacity. The lift station wet well completely pumped down and put back in service.

Based on the extent of the spillage site, we estimate that no more than 500 gallons were discharged from the lift station into the containment area. All standing sewage, which had overflowed into the contained area, was removed with a tanker truck and discharged back into the system. The area around the lift station and contained area was disinfected with granular HTH. No further problems were noted at the site.

The following agencies were notified on Month Day of this event:
Robert George at the State NMED Office at 12:30 p.m.
Mary M. Gomez at the Local NMED Office at 12:32 p.m.
Alex Puglisi at the Pueblo of Sandia's Environmental Office at 12:33 p.m.

Please contact me at 896-8811 if you have any questions.

Sincerely,

Eddie De Lara, Jr. Operations Manager
OMI, Inc.

Cc: John Kolessar, P. E., Director of Public Utilities, City of Rio Rancho
Larry Webb, Utilities Division Manager, City of Rio Rancho

FILE COPY

Rio Rancho
City of Vision

June 19, 2007 Certified No. 7006 2150 0005 1858 8107

Ms Mary Simmons
EPA Region 6 (6EN-WC)
Water Enforcement Branch
1445 Ross Avenue

RE: NPDES Permit # NM00272987
Sanitary Sewer Overflow – NM 528 and Santiago Way

Dear Ms. Simmons,

On Thursday June 14, 2007 at approximately 1600 hours OMI responded to a call at NM 528 and Santiago Way. Upon arrival we observed sewage flowing out of a valve box next to an air relief valve on the 12" force main.

The collections crew arrived on site as well as the maintenance crew. They mobilized a backhoe to the site to excavate the leaking area and expose the 2" supply line to the air relief valve fitting. The area was carefully exposed and cleaned up, a full circle repair clamp was put in place on the 12" force main and the old air relief valve was taken out of service. A new air relief valve will be put into service at a later date.

Based on the extent of the spill at the site, we estimate that no more than 200 gallons was discharged from the cracked 2" supply line to the air relief valve. This was due to intermittent pump cycles from the lift station feeding the force main. All standing sewage, which had overflowed into the area was removed with our VACTOR and discharged back into our system.

Public Infrastructure Department ○ Utilities Division
3900 Southern Blvd ○ Suite 206 ○ Rio Rancho ○ NM ○ 87124
(505) 896-8715 ○ Office
(505) 891-5201 ○ Fax

FILE COPY

The area around the air relief manhole and valve box was disinfected with granular HTH. No further problems were found at the site.

Please contact me at 896-8811 if you have any questions.

Sincerely,

Cliff Leeper
Project Manager
CH2M HILL OMI

Cc: Anthony Losten, USEPA
Sandra Gabaldon, NMED
Robert George, NMED
Hiromi Martinez, NMED
Alex Puglisi, Director of Environment, Sandia Pueblo
John Kolessar, P. E., Director of Public Infrastructure, City of Rio Rancho
Larry Webb, Utilities Division Manager, City of Rio Rancho

Other Costs

Name	Description	Invoice #	Date	Charge
AAA Pumping $8,667.00			9/14/2010	$8,667.00
American Pumping			9/14/2010	$5,727.38
Atlas Pumping			9/14/2010	$140,025.25
Bradbury Stamm Construction			9/13/2010	$75,390.48
Other Cost Totals:				$229,810.11

Totals

Section	Charge
Labor Total	$4,750.63
Materials Total	$0.00
Other Costs Total	$229,810.11
Grand Total:	$234,560.74

Labor Report

Completed: 10/13/2010 9:51:00 AM **Failure:** DEF / Defective Part **Meter(s):**

Report: Split in forced main was appearantly caused by the saddle mounted air beed valve causing it to eventually split. Repairs were made by Bradbury Stahm. Section of broken line was replaced and manhole was reinstalled with concrete below it for stabilization. Bypass of the lift station was accomplished by the use of tankers which hauled all sewage to another place in the system. Wastewater and Collection staff assisted in coordinating repairs and bypass.

Forced Main Spill from LS 15 on 09-13-2010

- At entrance to Santiago subdivision in Bernalillo.
- Spill started at approximately 06:00 PM
- First to arrive was Eric Romero with vactor at approximately 06:30 PM. Vactor was ineffective in containing flow from break.
- Observed pumping from LS15 to be cycling at 3 min. on and 6 min. off during peak flow.
- At approximately 8:00 called Atlas Pumping, American Pumping, and AAA Pumping. Total trucks 7- 4000 gal and 1- 6500 gal plus CRR 6500 gal tanker.
- 09:20 called Bradbury Stahm (Evan Anderson) to mobilize equipment and personnel.
- Took down part of fence at LS15 to make room for 3 to 4 trucks to pump from wet well simultaneously.
- Trucks staged and ready to start pumping at approximately 11:00 PM.
- Light towers were set up.
- Bradbury ready to start excavating at 12:00 PM.
- Shutdown LS15 at 12:30 AM, Bradbury started excavation.
- Repairs to main completed at approximately 07:25 AM.
- LS15 started pumping at 07:29 AM
- Clean and repair of site of site to continue throughout 09-14-10 by Bradbury

AAA Pumping 978-5407
American Pumping 347-7667 - 975-4525
Atlas 898-3963

Total loads from LS15:

- Atlas = 14
- American = 6
- AAA = 12

RioRancho
City of Vision

Work Order WW-12168

Wastewater
Printed 7/8/2011 - 12:43:30 PM

Maintenance Details

Requested By: Channell, Ryan on 4/29/2011 1:14:00 PM
Taken By: Channell, Ryan
Problem: Repair (REPAIR)

Target: 2/14/2011 (0) hr
Priority/Type: Normal / Corrective
Supervisor: Salazar, Flavio
Shop: WW-MAINT

Wastewater
Lift Stations
Lift Station #15 (PUMPING STATION 15)
Submersible Pump #1 LS 15 (PUMP-SUB-29)

Reason: Submersible Pump #1 LS 15 (PUMP-SUB-29) - pump failure caused by debris stuck in the impeller

Special Instructions: cause of failure: debris was stuck in the impeller, causing vibration that ruined the seal and broke the volute bolt. the impeller was already worn completely through the housing from cavitation. repair: recondition stator, relace ball and thrust bearings, upper and lower seals, o-ring kit, stationary wear ring, all power and control cables, cable grommets, stainless steel bolts, pins, washers, and new impeller. parts = $22067.63 labor = $2560.50 tax = $179.24

Contact: Channell, Ryan
Phone:

☐ Warranty ☐ Shutdown ☐ Lockout ☐ Attach ☐ Charge

Other Costs

Name	Description	Invoice #	Account	Date	Est Cost	Actual Cost
Recondition stator		29826		2/14/2011	$ 0.00	$ 24,807.37

Labor Report

Completed: 4/29/2011 1:14:00 PM **Failure:** DIRT / Dirt or Foreign Matter

Report: Fixed and completed.

RioRancho
City of Vision

September 17, 2010

Certified No. 7008 1830 0002 5625 6867

Ms Mary Simmons
EPA Region 6 (6EN-WC)
Water Enforcement Branch
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: NPDES Permit # NM00272987, Intersection of Highway 528 and Santiago Way

Dear Ms. Simmons,

On the evening of September 13, 2010, a call was received at approximately 6:00 p.m. regarding a sewer overflow near the intersection of State Highway 528 and Santiago Way. Crews responded and were on site by 6:30 p.m. The crew began using a Vactor truck to pump out a manhole where the overflow was occurring and soon understood they could not keep up with the flows from the leak. The leak was determined to be on a sewer force main running from the Enchanted Hills area subdivision.

In order to address repairs to the force main, a fleet of 8 tanker trucks were staged at the Lift Station #15 feeding the force main. In the meantime, a contractor was called to begin mobilizing additional crews and equipment to repair the force main. Emergency line spots were called before any excavation was undertaken.

At 11:00 p.m. the lift station pumps were shut down and pumping to the tanker trucks began. The tankers began taking all of the influent of the lift station and transporting the sewage to an area below not being served by the force main.

As soon as the lift station was shut down, excavation began on the force main leak and continued through the night until the force main was repaired. Excavation and repairs to the force main continued throughout the night until a new section force main was installed and the lift station was turned back to normal operations at 7:29 on the morning of September 14.

A 20-foot section of 12" force main had a fracture in the pipe, the fracture was most likely caused by pipe stress during the installation.

The area impacted by the sewage overflow was treated with granular HTH. The street areas were cleaned and swept and washed down with clean water.

The estimated volume of the overflow was 30,000 gallons based on a lift station flows and pumping cycles calculations. Calls were made to all regulatory agencies with the required 24-hour time frame.

Please contact me at 896-8811 if you have any questions.

Sincerely,

Cliff Leeper, Project Manager
CH2M HILL

CL/ab

cc: Anthony Losten, USEPA
Sandra Gabaldon, NMED
Robert George, NMED
Hiromi Martinez, NMED
Larry Webb, Utilities Division Manager, City of Rio Rancho
Scott Bulgrin, Director of Environment, Sandia Pueblo
Joel Lusk, Department of Game & Fish

RioRancho
City of Vision

September 24TH, 2010

Certified No. 7005 0390 0001 6089 6950

Ms. Mary Simmons
EPA Region 6 (6EN-WC)
Water Enforcement Branch
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: NPDES Permit # NM00272987
Sanitary Sewer Overflow – State Highway 528 and Santiago Way

Dear Ms. Simmons:

A contractor was doing a hot tap on a live 12" force main at the intersection of State Highway 528 and Santiago Way. At approximately 09:00 AM the valve on the tapping device blew apart during the installation process. The sub contractor made a call to our collections crews stating that we need to bring vactors and manpower to help address the spill. Our crews arrived on the scene at 9:30 and began pumping the flooded manhole with a truck vactor, the lift station feeding the force main was shut down. This allowed crews to reenter the manhole and install a new valve. Systems were put back into normal operations at 9:55.

Approximate spill volume was 300 gallons, most of which was contained in dirt berms around the manhole. Some of the raw sewage did make it into the street. This was treated with a light dusting of granular HTH and then flushed liberally with a water truck.

All agencies were notified with required time frames.

Please contact me at 896-8811 if you have any questions.

Sincerely,

Cliff Leeper, Project Manager
CH2M HILL OMI

Cc: Anthony Losten, USEPA
Sandra Gabaldon, NMED
Robert George, NMED
Hiromi Martinez, NMED
Larry Webb, Utilities Division Manager, City of Rio Rancho
Scott Bulgrin, Director of Environment, Sandia Pueblo
Joel Lusk, Department of Game and Fish

File copy

Department of Public Infrastructure o Utilities Division
3200 Civic Center Circle NE – Rio Rancho, New Mexico 87144
(505) 896-8715 o Office
(505) 891-5201 o Fax

Atlas Pumping
PH. 505.898.3936
FAX 505.343.9231
P.O. BOX 10477
ALBUQUERQUE, N.M. 87184

FAX

To: Mark From: Sandra

Fax: 892-5543 Pages: 3

Phone: Date: 9/16/10

Re: CC:

Urgent For Review Please Comment Please Reply Please Recycle

- Comments: Thanks

Sandra

Atlas Pumping

NM CONTRACTOR LICENSE 51797

200 SIN NOMBRE, NE
ALBUQUERQUE, NEW MEXICO 87113

(505) 898-3936 FAX: (505) 343-9231 admin@atlaspumping.com

No. 55552

DATE: 9/13/10
DRIVER: LR

BILLING NAME AND ADDRESS:	LOCATION:
City of Rio Rancho	Lift Station Hwy
Mark Bodker	528 Rio Rancho
Cell# 975-1565 FAX 892-5543	

PURCHASE ORDER #	PAID BY:	CHECK NO:	VISA/MC #	CASH

PUMPED:

- [ ] SEPTIC TANK
- [ ] SAND TRAP
- [ ] WASTE WATER
- [ ] EXTRA HOSE
- [ ] INSPECTION
- [ ] DUMP FEE
- [ ] RISER
- [ ] LINES JETTED
- [ ] CCLS
- [ ] LABOR
- [ ] SEWER RAT
- [ ] OTHER
- [ ] OTHER

Pump Lift Station
3 4000 Gal Trucks
1 7000 Gal Truck

Atlas Pumping
After Hours
Mon. 09/13/10 9:30 PM 11 HRS
Tues 09/14/10 8:30 AM
300.00 per Truck and Driver
Hauled 14 Loads

WE APPRECIATE YOUR BUSINESS!

SUBTOTAL	13,200.00 XX
TAX	0
TOTAL	13,200.00

NOTES:

Atlas Pumping Co., Inc. its agents and employees shall not be liable and is released from any damages caused during this service.
All accounts are net 30. 1½% late fee on all past due amounts.

CUSTOMER SIGNATURE:

Invoice

Number: 449887
Date: 16-Sep-2010
P.O. Number:
Job Description:
Order Num 449887
Serviced 13-Sep-2010

BILL TO: 774	JOB SITE
CITY OF RIO RANCHO 3200 CIVIC CENTER CIRCLE NE RIO RANCHO, NM 87144	Mark B 528 RIO RANCHO LIFT STATION RIO RANCHO, NM 87124

Quantity	ServiceType	Amount	Tax	Extension
1	Wastewater 3 FOUR THOUSAND GA AND 1 SEVEN THOUSAND GALLON TRUCKS 11 HOURS AND 14 LOADS HAULED	$13,200.00	No	$13,200.00

Taxable Amount	Tax Rate	Tax	Description
$0.00	0	$0.00	EXEMPT

Subtotal NonTaxed:	$13,200.00
Subtotal Taxable:	$0.00
Subtotal Tax:	$0.00

Payment Terms	Payment	Adjustment	Late Charge	
Net 30	$0.00	$0.00	$0.00	Please Pay: $13,200.00

From:
CITY OF RIO RANCHO
3200 CIVIC CENTER CIRCLE NE
RIO RANCHO, NM 87144

Please detach here and return the bottom portion with your payment.

Order No.	Invoice No.	Date	Amount Due
449887	449887	16-Sep-2010	$13,200.00

To:

ATLAS PUMPING COMPANY, INC.
P.O BOX 10477
ALBUQ, NM 87184-0477

AAA Pumping Service, Inc.
P.O. Box 12186
Albuquerque, NM 87195
(505) 345-3965

Invoice #: 73994
Invoice Date: Sep 15, 2010
Page #: 1
Site PO.:
Cust. PO.:
Terms: NET10

City Of Rio Rancho
3200 Civic Center Circle Ne
Rio Rancho, NM 87144-4501

Due Date	Type	Job Site Information / Description	Rate	Units	Amount
Sep 13, 2010		LIFT STATION PUMP - Reference Hwy 528 Lift Station Job location: Hwy 528 Lift Station (City Sewer Main break) 9 hours @ $300.00 per hour = $2700.00 X 3 trucks PO# Mark Baker	$ 8,100.00	1.00	$ 8,100.00
Sep 13, 2010		Sales Tax	$ 7.00 %	7.00 %	$ 567.00
		Invoice Total			$ 8,667.00

If paying by Credit Card please circle which card type and write in your card number in the space provided below:

REMITTANCE ADVICE - PLEASE RETURN WITH YOUR PAYMENT

Customer #: 001219 - 000000
Invoice #: 73994
Invoice Date: Sep 15, 2010
Site PO.:
Cust. PO.:
Terms: NET10

Card Type: (Please Circle Below)

Visa / Mastercard /

Card No.: _____ Exp. _____

3 Digit Security Card Code (On Back of Card): _____

Signature: _____

Invoice Total: $ 8,667.00

Amount Enclosed

AAA Pumping Service, Inc.
P.O. Box 12186
Albuquerque, NM 87195

AMERICAN PUMPING SERVICE

P.O. Box 10595
ALBUQUERQUE, NEW MEXICO 87184-0595
(505) 344-7667 FAX (505) 342-9125
License #350852

CUSTOMER'S ORDER NO.	PHONE	DATE
		9-13-10

NAME: City of Rio Rancho

ADDRESS: Svc: 528 S Santiago Way

RIO RANCHO N.M.

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RET'D.	PAID OUT	
Tony							

QTY.	DESCRIPTION	PRICE	AMOUNT
2	Trucks Pumping LIFT STATION		540 00
	11:00PM – 8:00AM		
	9 HR		
	2 trucks / 9 hours	30.00 per truck per hour	
	Time In _____		
	Time Out _____		
	1½% Per month (18% per annum) service charge on past due accounts. In case of default a reasonable attorney's fee & all collection costs will be paid by purchaser.		
		TAX	327 38
		TOTAL	5727 38

RECEIVED BY

All claims and returned goods MUST be accompanied by this bill.

PO BOX 10595
ALBUQUERQUE, NM 87184-0595
PH 505-344-7667
FAX 505-342-9125

American Pumping Service

FAX

To: Mark Baker
Attn:
Fax: 892-5543
Phone: 975-1565

From: Sandra
Pages: 2
Date: 9-15-10
cc: Invoice

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

• Comments

AAA PUMPING SERVICE, INC.
FAX COVER SHEET

Ph: 505-345-3965/Fax: 505-243-0314
E-mail: AAAPumping@Hotmail.com
Website: www.AAAPumpingservice.com

Date: 9/15/10

To: Mark Baker **From:** *Candy*

Co: City of Rio Rancho

Fax: 892-5543 **Phone:** 975-1565

No. of Pages: 2 **including cover**

Invoice for pumping at Sewer Main break on Monday 9/13/10.

Please advise if you need me to mail an invoice also

Thank you
Have a safe and enjoyable day

INVOICE

City of Rio Rancho
100 Industrial Park Loop
Rio Rancho, NM 87124

RE: Emergency Forcemain Repair @ Rivers Edge II

PO #: 110966

Invoice #: 210001-13-01
Invoice Date: November 29, 2010

Work Description:

Billing for emergency work required to repair the 6" force main at Rivers Edge II on November 26, 2010. Work included exposing existing 6" SDR 26 forcemain and replacing broken section of line with new 6" C900 DR18 pipe.

Invoice Cost:

6" Forcemain line repair (see attached for detail)	$2,775.65
NMGRT @ 7.1875%	199.50
	$2,975.15

Payment should be made to AUI Inc. referencing the invoice number above and is due upon receipt. Please feel free to forward any questions or clarifications regarding this billing.

Submitted by:

AUI Inc.

Kathryn Jordan
Project Manager

Attachment (Cost breakdown)

TOTALS FOR FORCE ACCOUNT WORK
CONTRACTOR: AUI INC.

FORCE ACCOUNT T&M FOR: EMERGENCY REPAIR TO MANHOLE

JOB NAME	*EMERGENCY REPAIR TO 6" FORCEMAIN AT RIVERS EDGE II (PO# 110966)*
AUI JOB NUMBER	*210001-13*
DATES OF T&M WORK	*11/26/2010*

DESCRIPTION OF WORK:

Work required to repair the 6" forcemain that broke at Rivers Edge II by Riverside Dr. Costs below reflect the effort required to repair the line. Costs reflect the use of CORR backhoe for excavations.

Force Account T&M Cost		**$**	**2,775.65**
Add: Performance & Payment Bond Adjustment @	**0%**	**$**	**-**
Subtotal		**$**	**2,775.65**
Add: NMGRT @	**7.1875%**	**$**	**199.50**
TOTAL		**$**	**2,975.15**

LABOR

PERSONNEL DESCRIPTION	WAGE RATE DIRECT LABOR	LBR BURDEN 50%	CONTR. FEE 20%	SUBTOTAL HOURLY RATE	STANDARD HOURS	O.T. HOURS @ 1.5 x RATE	$ LABOR EXTENSION
Wayne Jiron (Super)	$ 32.00	$ 16.00	$ 9.60	$ 57.60	8.0	-	$ 460.80
Eugene Rael (Foreman)	$ 25.00	$ 12.50	$ 7.50	$ 45.00	5.0	-	$ 225.00
Steve Cabrera (Foreman)	$ 21.00	$ 10.50	$ 6.30	$ 37.80	8.0	-	$ 302.40
Adam Contreras (operator)	$ 16.79	$ 8.40	$ 5.04	$ 30.22	7.0	-	$ 211.55
Gilberto Borunda (labor)	$ 14.78	$ 7.39	$ 4.43	$ 26.60	7.0	-	$ 186.23
Jesus Garcia (labor)	$ 14.78	$ 7.39	$ 4.43	$ 26.60	5.0	2.0	$ 212.83
Edward Quintana (labor)	$ 14.38	$ 7.19	$ 4.31	$ 25.88	5.0	2.0	$ 207.07
		$ -	$ -	$ -	-	-	$ -
		$ -	$ -	$ -	-	-	$ -
					LABOR TOTAL :		**$ 1,805.89**

EQUIPMENT

DESCRIPTION	UNIT NUMBER	COA BLUEBK. RATE	INVOICED RENTAL RATE	CONTR. FEE 20%	SUBTOTAL HOURLY RATE	TOTAL HRS/DAYS IN USE	$ EQUIPMENT EXTENSION
F250 truck	9176	$ 15.75		$ 3.15	$ 18.90	8.00	$ 151.20
F450 truck	9346	$ 21.30		$ 4.26	$ 25.56	5.00	$ 127.80
F450 truck	9342	$ 21.30		$ 4.26	$ 25.56	8.00	$ 204.48
				$ -	$ -		$ -
				$ -	$ -		$ -
				$ -	$ -	-	$ -
				$ -	$ -	-	$ -
					EQUIPMENT TOTAL :		**$ 483.48**

MATERIALS & MISCELLANEOUS

DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT COST	CONTR. FEE 20%	SUBTOTAL UNIT PRICE	$ MATERIALS EXTENSION
6" C900 PVC pipe	LF	20.00	$ 4.45	$ 0.89	$ 5.34	$ 106.80
6" MJ Sleeve	EA	2.00	$ 53.00	$ 10.60	$ 63.60	$ 127.20
6" Megalug	EA	4.00	$ 35.07	$ 7.01	$ 42.08	$ 168.34
6" bolt & gasket kit	EA	2.00	$ 16.34	$ 3.27	$ 19.61	$ 39.22
6" transition gasket	EA	2.00	$ 18.64	$ 3.73	$ 22.37	$ 44.74
				$ -	$ -	$ -
				$ -	$ -	$ -
				$ -	$ -	$ -
				$ -	$ -	$ -
		-		$ -	$ -	$ -
				$ -	$ -	$ -
					MATERIAL TOTAL :	**$ 486.29**

ELAINE ALLEN - Re: Sewer line break at Santiago's Subdivision

From: LARRY webb
To: Service, Jim
Date: 9.15.2010 5:33 PM
Subject: Re: Sewer line break at Santiago's Subdivision
CC: ALLEN, ELAINE; Alsop, Trevor; Casaus, Debbie; EricaBaca; GALLEGOS, STEVE; JIMENEZ, JAMES; LEEPER, CLIFF; SENSANBAUGHER, SCOTT; Stoliker, David; VORNHOLT, LISA

Jim, the description of the break and repair time lines are about what I understand. The route the sewage took through the subdivision in the storm drain feature is what I observed that night. The description of the flow is not how it was described to me nor in the pictures I received, I didn't have the opportunity to walk the arroyo. Can you get with Cliff Leeper and visit the location tomorrow so he understands where the sewage ended up. Cliff will call you in the morning. I will get with him tomorrow afternoon to go over the spill once again. Thanks for the description.

>>> Jim Service <JService@sscafca.com> 9/15/2010 5:05 PM >>>
Larry:
At about 10 a.m. this morning David told me about the force main break at the entrance to the Santiago's Subdivision and NM 528.

The crews on-site told Trevor and I the force main appears to be 12"-15" in diameter and has a force flow of approximately 2000gpm. The break was reported Monday, Sept. 13 and crews were on-site around 6pm that same day. The break was repaired by Tuesday, Sept. 14th around 7 a.m. If any of the above is incorrect please advise.

Unfortunately almost all of that sewage went onto hard surfaces and then either into a concrete lined channel to the east or into a 36" RCP to the north and thus into the Venada Arroyo.

At the end of the concrete lined channel is an energy dissipation concrete box at the Venada Arroyo which appears to be plugged and full of liquid waste and debris.

The sewage ran down the entire length of the Venada and collected in our water quality facility at the river end of the arroyo. It then overtopped the water quality feature and made it to the river channel.

This break is different from the August 23rd break in the Los Montoyas which was due to a storm event. The break at Santiago's was directly onto hard surfaces and then into the arroyo with no mitigating sediment or diluting run-off volume accompanying the flow.

Please advise us of the actions the city plans to take in order to address this situation.
Thank you,
Jim

James Service
Field Operations Coordinator
Southern Sandoval County
Arroyo Flood Control Authority

1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
email: jservice@sscafca.com
www.sscafca.com

ELAINE ALLEN - Sewer line break at Santiago's Subdivision

From: Jim Service <JService@sscafca.com>
To: "Lwebb@ci.rio-rancho.nm.us" <Lwebb@ci.rio-rancho.nm.us>
Date: 9.15.2010 5:05 PM
Subject: Sewer line break at Santiago's Subdivision
CC: "ssensanbaugher@ci.rio-rancho.nm.us" <ssensanbaugher@ci.rio-rancho.nm.us>, David Stoliker <DStoliker@sscafca.com>, "CLEEPER@ci.rio-rancho.nm.us" <CLEEPER@ci.rio-rancho.nm.us>, "EALLEN@ci.rio-rancho.nm.us" <EALLEN@ci.rio-rancho.nm.us>, "JJIMENEZ@ci.rio-rancho.nm.us" <JJIMENEZ@ci.rio-rancho.nm.us>, "LVORNHOLT@ci.rio-rancho.nm.us" <LVORNHOLT@ci.rio-rancho.nm.us>, Debbie Casaus <DCasaus@sscafca.com>, EricaBaca <EBaca@sscafca.com>, "SGALLEGOS@ci.rio-rancho.nm.us" <SGALLEGOS@ci.rio-rancho.nm.us>, Trevor Alsop <TAlsop@sscafca.com>

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James Service
Field Operations Coordinator
Southern Sandoval County
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1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124

505-892-RAIN (7246)
505-892-7241 (Fax)
email: jservice@sscafca.com
www.sscafca.com

APPENDIX F

ABATEMENT PLAN FOR INJECTION ACTIVITY

Amended Stage II Abatement Plan
at the
Former Price's Bernalillo Dairy

By
Faith Engineering, Inc.
5701 Piedra Dr. NW
Albuquerque, NM 87114

Prepared for
VG Farms, Inc.
2 Sandia Heights Dr. NE
Albuquerque, NM 87110

and the
Ground Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Dr,
Santa Fe, NM 87502

January 31, 2008

FEI | Faith Engineering, Inc.
5701 Piedra Dr. NW
Albuquerque, New Mexico 87114
(505) 898-6140 • FAX (505) 898-1132
e-mail • faithinc@flash.net

January 31, 2008 **via email and US Mail**

Mr. Bart Faris
Remediation Oversight Section
Ground Water Quality Bureau
New Mexico Environment Department
5500 San Antonio NE
Albuquerque, New Mexico 87109

RE: Amended Stage II Abatement Plan
Price's Valley Gold, North Dairy
Hwy. 528, Bernalillo, Sandoval County, NM
FEI Project No. 99-08-1180

Dear Mr. Faris:

On behalf of VG Farms, Inc. (applicant), Faith Engineering, Inc. (FEI) is pleased to submit herewith the, "Amended Stage II Abatement Plan" for the subject facility. This plan is being submitted as an alternate to the Stage II Plan, which was submitted on September 18, 2007. That plan proposed the use of Monitored Natural Attenuation (MNA) as a primary remediation option with a contingent plan utilizing carbon source nutrient injection should the primary MNA plan fail to meet expected performance monitoring objectives.

After discussion with NMED staff subsequent to the above described AP submittal, VG Farms, Inc. has elected to amend the primary MNA remediation option proposed in the 9/18/07 proposal in favor of a more aggressive abatement plan utilizing in-situ denitrification.

This plan differs from the contingent plan offered in the 9/18/07 Stage II AP submittal in both the location and the rates of ground water pumping and nutrient injection. Part of the rationale for the amended primary remediation plan is the existing development schedule for the site and the desire to reach plan performance objectives in a more expeditious manner.

The 9/18/07 Stage II AP submittal provided discussion of previous investigations and the hydrogeology of the site as it pertains to contaminant distribution and transport pathways. Therefore, this amended plan provides only the technical information related to implementation, operation and monitoring of the proposed primary denitrification plan.

VG Farms is planning to begin drilling of the proposed nutrient injection wells and the ancillary replacement monitoring wells in mid February 2008. It is anticipated that the remediation system will be ready to begin operation by the end of March 2008.

Finally, VG Farms pursuant to Section 20.6.2.3106 NMAC requests approval of a temporary discharge permit to conduct this remediation effort, and has included a check payable to the Water Quality Management Fund for $150 pursuant to Section 20.6.2.3107 NMAC.

We would like to thank you again for your continued support and cooperation in this effort. Please do not hesitate to call me should you have any questions.

Respectfully submitted,
FAITH ENGINEERING, INC.

Stuart E. Faith

Stuart E. Faith, President
NM Professional Engineer No. 6396

cc: Mr. Dudley Price, VG Farms, Inc.
Mr. John Price, VG Farms, Inc.
Mr. Ron Bohannan, Terra West, LLC
Mr. Patrick Hurley, Esq.
Ms. Tessa Davidson, Esq.

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1. Discussion of Enhanced In Situ Bioremediation (EISB) at the VG Farms Site

The previous Stage II AP provided a description of the geohydrologic boundary between the bluff forming Duranes Formation and the eastward lying Rio Grande Valley Fill. This boundary can be seen clearly on photo and topographic maps of the site where the bluff forming sediments meets its erosional contact with the Rio Grande. VG Farms proposes to complete a series of 4 inch diameter wells spaced fifty (50) ft. apart along the above described boundary, and to inject a solution of diluted sugar with supplemental additions of tri-sodium phosphate (TSP – an additional required nutrient) and sodium bromide (as a tracer) to stimulate native denitrifying bacterial growth. The objectives are to denitrify existing nitrate in the ground water and to establish a growth of biomass in the saturated sediments adjacent to and down gradient of the injection wells to inhibit future nitrate migration from this boundary between the Duranes gravel layer and the Rio Grande Valley Fill.

1.1 Location and Completion of Proposed Injection Wells

Figure 1 shows the approximate location of the boundary between the Duranes and Rio Grande Valley Fill sediments. Figure 2 provides an enlargement of that boundary area in the vicinity of the former unlined lagoon. Both Figure 1 and Figure 2 are taken from a July, 2007 satellite photomap (Google) and shows the lined temporary lagoon (which is now filled) that was constructed for purposes of conducting pumping tests on the Reclamation Well (RW) and a Duranes Formation test well (PW-1) in May 2007. The line of proposed injection wells and the route of the pipeline to the injection wells from the RW supply well is also shown on Figure 2. This line of injection wells is slightly east of a line between the former MW-13 and MW-19 monitoring wells, and will allow completion of wells with screened injection intervals below the Rio Grande Valley Fill static ground water elevation and above the buried portion of the Duranes Formation scarp as shown on Figure 3.

The injection wells will be completed using a truck mounted CME-75 with a 10-inch diameter hollow stem auger (HSA). Limited split spoon or continuous core soil sampling below the water table will be conducted to determine the boundary contact with the Lower Duranes Formation. The wells will be completed with 4-inch diameter PVC and No. 20 slot well screen below the water table to the contact with the Lower Duranes (apprx. 20 to 30 ft.). The wells will be sand packed with No 12 - 16 washed silica sand, a bentonite plug above the sand pack, and neat cement grout to the surface. Each well will be developed by bailing and/or pumping until returns are sediment free.

1.2 Nutrient Injection System

VG Farms has elected to use sugar as the carbon nutrient source because of its ease of mixing, storage, and ready commercial availability. Calculations for the stoichiometric concentrations of sugar required to treat 50 mg/l nitrate in ground water are provided in Appendix A, as well as concentrations of dry TSP and sodium bromide to be added to achieve 20/mg/l phosphate and XXX mg/l bromide. The calculations supporting the theoretical radius of nutrient injection solution from the injection wells are provided in Appendix B.

VG Farms proposes to mix dry sugar, TSP and sodium bromide periodically in a 1000-gallon trailer mounted mixing tank, which will be located adjacent to the injection wells. The periodic batch mixing will be accomplished by adding fresh make up water from the RW pumping well along with the dry nutrient/amendment ingredients followed by mixing with a recirculation pump mounted on the tank trailer. Flow from the tank to the injection line will be via a venturi eductor fitting and valve. This mixing system design is illustrated schematically in Figure 4 along with details illustrating the surface injection well completion. A valve at each wellhead will control the flow rate to each injection well and assist in balancing the water levels in each well. Prior to starting nutrient injection, fresh water will be pumped from the RW through the mixing valve and injection wells to determine the rate of mixing tank discharge and to balance flow between the injection wells.

2.0 Operation and Monitoring

VG Farms intends to operate the above described nutrient injection system for a nominal six month period, and expects to form an effective biomass barrier to existing and future ground water nitrate migration and to denitrify existing ground water nitrate east of the injection wells. This will then be followed by a two to five year ground water monitoring period to assure that nitrate remains below NMWQCC standards.

Replacement monitoring wells will be completed in late February to early March 2008. The location of the replacement monitoring wells is shown on Figure 5. Changes to the replacement monitoring well configuration since the 9/18/07 Stage II AP submittal include: (1) moving MW-19R to a location east of the proposed injection wells, (2) completing an off site and up gradient monitoring well MW-22 on the west side of NM Hwy. 528, and (3) making minor adjustments in the location of other replacement monitoring wells to accommodate site grading.

Additional detail regarding the operation of the nutrient injection system and future ground water monitoring are provided in the following sections.

2.1 Nutrient Injection Considerations

The pumping test conducted on the RW pumping well in May, 2007 indicates that a sustained pumping rate of 30 gpm is possible, and is the basis for calculating the mixing and nutrient injection rates for the remediation system proposed herein. A totalizing flow meter will be installed between the RW pumping well and the nutrient mixing tank as shown on Figure 4 to monitor total pumping and injection rates.

The vacuum generated by the eductor venturi mixing valve in combination with the control valve located between the mixing tank and eductor will dictate the rate at which the concentrated sucrose solution is mixed with the raw water feed from the RW well. This in turn will dictate the frequency with which the mixing tank will need to be replenished with raw sugar, TSP and sodium bromide. Additionally, periodic pumping and injection of fresh water with no nutrient or amendment additions may be necessary to ensure that the sand and gravel matrix in close radial proximity to the injection wells does not become clogged by biomass formation. Should water level increases in the injection wells suggest that the rate or severity of biomass formation in proximity to the injection wells is occurring, then consideration will be given for adding sodium hypochlorite to the injection stream to eliminate biomass formation near the injection wells. This may be done by either dosing the mixing tank or to individual wells (via the water level probe access port on each injection wellhead) exhibiting higher biofouling.

A record will be maintained of:

- the water level and dissolved oxygen (DO) in the injection wells (daily for one week, twice weekly thereafter);
- the water level and DO in the RW pumping well (daily for one week, twice weekly thereafter);
- flow totalizer reading (same frequency as above)
- water level in the mixing tank (with corresponding gallons injected – same frequency as above);
- quantity of raw sugar, TSP and sodium bromide added;
- dates and times of no nutrient/amendment injection;
- dates, times, and quantity of sodium hypochlorite added; and
- dates, times, and duration of system shutdown for maintenance or repair.

2.2 Ground Water Monitoring

The initial round of ground water sampling of the replacement monitoring wells will be conducted within one to two weeks of their completion, which is anticipated in late February to early March, 2008. All replacement monitoring wells will be surveyed by a licensed NM Surveyor. All wells will be developed by bailing and/or pumping until returns are clear of sediment and fines.

Periodic sampling will be conducted using a low flow variable speed Grundfos sampling pump after static water levels have been measured. A minimum of three well bore volumes will be purged from each well prior to sample collection. All monitor well samples will be analyzed for nitrate (NO_3), total Kjehldahl nitrogen (TKN), chloride (Cl), total dissolved solids (TDS), sodium (Na), potassium (K), magnesium (Mg), calcium (Ca), sulfate (SO_4), and bicarbonate (HCO_3). Monitor wells MW-11R, 14R, 15R, 16R, 18, and 21 will be sampled semi-annually. Monitor wells MW-1A, 6R, 8R, 13R, 19R, 20R, and 22 will be sampled quarterly. In addition to the routine analytes mentioned above, monitor wells MW-1A, 19R, 20R and the pumping well (RW) will be sampled weekly after the nutrient injection system startup, and will be analyzed for dissolved oxygen (DO), total organic carbon (TOC), iron (Fe), manganese (Mn), phosphate (PO_4), and bromide (Br).

2.3 Reporting

During operation of the nutrient injection system, VG Farms will provide monthly reports to NMED summarizing the nutrient injection parameters described in Section 2.1, monitoring results from MW-1A, MW-19R, 20R and RW as described in Section 2.2, and any proposed changes to the nutrient injection system operation. Quarterly reporting of ground water monitoring results will be provided to NMED. A summary of monitoring and reporting is provided in Table1.

3.0 Contingency

A contingency plan for the proposed MNA remediation was included in the 9/18/07 Stage II AP submittal. That contingency plan called for the construction of two pumping wells in the Lower Duranes Fine Grained Sand, the pumping and mixing of ground water from those wells with appropriate denitrification nutrients and amendments, and the reinjection of the resultant mixture into the Duranes Gravel Layer immediately west of its erosional contact with the Rio Grande Valley Fill. VG Farms proposes to keep this contingency plan as a future option should the primary nutrient injection system proposed herein require supplemental augmentation.

Additionally, consideration will be given to short term injection of denitrification nutrient solution to "hot spots" which may become evident after cessation of the primary nutrient injection system.

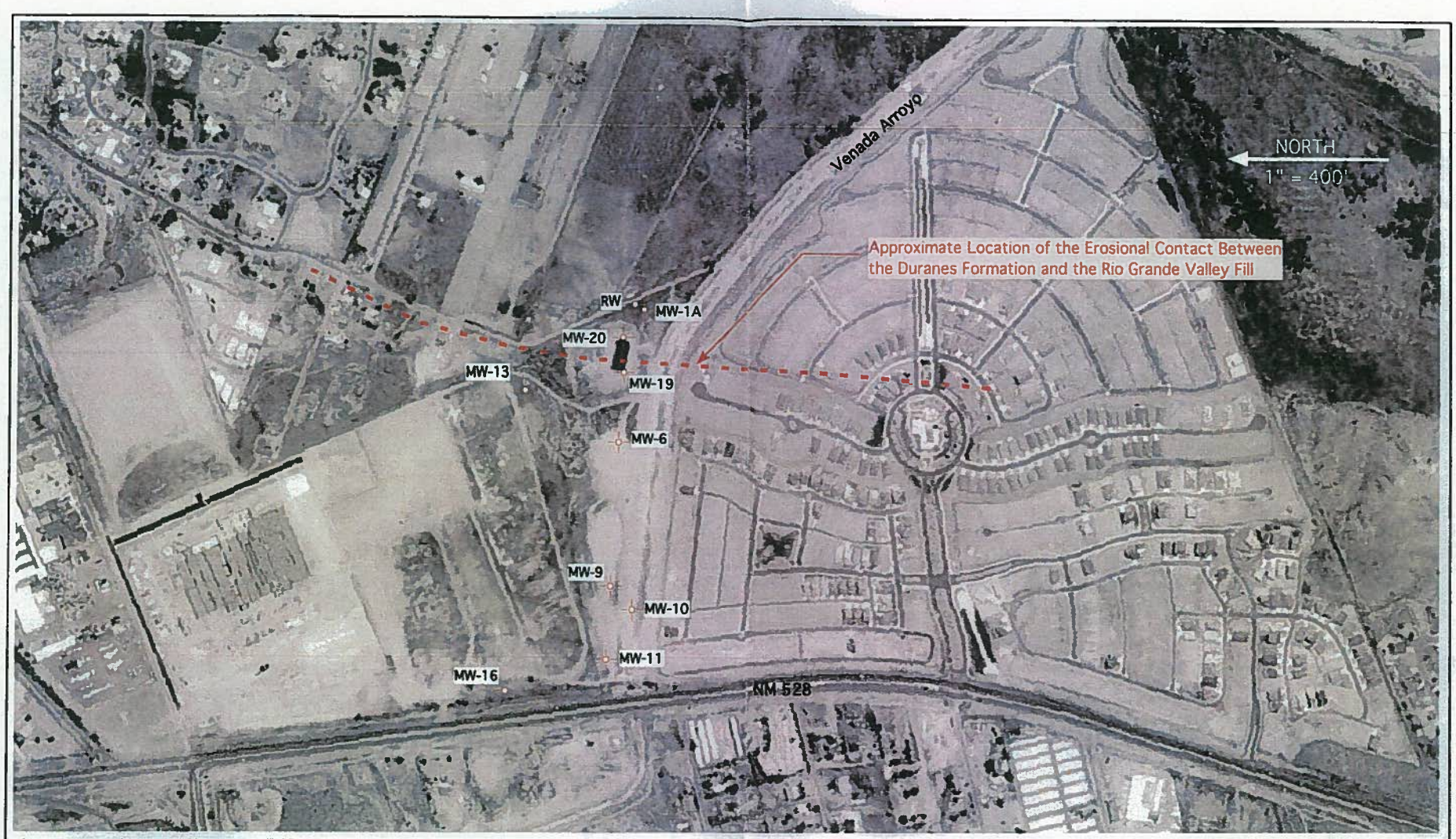
4.0 Conclusion

VG Farms offers this proposed primary and contingent Stage II AP remediation options as the most expedient and technically feasible means of achieving compliance with the NMWQCC regulations for ground water protection. VG Farms intends to proceed with the construction of both the injection and replacement monitoring wells within the next few weeks, and intends to start up the proposed nutrient injection system upon approval of the temporary discharge permit requested in the transmittal letter accompanying this proposal.

TABLE 1
SUMMARY OF MONITORING AND REPORTING FOR VG FARMS BERNALILLO DAIRY
STAGE II ABATEMENT PLAN

ITEM	MEASURE	FREQUENCY						Period
		daily for first week	twice per week	weekly	monthly	quarterly	semi-annually	
Injection wells	dissolved oxygen and water level	X	X		X			6 months of remediation
RW	dissolved oxygen and water level	X	X		X			
Flow Totalizer	total flow in gallons	X	X		X			
Mixing Tank	water level	X	X		X			
Nutrient and Amendments	weight added	as added			X			
fresh water injection	flow total	as added			X			
Sodium Hypochlorite	weight added	as added			X			
System Shutdown	duration and purpose of repair or maintenance	as added			X			
MW-1A, 19R, 20R, RW	DO, TOC, Fe, Mn, PO_4, Br, Na, K, Mg, Ca, HCO_3, SO_4, NO_3			X	X			
MW-1A, 6R, 8R, 13R, 19R, 20R, 22	NO_3, TKN, Cl, TDS, Na, K, Mg, Ca, HCO_3, SO_4					X		2 to 5 years of performance monitoring
MW-11R, 14R, 15R, 16R	NO_3, TKN, Cl, TDS, Na, K, Mg, Ca, HCO_3, SO_4						X	

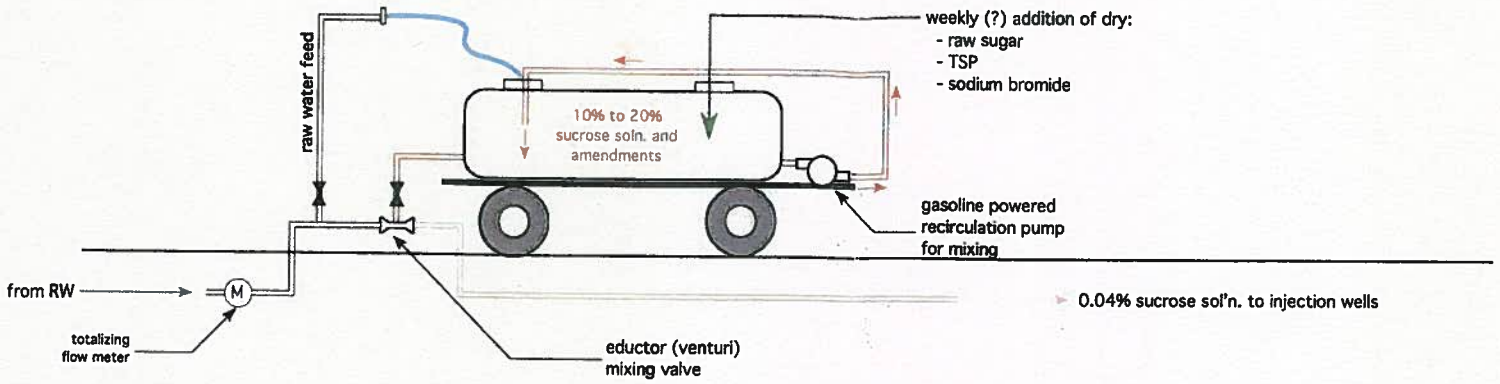
X denotes reporting frequency to NMED

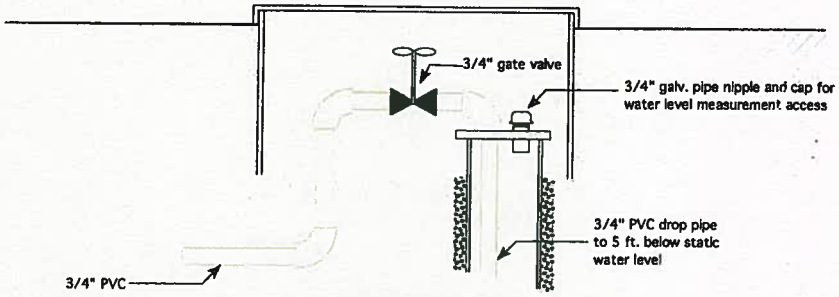


FILE: 99-08-1180 DATE: 1/31/08 DRAWN: SEF DATE OF PHOTO: July 2007	PRICE'S VG FARMS, INC. MODIFIED STAGE II AP	Figure 1 Duranes Fm. and Rio Grande Valley Fill Contact	FEI | Faith Engineering, Inc. 5701 Piedra Dr. NW Albuquerque, New Mexico 87114 (505) 898-6140 • FAX (505) 898-1132 e-mail • faithinc@flash.net

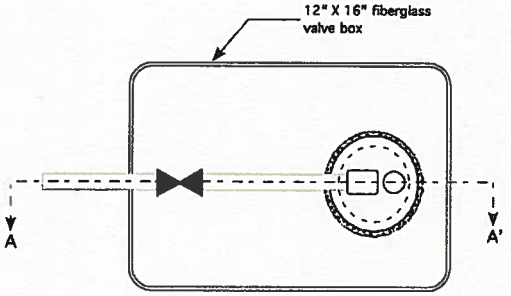
FILE: 99-08-1180 DATE: 01/31/08 DRAWN: SEF DATE OF PHOTO: July 2007	PRICE'S DAIRY Stage II Abatement Plan	Figure 2 Denitrification Nutrient Injection Wells	FEI | Faith Engineering, Inc. 5701 Piedra Dr. NW Albuquerque, New Mexico 87114 (505) 898-6140 • FAX (505) 898-1132 e-mail • faithinc@flash.net

NUTRIENT AMENDMENT MIXING DETAIL





CROSS SECTION AA'
INJECTION WELL/VALVE BOX DETAIL



PLAN VIEW
INJECTION WELL/VALVE BOX DETAIL

FILE: 99-08-1180 DATE: 01/31/08 DRAWN: SEF NOT TO SCALE	PRICE'S DAIRY Stage II Abatement Plan	Figure 4 Mixing Tank and Injection Wellhead Detail	FEI Faith Engineering, Inc. 5701 Piedra Dr. NW Albuquerque, New Mexico 87114 (505) 898-6140 • FAX (505) 898-1132 e-mail • faithinc@flash.net

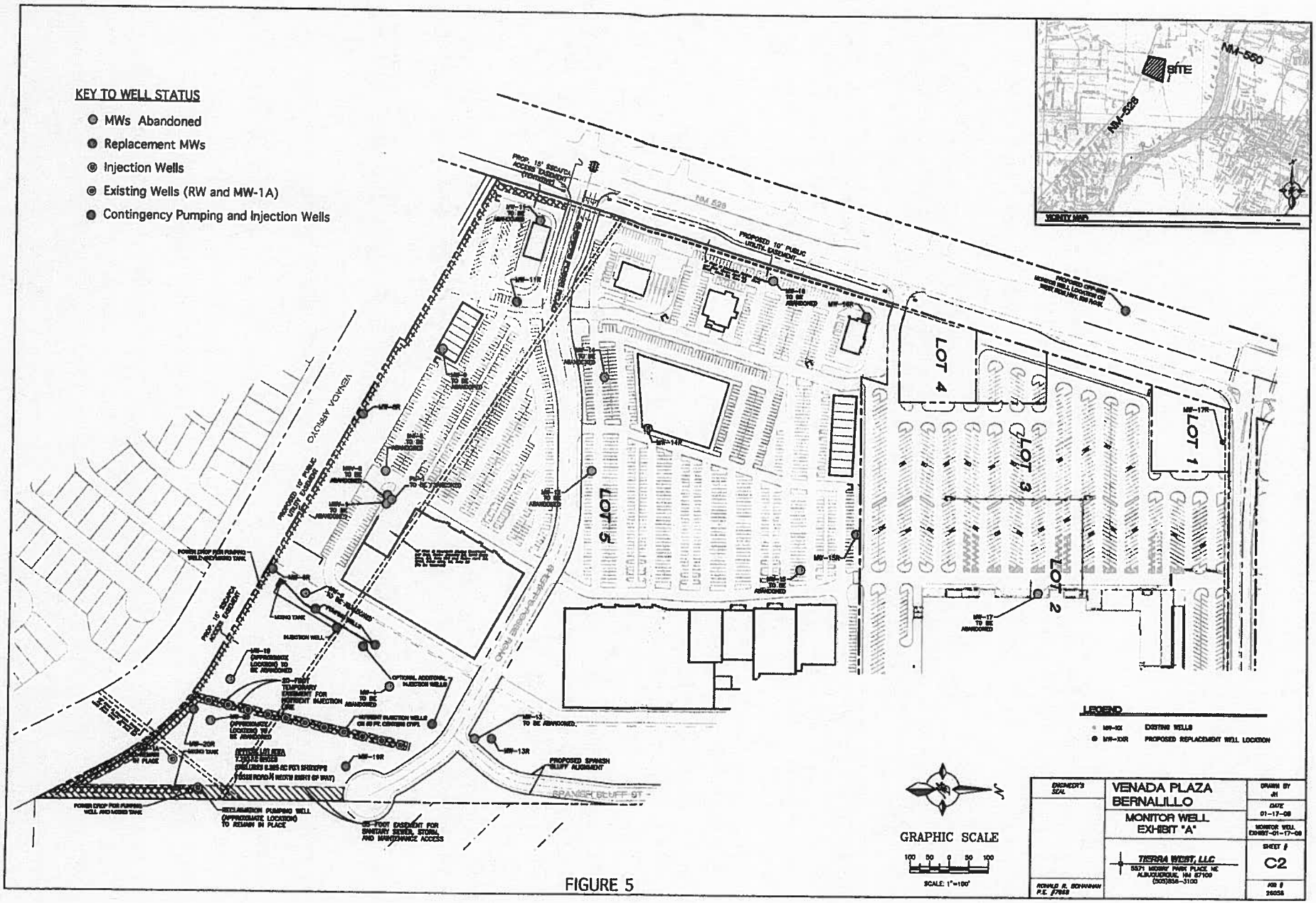

KEY TO WELL STATUS
MWs Abandoned
Replacement MWs
Injection Wells
Existing Wells (RW and MW-1A)
Contingency Pumping and Injection Wells
SITE
NM-550
NM-528
VICINITY MAP
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LEGEND
EXISTING WELLS
PROPOSED REPLACEMENT WELL LOCATION
GRAPHIC SCALE
SCALE: 1"=100'
VENADA PLAZA BERNALILLO
MONITOR WELL EXHIBIT "A"
TIERRA WEST, LLC
DRAWN BY JH
DATE 01-17-08
SHEET # C2

FIGURE 5

APPENDIX A

NUTRIENT DOSING CALCULATIONS

PROBLEM: How much sugar (sucrose) is required for stoichiometric reduction of 50 mg/l nitrate to atmospheric nitrogen by denitrifying bacteria?

GIVEN: (1.) molecular formula for sucrose: $C_{12}H_{22}O_{11}$

(2.) molecular weight of sucrose: (12 X 12) + 22 + (11 X 8) = 254 grams/mole

(3.) molecular weight of nitrate (NO_3): (3 X 8) + 7 = 31 grams/mole

(4.) nitrate reduction:

$$NO_3 + {}^{5}/_{48}\, C_{12}H_{22}O_{11} \rightarrow {}^{1}/_{2}\, N_2 + {}^{5}/_{4}\, CO_2 + {}^{31}/_{48}\, H_2O + OH$$

(a) molecular concentration of nitrate:

(50 mg/liter) X (1 mmole/31 mg) = 1.6 mmoles/liter NO_3

(b) required concentration of sucrose:

(1.6 mmoles nitrate/liter) X ($^{5}/_{48}$ mmoles sucrose/mmole nitrate) X (254 mg/mmole sucrose)

= 42 mg/liter sucrose

(c) daily sucrose required at pumping rate of 30 gal/min

(42 mg/l)(1 gr/1000 mg)(2.205X10^{-3} lb/gr)(3.78 l/gal)(30 gal/min)(1440 min/day)

= 14 lbs/day sugar

APPENDIX B

INJECTION WELL
RADIUS OF INFLUENCE
CALCULATIONS

CALCULATION OF NUTRIENT INJECTION WELL SPACING AND AVAILABLE TIME FOR BIO-BARRIER FORMATION AT VG FARM'S FORMER BERNALILLO DAIRY

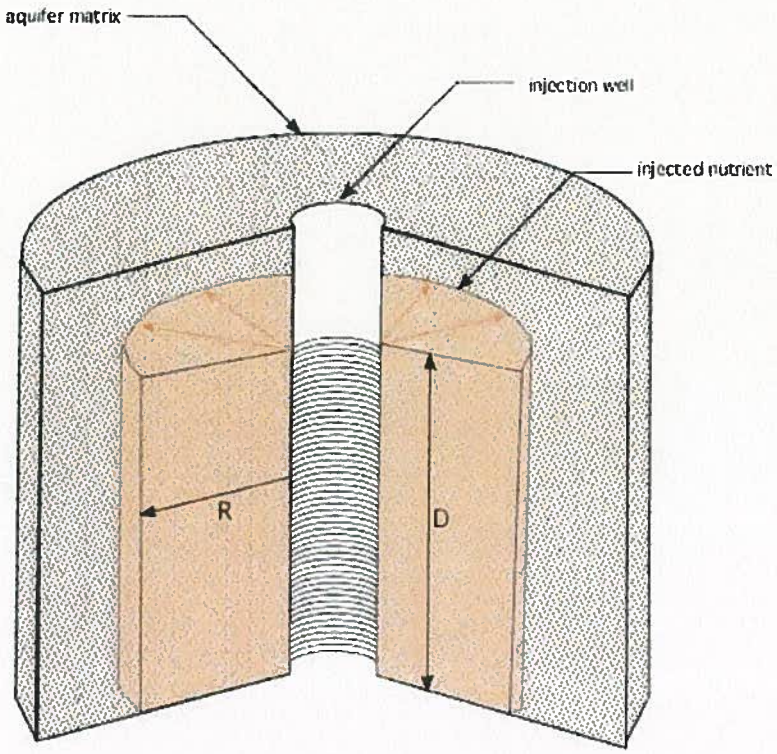
The attached figures provide a theoretical basis for determining the spacing of proposed nutrient injection wells at the former VG Farms Inc. Bernalillo Dairy. These are theoretical in that the calculations assume a uniform radial flow of injected nutrient solution away from each of the evenly spaced injection wells, which in turn assumes a uniform and homogenous sand and gravel matrix in the shallow ground water aquifer below the injection wells.

The major variables in the calculations are the aquifer porosity, the rate of nutrient injection into each well, and the length of well screen in each well. For sand and gravel aquifers, a typical range of porosity is 15% to 25%. Given the historic steady state pumping rate of the reclamation well (RW) of 30 to 35 gallons per minute (gpm) and the numbers of possible injection wells (10 to 15), an average flow to each injection well is 2 to 3 gpm. The well screen length for the line of injection wells between MW-19 and MW-13 will need to extend from the surface of the shallow ground water table in the Rio Grande fill downward to the contact with the Duranes formation, which is believed to be in the range of 20 to 30 feet.

The first figure provides the basis for calculation of the radius of injected fluid over time under the above described theoretical conditions, and the figures that follow provide radius versus time for various injection rates, well screen lengths (or depths), and porosities.

Based on these figures and the proposed 50 ft. spacing of the injection wells, it can be seen that the initial contact of injected nutrient solution between adjacent injection wells (R = 25 ft.) will occur within approximately 30 days, and complete "overlap" of injected fluid (R = 50 ft.) between adjacent wells could take up to 150 days.

Based on these calculations, it is recommended that if the injection wells are allowed to operate for the entire six months that we have proposed, that a well spacing greater than 50 ft. (70 to 80 ft.) may be appropriate, but if a shorter injection period is required to accommodate site development, then the 50 ft. spacing may be appropriate.



Radius of Nutrient Fluid Injection

(πR^2) (D) (Ø) = (Q) (1440 min/day) (1 cu ft/7.48 gal) (days pumping)

$$R = \text{sq. rt.} \frac{(Q)\ (1440\ \text{min/day})\ (1\ \text{cu ft}/7.48\ \text{gal})\ (\text{days pumping})}{(D)\ (Ø)\ (\pi)}$$

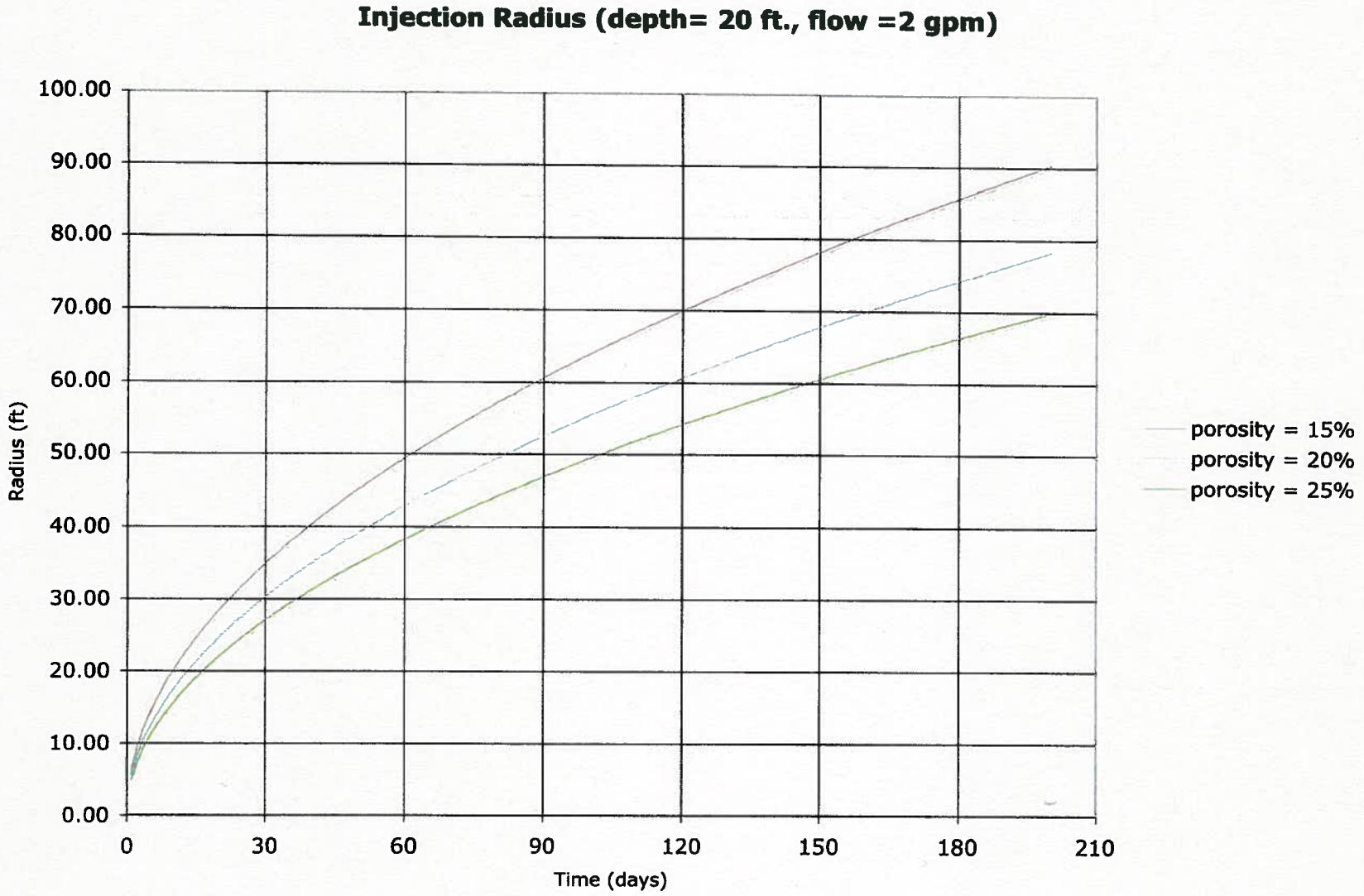
Where:

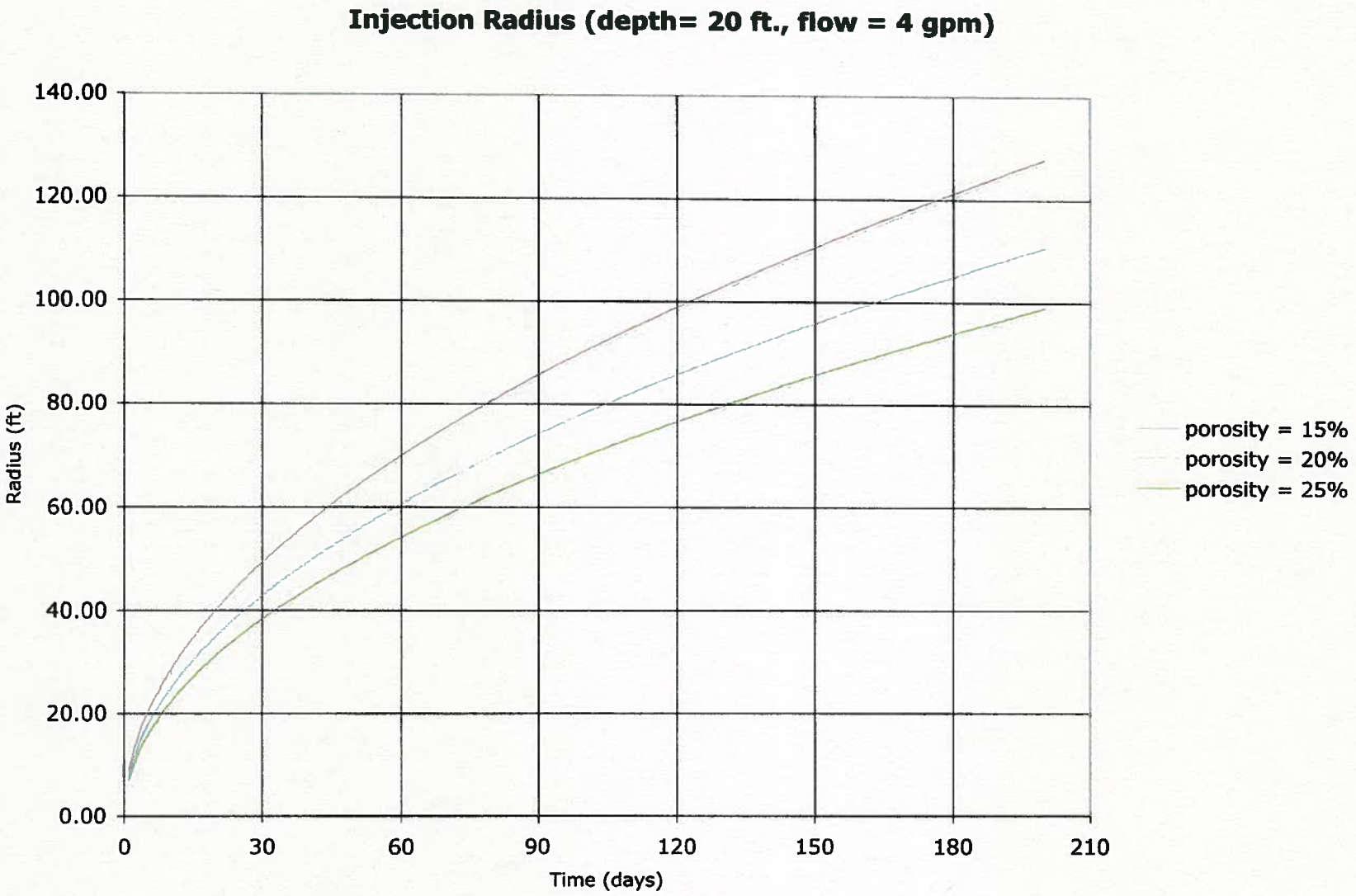
R = radius of injected fluid from injection well (ft.)

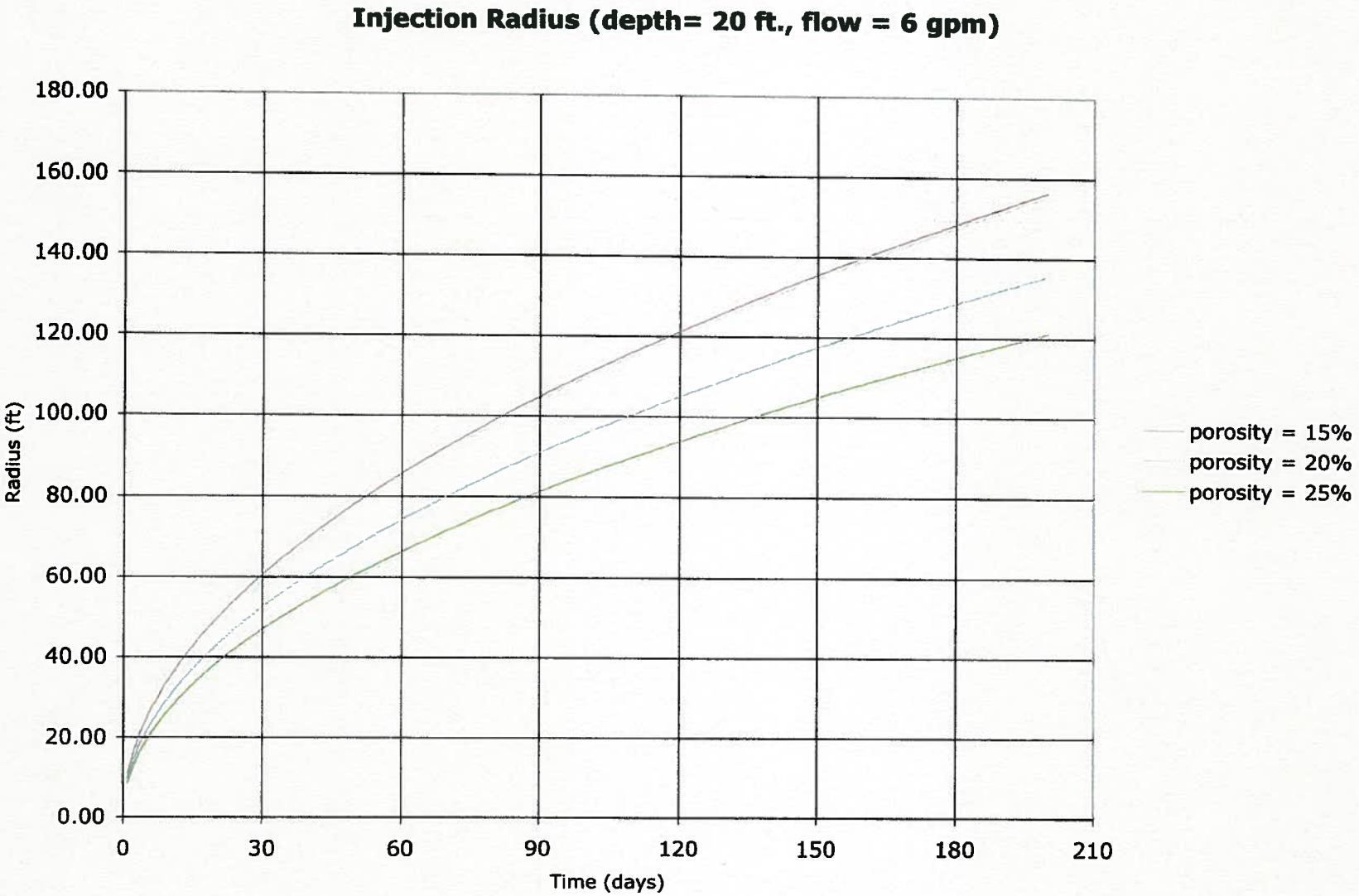
D = well screen length (ft.)

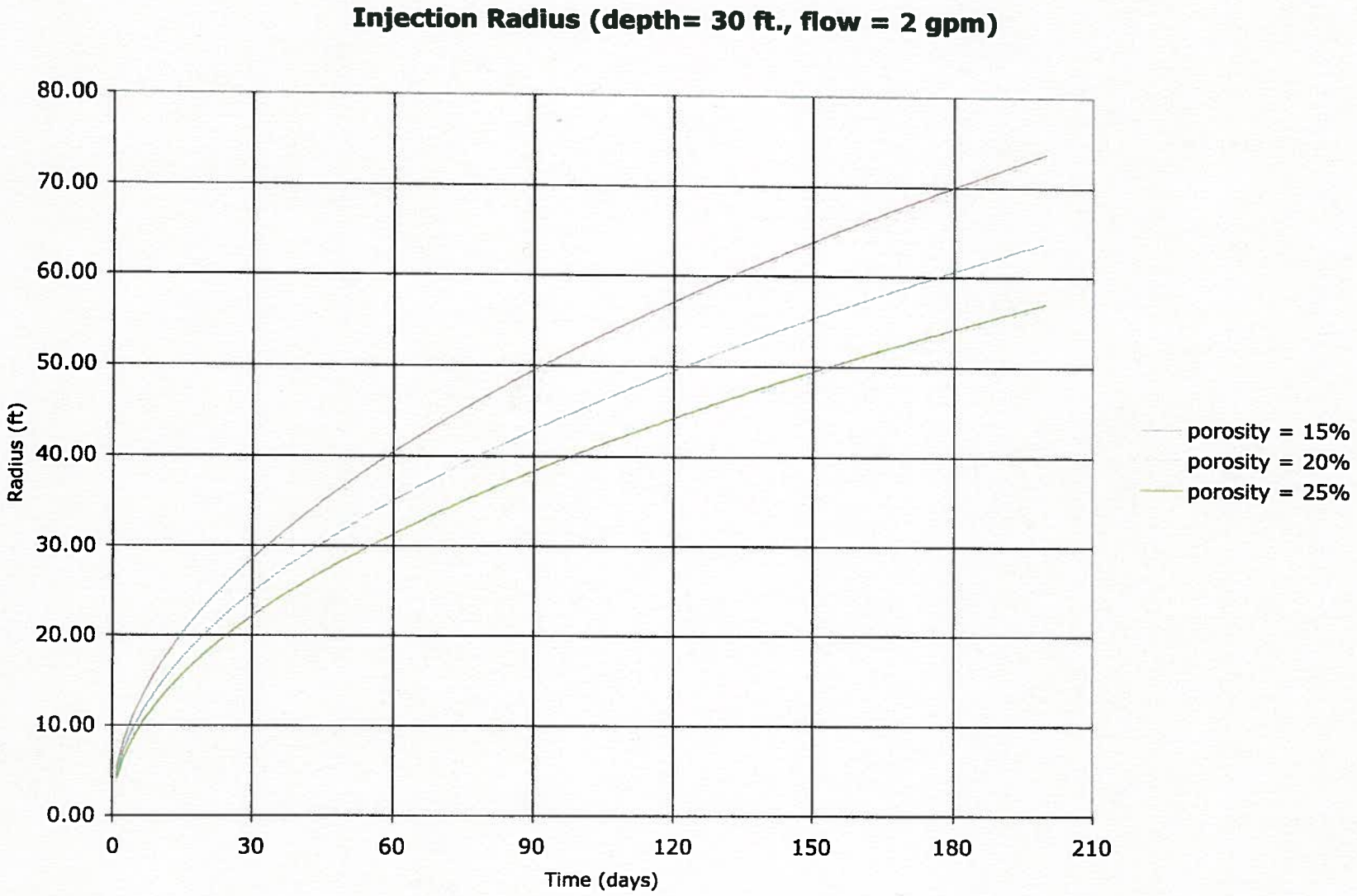
Q = injection rate (gpm).

Ø = aquifer porosity (dimensionless: aquifer intersticial void percent)


Injection Radius (depth= 20 ft., flow =2 gpm)
Radius (ft)
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0
30
60
90
120
150
180
210
Time (days)
porosity = 15%
porosity = 20%
porosity = 25%


Injection Radius (depth= 20 ft., flow = 4 gpm)
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Radius (ft)
0
30
60
90
120
150
180
210
Time (days)
porosity = 15%
porosity = 20%
porosity = 25%


Injection Radius (depth= 20 ft., flow = 6 gpm)
Radius (ft)
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
0
30
60
90
120
150
180
210
Time (days)
porosity = 15%
porosity = 20%
porosity = 25%


Injection Radius (depth= 30 ft., flow = 2 gpm)
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Radius (ft)
0
30
60
90
120
150
180
210
Time (days)
porosity = 15%
porosity = 20%
porosity = 25%

APPENDIX G

DEED RECORDATION

STATE OF NEW MEXICO

COUNTY OF SANDOVAL

DEED RECORDATION COVENANT RESTRICTING AND PROHIBITING USE OF GROUNDWATER

THIS DEED RECORDATION is made this 6th day of May, 2016 by D&HGP, a resident of Sandoval County, New Mexico, a NM limited partnership ("Owner(s)") with its principal place of business located at PO Box 850, Bernalillo New Mexico 87004, states that it is the legal fee owner and holds title to the below listed real property in Bernalillo County, the State of New Mexico;

WHEREAS, the Owner(s) has, completed the groundwater abatement at the property pursuant to an Alternative Abatement Standard approved by the New Mexico Water quality Control Commission or has an Abatement Completion Report approved by the New Mexico Environment Department and the Groundwater may contain contaminants in excess numerical of ground water quality standards set forth in 20.6.2 NMAC and related statutes and regulations;

WHEREAS, the Property, located at Lot 5-B, Venada Plaza, as such lot is depicted and described on a replat entitled "Lots 5-A and 5-B, Venada Plaza", which replat was filed in the Office of the County Clerk of Sandoval County, NM, on January 2, 2008 in Volume 3, Folio 2875-A (Book 411 Page 252); and hereby incorporated into this covenant, shall be used only for non-residential purposes and no wells or devices shall be installed on the property to use groundwater and no use of the groundwater shall be allowed;

THEREFORE, the owner of the property prohibits, for itself and all future successors or assigns of the property, installation of wells or any other device to use groundwater and any use of the groundwater is completely prohibited. This restriction and prohibition shall be recorded with the property and is binding on future successors or assigns;

IN WITNESS WHEREOF, the said Owner(s) has caused this instrument to be signed by its authorized representative on the day and year first above written.

D&HGP

By: _____
Dudley Price
General Partner

STATE OF NEW MEXICO
COUNTY OF SANDOVAL

Subscribed and sworn to before me this_____day of_____by
_____

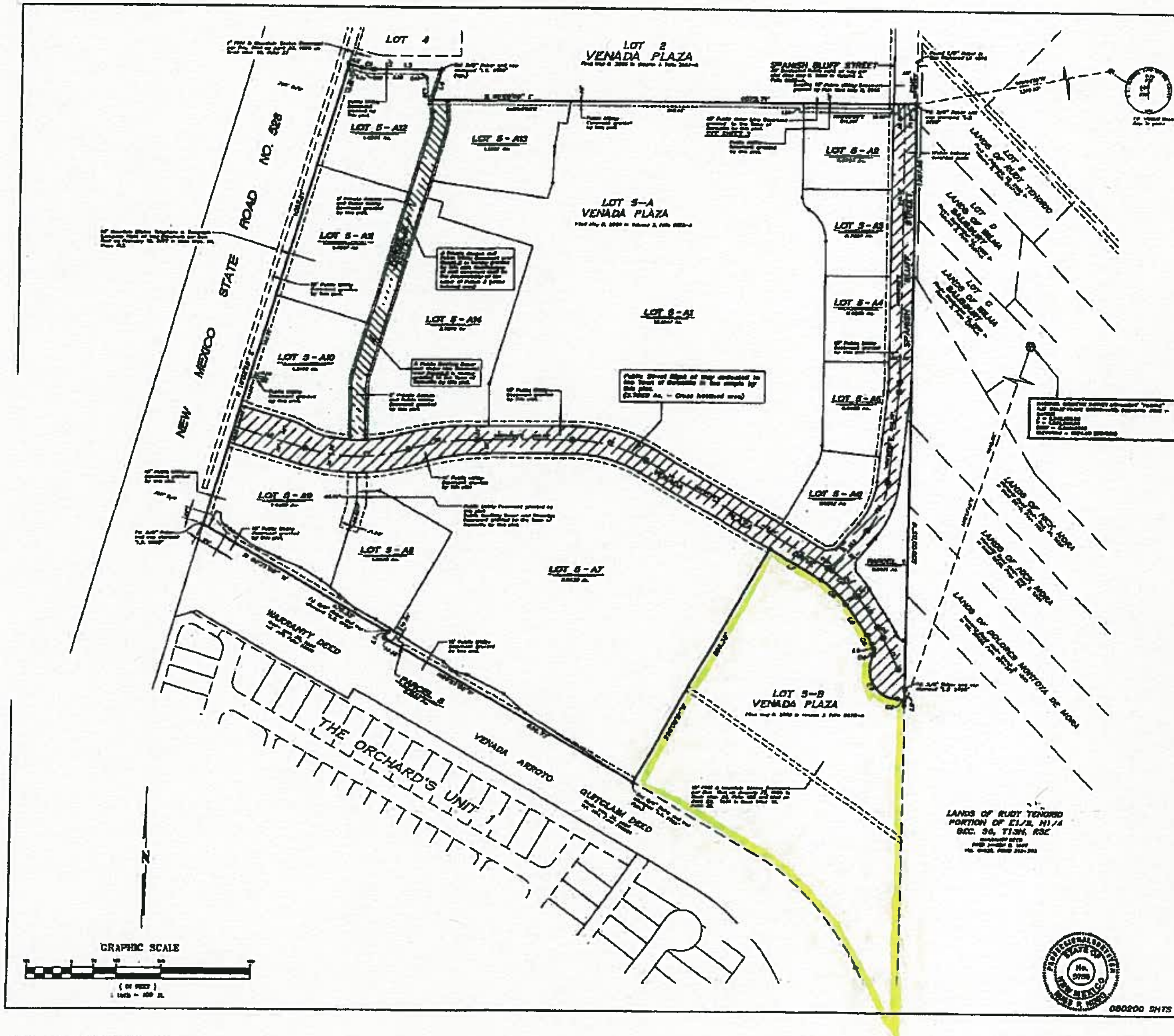
_____
Notary Public

My commission expires:

_____

APPENDIX H

PLAT OF LOT 5-B AND SHAPE FILES
(CD attached with electronic files)



LOTS 5-A1 THRU 5-A14
AND PARCELS 1 THRU 3

VENADA PLAZA

(BEING A REPLAT OF LOT 5-A, VENADA PLAZA)

SITUATE WITHIN
SECTION 36, TOWNSHIP 13 NORTH, RANGE 3 EAST
NEW MEXICO PRINCIPAL MERIDIAN
TOWN OF BERNALILLO
SANDOVAL COUNTY, NEW MEXICO
SEPTEMBER, 2008

ADDITIONAL NEW EASEMENTS

LINE TABLE

LINE TABLE

CURVE TABLE

SHEET 4 OF 4

SURV-TEK, INC.
Consulting Surveyors

080200 SHTS 3-4_91008.dwg

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 6 WATER QUALITY
PART 2 GROUND AND SURFACE WATER PROTECTION

20.6.2.1 ISSUING AGENCY: Water Quality Control Commission
[12-1-95; 20.6.2.1 NMAC - Rn, 20 NMAC 6.2.I.1000, 1-15-01]

20.6.2.2 SCOPE: All persons subject to the Water Quality Act, NMSA 1978, Sections 74-6-1 et seq.
[12-1-95; 20.6.2.2 NMAC - Rn, 20 NMAC 6.2.I.1001, 1-15-01]

20.6.2.3 STATUTORY AUTHORITY: Standards and Regulations are adopted by the commission under the authority of the Water Quality Act, NMSA 1978, Sections 74-6-1 through 74-6-17.
[2-18-77, 9-20-82, 12-1-95; 20.6.2.3 NMAC - Rn, 20 NMAC 6.2.I.1002, 1-15-01]

20.6.2.4 DURATION: Permanent.
[12-1-95; 20.6.2.4 NMAC - Rn, 20 NMAC 6.2.I.1003, 1-15-01]

20.6.2.5 EFFECTIVE DATE: December 1, 1995 unless a later date is cited at the end of a section.
[12-1-95, 11-15-96; 20.6.2.5 NMAC - Rn, 20 NMAC 6.2.I.1004, 1-15-01; A, 1-15-01]

20.6.2.6 OBJECTIVE: The objective of this Part is to implement the Water Quality Act, NMSA 1978, Sections 74-6-1 et seq.
[12-1-95; 20.6.2.6 NMAC - Rn, 20 NMAC 6.2.I.1005, 1-15-01]

20.6.2.7 DEFINITIONS: Terms defined in the Water Quality Act, but not defined in this part, will have the meaning given in the act. As used in this part:

A. **"abandoned well"** means a well whose use has been permanently discontinued or which is in a state of disrepair such that it cannot be rehabilitated for its intended purpose or other purposes including monitoring and observation;

B. **"abate" or "abatement"** means the investigation, containment, removal or other mitigation of water pollution;

C. **"abatement plan"** means a description of any operational, monitoring, contingency and closure requirements and conditions for the prevention, investigation and abatement of water pollution, and includes Stage 1, Stage 2, or Stage 1 and 2 of the abatement plan, as approved by the secretary;

D. **"adjacent properties"** means properties that are contiguous to the discharge site or property that would be contiguous to the discharge site but for being separated by a public or private right of way, including roads and highways.

E. **"background"** means, for purposes of ground-water abatement plans only and for no other purposes in this part or any other regulations including but not limited to surface-water standards, the amount of ground-water contaminants naturally occurring from undisturbed geologic sources or water contaminants which the responsible person establishes are occurring from a source other than the responsible person's facility; this definition shall not prevent the secretary from requiring abatement of commingled plumes of pollution, shall not prevent responsible persons from seeking contribution or other legal or equitable relief from other persons, and shall not preclude the secretary from exercising enforcement authority under any applicable statute, regulation or common law;

F. **"casing"** means pipe or tubing of appropriate material, diameter and weight used to support the sides of a well hole and thus prevent the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent fluid from entering or leaving the well other than to or from the injection zone;

G. **"cementing"** means the operation whereby a cementing slurry is pumped into a drilled hole and/or forced behind the casing;

H. **"cesspool"** means a **"drywell"** that receives untreated domestic liquid waste containing human excreta, and which sometimes has an open bottom and/or perforated sides; a large capacity cesspool means a cesspool that receives liquid waste greater than that regulated by 20.7.3 NMAC;

I. **"collapse"** means the structural failure of overlying materials caused by removal of underlying materials;

J. **"commission"** means:

(1) the New Mexico water quality control commission or

(2) the department, when used in connection with any administrative and enforcement activity;

K. "confining zone" means a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement from an injection zone;

L. "conventional mining" means the production of minerals from an open pit or underground excavation; underground excavations include mine shafts, workings and air vents, but does not include excavations primarily caused by in situ extraction activities;

M. "daily composite sample" means a sample collected over any twenty-four hour period at intervals not to exceed one hour and obtained by combining equal volumes of the effluent collected, or means a sample collected in accordance with federal permit conditions where a permit has been issued under the national pollutant discharge elimination system or for those facilities which include a waste stabilization pond in the treatment process where the retention time is greater than twenty (20) days, means a sample obtained by compositing equal volumes of at least two grab samples collected within a period of not more than twenty-four (24) hours;

N. "department", "agency", or **"division"** means the New Mexico environment department or a constituent agency designated by the commission;

O. "discharge permit" means a discharge plan approved by the department;

P. "discharge permit modification" means a change to the requirements of a discharge permit that result from a change in the location of the discharge, a significant increase in the quantity of the discharge, a significant change in the quality of the discharge; or as required by the secretary;

Q. "discharge permit renewal" means the re-issuance of a discharge permit for the same, previously permitted discharge;

R. "discharge plan" means a description of any operational, monitoring , contingency, and closure requirements and conditions for any discharge of effluent or leachate which may move directly or indirectly into ground water;

S. "discharge site" means the entire site where the discharge and associated activities will take place;

T. "disposal" means to abandon, deposit, inter or otherwise discard a fluid as a final action after its use has been achieved;

U. "domestic liquid waste" means human excreta and water-carried waste from typical residential plumbing fixtures and activities, including but not limited to waste from toilets, sinks, bath fixtures, clothes or dishwashing machines and floor drains;

V. "domestic liquid waste treatment unit" means a watertight unit designed, constructed and installed to stabilize only domestic liquid waste and to retain solids contained in such domestic liquid waste, including but not limited to aerobic treatment units and septic tanks;

W. "drywell" means a well, other than an improved sinkhole or subsurface fluid distribution system, completed above the water table so that its bottom and sides are typically dry except when receiving fluids;

X. "experimental technology" means a technology which has not been proven feasible under the conditions in which it is being tested;

Y. "fluid" means material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state;

Z. "ground water" means interstitial water which occurs in saturated earth material and which is capable of entering a well in sufficient amounts to be utilized as a water supply;

AA. "hazard to public health" exists when water which is used or is reasonably expected to be used in the future as a human drinking water supply exceeds at the time and place of such use, one or more of the numerical standards of Subsection A of 20.6.2.3103 NMAC, or the naturally occurring concentrations, whichever is higher, or if any toxic pollutant affecting human health is present in the water; in determining whether a discharge would cause a hazard to public health to exist, the secretary shall investigate and consider the purification and dilution reasonably expected to occur from the time and place of discharge to the time and place of withdrawal for use as human drinking water;

BB. "improved sinkhole" means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface;

CC. "injection" means the subsurface emplacement of fluids through a well;

DD. "injection zone" means a geological formation, group of formations, or part of a formation receiving fluids through a well;

EE. **"motor vehicle waste disposal well"** means a well which receives or has received fluids from vehicular repair or maintenance activities;

FF. **"non-aqueous phase liquid"** means an interstitial body of liquid oil, petroleum product, petrochemical, or organic solvent, including an emulsion containing such material;

GG. **"operational area"** means a geographic area defined in a project discharge permit where a group of wells or well fields in close proximity comprise a single class III well operation;

HH. **"owner of record"** means an owner of property according to the property records of the tax assessor in the county in which the discharge site is located at the time the application was deemed administratively complete;

II. **"packer"** means a device lowered into a well to produce a fluid-tight seal within the casing;

JJ. **"person"** means an individual or any other entity including partnerships, corporation, associations, responsible business or association agents or officers, the state or a political subdivision of the state or any agency, department or instrumentality of the United States and any of its officers, agents or employees;

KK. **"petitioner"** means a person seeking a variance from a regulation of the commission pursuant to Section 74-6-4(G) NMSA 1978;

LL. **"plugging"** means the act or process of stopping the flow of water, oil or gas into or out of a geological formation, group of formations or part of a formation through a borehole or well penetrating these geologic units;

MM. **"project discharge permit"** means a discharge permit which describes the operation of similar class III wells or well fields within one or more individual operational areas;

NN. **"refuse"** includes food, swill, carrion, slops and all substances from the preparation, cooking and consumption of food and from the handling, storage and sale of food products, the carcasses of animals, junked parts of automobiles and other machinery, paper, paper cartons, tree branches, yard trimmings, discarded furniture, cans, oil, ashes, bottles, and all unwholesome material;

OO. **"responsible person"** means a person who is required to submit an abatement plan or who submits an abatement plan pursuant to this part;

PP. **"secretary"** or **"director"** means the secretary of the New Mexico department of environment or the director of a constituent agency designated by the commission;

QQ. **"sewer system"** means pipelines, conduits, pumping stations, force mains, or other structures, devices, appurtenances or facilities used for collecting or conducting wastes to an ultimate point for treatment or disposal;

RR. **"sewerage system"** means a system for disposing of wastes, either by surface or underground methods, and includes sewer systems, treatment works, disposal wells and other systems;

SS. **"significant modification of Stage 2 of the abatement plan"** means a change in the abatement technology used excluding design and operational parameters, or re-location of 25 percent or more of the compliance sampling stations, for any single medium, as designated pursuant to Paragraph (4) of Subsection E of 20.6.2.4106 NMAC;

TT. **"subsurface fluid distribution system"** means an assemblage of perforated pipes, drain tiles, or other mechanisms intended to distribute fluids below the surface of the ground;

UU. **"subsurface water"** means ground water and water in the vadose zone that may become ground water or surface water in the reasonably foreseeable future or may be utilized by vegetation;

VV. **"TDS"** means total dissolved solids as determined by the "calculation method" (sum of constituents), by the "residue on evaporation method at 180 degrees" of the "*U.S. geological survey techniques of water resource investigations*," or by conductivity, as the secretary may determine;

WW. **"toxic pollutant"** means a water contaminant or combination of water contaminants in concentration(s) which, upon exposure, ingestion, or assimilation either directly from the environment or indirectly by ingestion through food chains, will unreasonably threaten to injure human health, or the health of animals or plants which are commonly hatched, bred, cultivated or protected for use by man for food or economic benefit; as used in this definition injuries to health include death, histopathologic change, clinical symptoms of disease, behavioral abnormalities, genetic mutation, physiological malfunctions or physical deformations in such organisms or their offspring; in order to be considered a toxic pollutant a contaminant must be one or a combination of the potential toxic pollutants listed below and be at a concentration shown by scientific information currently available to the public to have potential for causing one or more of the effects listed above; any water contaminant or combination of the water contaminants in the list below creating a lifetime risk of more than one cancer per 100,000 exposed persons is a toxic pollutant:

(1) acrolein

(2) acrylonitrile
(3) aldrin
(4) benzene
(5) benzidine
(6) carbon tetrachloride
(7) chlordane
(8) chlorinated benzenes
  (a) monochlorobenzene
  (b) hexachlorobenzene
  (c) pentachlorobenzene
(9) 1,2,4,5-tetrachlorobenzene
(10) chlorinated ethanes
  (a) 1,2-dichloroethane
  (b) hexachloroethane
  (c) 1,1,2,2-tetrachloroethane
  (d) 1,1,1-trichloroethane
  (e) 1,1,2-trichloroethane
(11) chlorinated phenols
  (a) 2,4-dichlorophenol
  (b) 2,4,5-trichlorophenol
  (c) 2,4,6-trichlorophenol
(12) chloroalkyl ethers
  (a) bis (2-chloroethyl) ether
  (b) bis (2-chloroisopropyl) ether
  (c) bis (chloromethyl) ether
(13) chloroform
(14) DDT
(15) dichlorobenzene
(16) dichlorobenzidine
(17) 1,1-dichloroethylene
(18) dichloropropenes
(19) dieldrin
(20) diphenylhydrazine
(21) endosulfan
(22) endrin
(23) ethylbenzene
(24) halomethanes
  (a) bromodichloromethane
  (b) bromomethane
  (c) chloromethane
  (d) dichlorodifluoromethane
  (e) dichloromethane
  (f) tribromomethane
  (g) trichlorofluoromethane
(25) heptachlor
(26) hexachlorobutadiene
(27) hexachlorocyclohexane (HCH)
  (a) alpha-HCH
  (b) beta-HCH
  (c) gamma-HCH
  (d) technical HCH
(28) hexachlorocyclopentadiene
(29) high explosives (HE)
  (a) 2,4-dinitrotoluene (2,4,DNT)
  (b) 2,6-dinitrotoluene (2,6,DNT)
  (c) octrahydro-1,3,5,7-tetranitro-1,3,5,7 tetrazocine (HMX)

(d) hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
(e) 2,4,6-trinitrotoluene (TNT)

(30) isophorone
(31) methyl tertiary butyl ether
(32) nitrobenzene
(33) nitrophenols
(a) 2,4-dinitro-o-cresol
(b) dinitrophenols
(34) nitrosamines
(a) N-nitrosodiethylamine
(b) N-nitrosodimethylamine
(c) N-nitrosodibutylamine
(d) N-nitrosodiphenylamine
(e) N-nitrosopyrrolidine
(35) pentachlorophenol
(36) perchlorate
(37) phenol
(38) phthalate esters
(a) dibutyl phthalate
(b) di-2-ethylhexyl phthalate
(c) diethyl phthalate
(d) dimethyl phthalate
(39) polychlorinated biphenyls (PCB's)
(40) polynuclear aromatic hydrocarbons (PAH)
(a) anthracene
(b) 3,4-benzofluoranthene
(c) benzo (k) fluoranthene
(d) fluoranthene
(e) fluorene
(f) phenanthrene
(g) pyrene
(41) tetrachloroethylene
(42) toluene
(43) toxaphene
(44) trichloroethylene
(45) vinyl chloride
(46) xylenes
(a) o-xylene
(b) m-xylene
(c) p-xylene
(47) 1,1-dichloroethane
(48) ethylene dibromide (EDB)
(49) cis-1,2-dichloroethylene
(50) trans-1,2-dichloroethylene
(51) naphthalene
(52) 1-methylnaphthalene
(53) 2-methylnaphthalene
(54) benzo-a-pyrene

XX. **"vadose zone"** means earth material below the land surface and above ground water, or in between bodies of ground water;

YY. **"wastes"** means sewage, industrial wastes, or any other liquid, gaseous or solid substance which will pollute any waters of the state;

ZZ. **"water"** means all water including water situated wholly or partly within or bordering upon the state, whether surface or subsurface, public or private, except private waters that do not combine with other surface or subsurface water;

AAA. **"water contaminant"** means any substance that could alter if discharged or spilled the physical, chemical, biological or radiological qualities of water; "water contaminant" does not mean source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954;

BBB. **"watercourse"** means any river, creek, arroyo, canyon, draw, or wash, or any other channel having definite banks and beds with visible evidence of the occasional flow of water;

CCC. **"water pollution"** means introducing or permitting the introduction into water, either directly or indirectly, of one or more water contaminants in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or to unreasonably interfere with the public welfare or the use of property;

DDD. **"well"** means: (1) A bored, drilled, or driven shaft; (2) A dug hole whose depth is greater than the largest surface dimension; (3) An improved sinkhole; or (4) A subsurface fluid distribution system;

EEE. **"well stimulation"** means a process used to clean the well, enlarge channels, and increase pore space in the interval to be injected, thus making it possible for fluids to move more readily into the injection zone; well stimulation includes, but is not limited to, (1) surging, (2) jetting, (3) blasting, (4) acidizing, (5) hydraulic fracturing.

[1-4-68, 4-20-68, 11-27-70, 9-3-72, 4-11-74, 8-13-76, 2-18-77, 6-26-80, 7-2-81, 1-29-82, 9-20-82, 11-17-84, 3-3-86, 8-17-91, 8-19-93, 12-1-95; 20.6.2.7 NMAC - Rn, 20 NMAC 6.2.I.1101, 1-15-01; A, 1-15-01; A, 12-1-01; A, 9-15-02; A, 9-26-04; A, 7-16-06; A, 8-1-14]

20.6.2.8 **SEVERABILITY:** If any section, subsection, individual standard or application of these standards or regulations is held invalid, the remainder shall not be affected.

[2-18-77, 12-1-95; 20.6.2.8 NMAC - Rn, 20 NMAC 6.2.I.1007, 1-15-01]

20.6.2.9 **DOCUMENTS:** Documents referenced in the part may be viewed at the New Mexico environment department, ground water quality bureau, Harold Runnels building, 1190 St. Francis Drive, Santa Fe, New Mexico 87503.

[12-1-95; 20.6.2.9 NMAC - Rn, 20 NMAC 6.2.I.1006, 1-15-01; A, 12-1-01]

20.6.2.10 - 20.6.2.1199: [RESERVED]

[12-1-95; 20.6.2.10 - 20.6.2.1199 NMAC - Rn, 20 NMAC 6.2.I.1008-1100, 1102-1199, 1-15-01]

20.6.2.1200 **PROCEDURES:**

[12-1-95; 20.6.2.1200 NMAC - Rn, 20 NMAC 6.2.I.1200, 1-15-01]

20.6.2.1201 **NOTICE OF INTENT TO DISCHARGE:**

A. Any person intending to make a new water contaminant discharge or to alter the character or location of an existing water contaminant discharge, unless the discharge is being made or will be made into a community sewer system or subject to the Liquid Waste Disposal Regulations adopted by the New Mexico environmental improvement board, shall file a notice with the ground water quality bureau of the department for discharges that may affect ground water, and/ or the surface water quality bureau of the department for discharges that may affect surface water. However, notice regarding discharges from facilities for the production, refinement, pipeline transmission of oil and gas or products thereof, the oil field service industry, oil field brine production wells, geothermal installations and carbon dioxide facilities shall be filed instead with the oil conservation division.

B. Any person intending to inject fluids into a well, including a subsurface distribution system, unless the injection is being made subject to the Liquid Waste Disposal Regulations adopted by the New Mexico environmental improvement board, shall file a notice with the ground water quality bureau of the department. However notice regarding injection to wells associated with oil and gas facilities as described in Subsection A of Section 20.6.2.1201 NMAC shall be filed instead with the oil conservation division.

C. Notices shall state:

- **(1)** the name of the person making the discharge;
- **(2)** the address of the person making the discharge;
- **(3)** the location of the discharge;
- **(4)** an estimate of the concentration of water contaminants in the discharge; and
- **(5)** the quantity of the discharge.

D. Based on information provided in the notice of intent, the department will notify the person proposing the discharge as to which of the following apply:

(1) a discharge permit is required;
(2) a discharge permit is not required;
(3) the proposed injection well will be added to the department's underground injection well inventory;
(4) the proposed injection activity or injection well is prohibited pursuant to 20.6.2.5004 NMAC.

[1-4-68, 9-5-69, 9-3-72, 2-17-74, 2-20-81, 12-1-95; 20.6.2.1201 NMAC - Rn, 20 NMAC 6.2.I.1201, 1-15-01; A, 12-1-01]

20.6.2.1202 FILING OF PLANS AND SPECIFICATIONS--SEWERAGE SYSTEMS:

A. Any person proposing to construct a sewerage system or proposing to modify any sewerage system in a manner that will change substantially the quantity or quality of the discharge from the system shall file plans and specifications of the construction or modification with ground water quality bureau of the department for discharges that may affect ground water, and/or the surface water quality bureau of the department for discharges that may affect surface water. Modifications having a minor effect on the character of the discharge from sewerage systems shall be reported as of January 1 and June 30 of each year to the ground water quality bureau of the department for discharges that may affect ground water, or the surface water quality bureau of the department for discharges that may affect surface water.

B. Plans, specifications and reports required by this section, if related to facilities for the production, refinement and pipeline transmission of oil and gas, or products thereof, shall be filed instead with the oil conservation division.

C. Plans and specifications required to be filed under this section must be filed prior to the commencement of construction.

[1-4-68, 9-3-72, 2-20-81, 12-1-95; 20.6.2.1202 NMAC - Rn, 20 NMAC 6.2.I.1202, 1-15-01; A, 12-1-01]

20.6.2.1203 NOTIFICATION OF DISCHARGE-REMOVAL:

A. With respect to any discharge from any facility of oil or other water contaminant, in such quantity as may with reasonable probability injure or be detrimental to human health, animal or plant life, or property, or unreasonably interfere with the public welfare or the use of property, the following notifications and corrective actions are required:

(1) As soon as possible after learning of such a discharge, but in no event more than twenty-four (24) hours thereafter, any person in charge of the facility shall orally notify the chief of the ground water quality bureau of the department, or his counterpart in any constituent agency delegated responsibility for enforcement of these rules as to any facility subject to such delegation. To the best of that person's knowledge, the following items of information shall be provided:

(a) the name, address, and telephone number of the person or persons in charge of the facility, as well as of the owner and/or operator of the facility;
(b) the name and address of the facility;
(c) the date, time, location, and duration of the discharge;
(d) the source and cause of discharge;
(e) a description of the discharge, including its chemical composition;
(f) the estimated volume of the discharge; and
(g) any actions taken to mitigate immediate damage from the discharge.

(2) When in doubt as to which agency to notify, the person in charge of the facility shall notify the chief of the ground water quality bureau of the department. If that department does not have authority pursuant to commission delegation, the department shall notify the appropriate constituent agency.

(3) Within one week after the discharger has learned of the discharge, the facility owner and/or operator shall send written notification to the same department official, verifying the prior oral notification as to each of the foregoing items and providing any appropriate additions or corrections to the information contained in the prior oral notification.

(4) The oral and written notification and reporting requirements contained in this Subsection A are not intended to be duplicative of discharge notification and reporting requirements promulgated by the oil conservation commission (OCC) or by the oil conservation division (OCD); therefore, any facility which is subject to OCC or OCD discharge notification and reporting requirements need not additionally comply with the notification and reporting requirements herein.

(5) As soon as possible after learning of such a discharge, the owner/operator of the facility shall take such corrective actions as are necessary or appropriate to contain and remove or mitigate the damage caused by the discharge.

(6) If it is possible to do so without unduly delaying needed corrective actions, the facility owner/operator shall endeavor to contact and consult with the chief of the ground water quality bureau of the department or appropriate counterpart in a delegated agency, in an effort to determine the department's views as to what further corrective actions may be necessary or appropriate to the discharge in question. In any event, no later than fifteen (15) days after the discharger learns of the discharge, the facility owner/operator shall send to said Bureau Chief a written report describing any corrective actions taken and/or to be taken relative to the discharge. Upon a written request and for good cause shown, the bureau chief may extend the time limit beyond fifteen (15) days.

(7) The bureau chief shall approve or disapprove in writing the foregoing corrective action report within thirty (30) days of its receipt by the department. In the event that the report is not satisfactory to the department, the bureau chief shall specify in writing to the facility owner/operator any shortcomings in the report or in the corrective actions already taken or proposed to be taken relative to the discharge, and shall give the facility owner/operator a reasonable and clearly specified time within which to submit a modified corrective action report. The bureau chief shall approve or disapprove in writing the modified corrective action report within fifteen (15) days of its receipt by the department.

(8) In the event that the modified corrective action report also is unsatisfactory to the department, the facility owner/operator has five (5) days from the notification by the bureau chief that it is unsatisfactory to appeal to the department secretary. The department secretary shall approve or disapprove the modified corrective action report within five (5) days of receipt of the appeal from the bureau chief's decision. In the absence of either corrective action consistent with the approved corrective action report or with the decision of the secretary concerning the shortcomings of the modified corrective action report, the department may take whatever enforcement or legal action it deems necessary or appropriate.

(9) If the secretary determines that the discharge causes or may with reasonable probability cause water pollution in excess of the standards and requirements of Section 20.6.2.4103 NMAC, and the water pollution will not be abated within one hundred and eighty (180) days after notice is required to be given pursuant to Paragraph (1) of Subsection A of Section 20.6.2.1203 NMAC, the secretary may notify the facility owner/operator that he is a responsible person and that an abatement plan may be required pursuant to Section 20.6.2.4104 and Subsection A of Section 20.6.2.4106 NMAC.

B. Exempt from the requirements of this section are continuous or periodic discharges which are made:

(1) in conformance with regulations of the commission and rules, regulations or orders of other state or federal agencies; or

(2) in violation of regulations of the commission, but pursuant to an assurance of discontinuance or schedule of compliance approved by the commission or one of its duly authorized constituent agencies.

C. As used in this section and in Sections 20.6.2.4100 through 20.6.2.4115 NMAC, but not in other sections of this part:

(1) "discharge" means spilling, leaking, pumping, pouring, emitting, emptying, or dumping into water or in a location and manner where there is a reasonable probability that the discharged substance will reach surface or subsurface water;

(2) "facility" means any structure, installation, operation, storage tank, transmission line, motor vehicle, rolling stock, or activity of any kind, whether stationary or mobile;

(3) "oil" means oil of any kind or in any form including petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes;

(4) "operator" means the person or persons responsible for the overall operations of a facility; and

(5) "owner' means the person or persons who own a facility, or part of a facility.

D. Notification of discharge received pursuant to this part or information obtained by the exploitation of such notification shall not be used against any such person in any criminal case, except for perjury or for giving a false statement.

E. Any person who has any information relating to any discharge from any facility of oil or other water contaminant, in such quantity as may with reasonable probability injure or be detrimental to human health, animal or plant life, or property, or unreasonably interfere with the public welfare or the use of property, is urged to

notify the chief of the ground water quality bureau of the department. Upon such notification, the secretary may require an owner/operator or a responsible person to perform corrective actions pursuant to Paragraphs (5) and (9) of Subsection A of Section 20.6.2.1203 NMAC.
[2-17-74, 2-20-81, 12-24-87, 12-1-95; 20.6.2.1203 NMAC - Rn, 20 NMAC 6.2.I.1203, 1-15-01; A, 12-1-01]

20.6.2.1204 - 20.6.2.1209 [RESERVED]
[12-1-95; 20.6.2.1204 - 20.6.2.1209 NMAC - Rn, 20 NMAC 6.2.I.1204-1209, 1-15-01]

20.6.2.1210 VARIANCE PETITIONS:

A. Any person seeking a variance pursuant to Section 74-6-4 (G) NMSA 1978, shall do so by filing a written petition with the commission. The petitioner may submit with his petition any relevant documents or material which the petitioner believes would support his petition. Petitions shall:

(1) state the petitioner's name and address;

(2) state the date of the petition;

(3) describe the facility or activity for which the variance is sought;

(4) state the address or description of the property upon which the facility is located;

(5) describe the water body or watercourse affected by the discharge;

(6) identify the regulation of the commission from which the variance is sought;

(7) state in detail the extent to which the petitioner wishes to vary from the regulation;

(8) state why the petitioner believes that compliance with the regulation will impose an unreasonable burden upon his activity; and

(9) state the period of time for which the variance is desired.

B. The variance petition shall be reviewed in accordance with the adjudicatory procedures of 20 NMAC 1.3.

C. The commission may grant the requested variance, in whole or in part, may grant the variance subject to conditions, or may deny the variance. The commission shall not grant a variance for a period of time in excess of five years.

D. An order of the commission is final and bars the petitioner from petitioning for the same variance without special permission from the commission. The commission may consider, among other things, the development of new information and techniques to be sufficient justification for a second petition. If the petitioner, or his authorized representative, fails to appear at the public hearing on the variance petition, the commission shall proceed with the hearing on the basis of the petition. A variance may not be extended or renewed unless a new petition is filed and processed in accordance with the procedures established by this section.
[7-19-68, 11-27-70, 9-3-72, 2-20-81, 11-15-96; 20.6.2.1210 NMAC - Rn, 20 NMAC 6.2.I.1210, 1-15-01]

20.6.2.1211 - 20.6.2.1219: [RESERVED]
[12-1-95; 20.6.2.1211 - 20.6.2.1219 NMAC - Rn, 20 NMAC 6.2.I.1211-1219, 1-15-01]

20.6.2.1220 PENALTIES ENFORCEMENT, COMPLIANCE ORDERS, PENALTIES, ASSURANCE OF DISCONTINUANCE.: Failure to comply with the Water Quality Act, or any regulation or standard promulgated pursuant to the Water Quality Act is a prohibited act. If the secretary determines that a person has violated or is violating a requirement of the Water Quality Act or any regulation promulgated thereunder or is exceeding any water quality standard or ground water standard contained in commission regulations, or is not complying with a condition or provision of an approved or modified abatement plan, discharge plan, or permit issued pursuant to the Water Quality Act, the secretary may issue a compliance order, assess a penalty, commence a civil action in district court, or accept an assurance of discontinuance in accordance with NMSA 1978, Section 74-6-10 of the Water Quality Act.
[12-1-95; 20.6.2.1220 NMAC - Rn, 20 NMAC 6.2.I.1220, 1-15-01]

20.6.2.1221 - 20.6.2.1999: [RESERVED]
[12-1-95; 20.6.2.1221 - 20.6.2.1999 NMAC - Rn, 20 NMAC 6.2.I.1221-2099, 1-15-01]

20.6.2.2000 SURFACE WATER PROTECTION:
[12-1-95; 20.6.2.2000 NMAC - Rn, 20 NMAC 6.2.II, 1-15-01]

20.6.2.2001 PROCEDURES FOR CERTIFICATION OF FEDERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITS:

A. This section applies to the state certification of draft national pollutant discharge elimination system (NPDES) permits under Section 401 of the federal Clean Water Act. The purpose of such certification is to reasonably ensure that the permitted activities will be conducted in a manner that will comply with applicable water quality standards, including the antidegradation policy, and the statewide water quality management plan.

B. After review of a draft permit, the department will either: (1) certify that the discharge will comply with the applicable provisions of Sections 208(e), 301, 302, 303, 306 and 307 of the federal Clean Water Act and with appropriate requirements of state law; (2) certify that the discharge will comply with the applicable provisions of Sections 208(e), 301, 302, 303, 306 and 307 of the Clean Water Act and with appropriate requirements of state law upon inclusion of specified conditions in the permit and include the justification for the conditions; or (3) deny certification and include reasons for the denial. If the department does not act on the certification within the time prescribed by the federal permitting agency for such action, the authority to do so shall be waived.

C. Pursuant to federal regulations at 40 CFR 124.10(c), the U.S. environmental protection agency provides notice of draft NPDES permits to the applicant (except for general permits); various local, state, federal, tribal and pueblo government agencies; and other interested parties, and it allows at least 30 days of public comment. To the extent practicable, the department will provide public notice that the department is reviewing a draft NPDES permit for the purpose of preparing a state certification or denial pursuant to Section 401 of the federal Clean Water Act jointly with the notice provided by the U.S. environmental protection agency. The department will also post notice on its website.

D. When joint notice is impractical, the department shall provide notice that the department is reviewing a draft NPDES permit for purpose of preparing a state certification or denial pursuant to Section 401 of the federal Clean Water Act as follows:

(1) for general permits by:

(a) posting notice on the department's website;

(b) publishing notice in at least one newspaper of general circulation;

(c) mailing or e-mailing notice to those persons on the general mailing list maintained by the department who have requested such notice; and

(d) mailing or e-mailing notice to any affected local, state, federal, tribal, or pueblo government agency, as identified by the department; or

(2) for individual permits by:

(a) posting notice on the department's website;

(b) publishing notice in a newspaper of general circulation in the location of the discharge;

(c) mailing notice to the applicant;

(d) mailing or e-mailing notice to those persons on the general and facility-specific mailing list maintained by the department who have requested such notice; and

(e) mailing notice to any affected local, state, federal, tribal, or pueblo government agency, as identified by the department.

E. Public notices may describe more than one permit or permit action. The notice provided under Subsections C and D of 20.6.2.2001 NMAC shall include:

(1) for general permits:

(a) a statement that the department will accept written comments on the draft permit during the comment period including the address where comments may be submitted;

(b) a brief description of the activities that produce the discharge; and

(c) a description of the geographic area to be covered by the permit; or

(2) for individual permits:

(a) a statement that the department will accept written comments on the draft permit during the comment period including the address where comments may be submitted;

(b) the name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit;

(c) a brief description of the activities that produce the discharge; and

(d) a general description of the location of the discharge and the name of the receiving water.

F. Following the public notice provided under Subsections C or D of 20.6.2.2001 NMAC, there shall be a period of at least 30 days during which interested persons may submit written comments to the department.

The 30-day comment period shall begin on the date of the public notice provided under Subsections C or D of 20.6.2.2001 NMAC. The department shall consider all pertinent comments.

G. Following the public comment period provided under Subsection F of 20.6.2.2001 NMAC, the department shall issue a final permit certification including any conditions that the department places on the certification, or issue a statement of denial including the reasons for the denial. The final certification will generally be issued within 45 days from the date a request to grant, deny or waive certification is received by the department, unless the department in consultation with the U.S. environmental protection agency regional administrator finds that unusual circumstances require a longer time. The department shall send a copy of the final permit certification or denial to the U.S. environmental protection agency, the applicant (except for general permits), and those members of the public who submitted comments to the department.

(1) The permit certification shall be in writing and shall include:

(a) the name of the applicant (except for general permits) and the NPDES permit number;

(b) a statement that the department has examined the application or other relevant information and bases its certification upon an evaluation of the information contained in such application or other information which is relevant to water quality considerations;

(c) a statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards;

(d) a statement of any conditions which the department deems necessary or desirable with respect to the discharge of the activity;

(e) identification of any condition more stringent than that in the draft permit required to assure compliance with the applicable provisions of Sections 208(e), 301, 302, 303, 306 and 307 of the Clean Water Act and with appropriate requirements of state law citing the Clean Water Act or state law upon which the condition is based;

(f) a statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of state law, including water quality standards; and

(g) such other information as the department may determine to be appropriate.

(2) With justification, including any of the reasons listed in the New Mexico Water Quality Act, NMSA 1978, Section 74-6-5(E), the department may deny permit certification. Denial of permit certification shall be in writing and shall include:

(a) the name of the applicant (except for general permits) and the NPDES permit number;

(b) a statement that the department has examined the application or other relevant information and bases its denial upon an evaluation of the information contained in such application or other information which is relevant to water quality considerations;

(c) a statement of denial including the reasons for the denial; and

(d) such other information as the department may determine to be appropriate.

H. Any person who is adversely affected by the certification or denial of a specific permit may appeal such certification or denial by filing a petition for review with the secretary within 30 days after the department issues the final permit certification or statement of denial. Such petition shall be in writing and shall include a concise statement of the reasons for the appeal and the relief requested. The secretary may hold a hearing on the appeal. In any such appeal hearing, the procedures of 20.1.4 NMAC shall not apply. The department shall give notice of the appeal hearing at least 30 days prior to the hearing. The notice shall state the date, time, and location of the appeal hearing and shall include the pertinent information listed in Subparagraphs (b), (c), and (d) of Paragraph (2) of Subsection E of 20.6.2.2001 NMAC. The secretary shall appoint a hearing officer to preside over the appeal hearing. Any person may present oral or written statements, data, technical information, legal arguments, or other information on the permit certification or denial during the appeal hearing. Any person may present oral or written statements, data, technical information, legal arguments, or other information in rebuttal of that presented by another person. Reasonable time limits may be placed on oral statements, and the submission of written statements may be required. The hearing officer may question persons presenting oral testimony. Cross examination of persons presenting oral statements shall not otherwise be allowed. Within 30 days after the completion of the hearing, or such other time as the secretary may order given the complexities of the case, the hearing officer shall submit recommendations to the secretary. The secretary shall issue a final decision on the appeal within 30 days after receiving the recommendation, or such other time as the secretary may order given the complexities of the case.

I. Pursuant to the New Mexico Water Quality Act, NMSA 1978, Section 74-6-5(O), any person who is adversely affected by the secretary's final decision may file with the commission a petition for review of that decision based on the administrative record.
[20.6.2.2001 NMAC - N, 5-18-11]

20.6.2.2002 PROCEDURES FOR CERTIFICATION OF FEDERAL PERMITS FOR DISCHARGE OF DREDGED OR FILL MATERIAL:

A. This section applies to the state certification of draft permits or permit applications for the discharge of dredged or fill material under Section 401 of the federal Clean Water Act. The purpose of such certification is to reasonably ensure that the permitted activities will be conducted in a manner that will comply with applicable water quality standards, including the antidegradation policy, and the statewide water quality management plan.

B. After review of a draft permit or permit application, the department will either: (1) certify that the discharge will comply with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the federal Clean Water Act and with appropriate requirements of state law; (2) certify that the discharge will comply with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act and with appropriate requirements of state law upon inclusion of specified conditions in the permit and include the justification for the conditions; or (3) deny certification and include reasons for the denial. If the department does not act on the certification within the time prescribed by the federal permitting agency for such action, the authority to do so shall be waived.

C. Pursuant to federal regulations at 33 CFR 325.3 and 33 CFR 330.5, the U.S. army corps of engineers provides notice of draft dredged or fill permits and permit applications to the applicant (except for general or nationwide permits); various local, state, federal, tribal and pueblo government agencies; and other interested parties, and it allows at least 15 days of public comment. To the extent practicable, the department will provide public notice that the department is reviewing a draft permit or permit application for the purpose of preparing a state certification or denial pursuant to Section 401 of the federal Clean Water Act jointly with the notice provided by the U.S. army corps of engineers. The department will also post notice on its website.

D. When joint notice is impractical, the department shall provide notice that the department is reviewing a draft dredged or fill permit or permit application for purpose of preparing a state certification or denial pursuant to Section 401 of the federal Clean Water Act as follows:

(1) for general permits by:

(a) posting notice on the department's website;

(b) publishing notice in at least one newspaper of general circulation;

(c) mailing or e-mailing notice to those persons on the general mailing list maintained by the department who have requested such notice; and

(d) mailing or e-mailing notice to any affected local, state, federal, tribal, or pueblo government agency, as identified by the department; or

(2) for individual permit applications by:

(a) posting notice on the department's website;

(b) publishing notice in a newspaper of general circulation in the location of the discharge;

(c) mailing notice to the applicant;

(d) mailing or e-mailing notice to those persons on the general and facility-specific mailing list maintained by the department who have requested such notice; and

(e) mailing notice to any affected local, state, federal, tribal, or pueblo government agency, as identified by the department.

E. Public notices may describe more than one permit or permit action. The notice provided under Subsections C and D of 20.6.2.2002 NMAC shall include:

(1) for general permits:

(a) a statement that the department will accept written comments on the draft permit during the comment period including the address where comments may be submitted;

(b) a brief description of the activities that produce the discharge; and

(c) a description of the geographic area to be covered by the permit; or

(2) for individual permit applications:

(a) a statement that the department will accept written comments on the permit application during the comment period including the address where comments may be submitted;

(b) the name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit;

(c) a brief description of the activities that produce the discharge; and

(d) a general description of the location of the discharge and the name of the receiving water.

F. Following the public notice provided under Subsections C or D of 20.6.2.2002 NMAC, there shall be a period of at least 30 days during which interested persons may submit written comments to the department. The 30-day comment period shall begin on the date of the public notice provided under Subsections C or D of 20.6.2.2002 NMAC. The department shall consider all pertinent comments.

G. The public notice provisions in Subsection C and D of Section 20.6.2.2002 NMAC and the public comment provisions in Subsection F of Section 20.6.2.2002 NMAC shall not apply to permits issued using emergency procedures under 33 CFR 325.2(e)(4). However, even in emergency situations, reasonable efforts shall be made to receive comments from interested state and local agencies and the affected public.

H. Following the public comment period provided under Subsection F of 20.6.2.2002 NMAC, the department shall issue a final permit certification including any conditions that the department places on the certification, or issue a statement of denial including the reasons for the denial. The final certification will generally be issued within 60 days from the date a request to grant, deny or waive certification is received by the department, unless the department in consultation with the U.S. army corps of engineers district engineer finds that unusual circumstances require a longer time. The department shall send a copy of the final permit certification or denial to the army corps of engineers, the applicant (except for general or nationwide permits), and those members of the public who submitted comments to the department.

(1) The permit certification or denial shall be in writing and shall include:

(a) the name of the applicant (except for general permits) and the permit number;

(b) a statement that the department has examined the application or other relevant information and bases its certification upon an evaluation of the information contained in such application or other information which is relevant to water quality considerations;

(c) a statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards;

(d) a statement of any conditions which the department deems necessary or desirable with respect to the discharge of the activity; and

(e) such other information as the department may determine to be appropriate.

(2) With justification, including any of the reasons listed in the New Mexico Water Quality Act, NMSA 1978, Section 74-6-5(E), the department may deny permit certification. Denial of permit certification shall be in writing and shall include:

(a) the name of the applicant (except for general permits) and the permit number;

(b) a statement that the department has examined the application or other relevant information and bases its denial upon an evaluation of the information contained in such application or other information which is relevant to water quality considerations;

(c) a statement of denial including the reasons for the denial; and

(d) such other information as the department may determine to be appropriate.

I. Any person who is adversely affected by the certification or denial of a specific permit may appeal such certification or denial by filing a petition for review with the secretary within 30 days after the department issues the final permit certification or statement of denial. Such petition shall be in writing and shall include a concise statement of the reasons for the appeal and the relief requested. The secretary may hold a hearing on the appeal. In any such appeal hearing, the procedures of 20.1.4 NMAC shall not apply. The department shall give notice of the appeal hearing at least 30 days prior to the hearing. The notice shall state the date, time, and location of the appeal hearing and shall include the pertinent information listed in Subparagraphs (b), (c), and (d) of Paragraph (2) of Subsection E of 20.6.2.2002 NMAC. The secretary shall appoint a hearing officer to preside over the appeal hearing. Any person may present oral or written statements, data, technical information, legal arguments, or other information on the permit certification or denial during the appeal hearing. Any person may present oral or written statements, data, technical information, legal arguments, or other information in rebuttal of that presented by another person. Reasonable time limits may be placed on oral statements, and the submission of written statements may be required. The hearing officer may question persons presenting oral testimony. Cross examination of persons presenting oral statements shall not otherwise be allowed. Within 30 days after the completion of the hearing, or such other time as the secretary may order given the complexities of the case, the hearing officer shall submit recommendations to the secretary. The secretary shall issue a final decision on the appeal within 30 days

after receiving the recommendation, or such other time as the secretary may order given the complexities of the case.

J. Pursuant to the New Mexico Water Quality Act, NMSA 1978, Section 74-6-5(O), any person who is adversely affected by the secretary's final decision may file with the commission a petition for review of that decision based on the administrative record.

[20.6.2.2002 NMAC - N, 5-18-11]

20.6.2.2003 PROCEDURES FOR CERTIFICATION OF OTHER FEDERAL PERMITS:

A. This section applies to the state certification of draft federal permits, permit applications or licenses under Section 401 of the federal Clean Water Act, except for NPDES permits or permits for the discharge of dredged or fill material. For example, this section applies to certification of permits or licenses issued by the federal energy regulatory commission (FERC) and to permits or licenses issued under the Rivers and Harbors Act of 1899. The purpose of such certification is to reasonably ensure that the permitted activities will be conducted in a manner that will comply with applicable water quality standards, including the antidegradation policy, and the statewide water quality management plan.

B. After review of a draft permit, permit application or license, the department will either: (1) certify that the activity will comply with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the federal Clean Water Act and with appropriate requirements of state law; (2) certify that the activity will comply with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act and with appropriate requirements of state law upon inclusion of specified conditions in the permit and include the justification for the conditions; or (3) deny certification and include reasons for the denial. If the department does not act on the certification within the time prescribed by the federal permitting agency for such action, the authority to do so shall be waived.

C. To the extent practicable, the department will provide public notice that the department is reviewing a draft federal permit, permit application or license for the purpose of preparing a state certification or denial jointly with the notice provided by the federal permitting or licensing agency. The department will also post notice on its website.

D. When joint notice is impractical, the department shall provide notice that the department is reviewing a draft federal permit, permit application or license for purpose of preparing a state certification or denial pursuant to Section 401 of the federal Clean Water Act as follows:

(1) for general permits or licenses by:

(a) posting notice on the department's website;

(b) publishing notice in at least one newspaper of general circulation;

(c) mailing or e-mailing notice to those persons on the general mailing list maintained by the department who have requested such notice; and

(d) mailing or e-mailing notice to any affected local, state, federal, tribal, or pueblo government agency, as identified by the department; or

(2) for individual permits or licenses by:

(a) posting notice on the department's website;

(b) publishing notice in a newspaper of general circulation in the location of the permitted or licensed activity;

(c) mailing notice to the applicant;

(d) mailing or e-mailing notice to those persons on the general and facility-specific mailing list maintained by the department who have requested such notice; and

(e) mailing notice to any affected local, state, federal, tribal, or pueblo government agency, as identified by the department.

E. Public notices may describe more than one license, permit or permit action. The notice provided under Subsections C and D of 20.6.2.2003 NMAC shall include:

(1) for general permits or licenses:

(a) a statement that the department will accept written comments on the permit or license during the comment period including the address where comments may be submitted; and

(b) a brief description of the permitted or licensed activities; and

(c) a description of the geographic area to be covered by the permit; or

(2) for individual permits or licenses:

(a) a statement that the department will accept written comments on the permit or license during the comment period including the address where comments may be submitted;

(b) the name and address of the licensee, permittee or permit or license applicant and, if different, of the facility or activity regulated by the permit or license;

(c) a brief description of the permitted or licensed activities; and

(d) a general description of the location of the permitted or licensed activities and the name of the receiving water.

F. Following the public notice provided under Subsections C or D of 20.6.2.2003 NMAC, there shall be a period of at least 30 days during which interested persons may submit written comments to the department. The 30-day comment period shall begin on the date of the public notice provided under Subsections C or D of 20.6.2.2003 NMAC. The department shall consider all pertinent comments.

G. Following the public comment period provided under Subsection F of 20.6.2.2003 NMAC, the department shall issue a final certification including any conditions that the department places on the certification, or issue a statement of denial including the reasons for the denial. The final certification will generally be issued within 60 days from the date a request to grant or deny certification is received by the department, unless the department in consultation with the federal permitting or licensing agency finds that unusual circumstances require a longer time. The department shall send a copy of the final certification or denial to the federal permitting or licensing agency, the applicant (except for general permits), and those members of the public who submitted comments to the department.

(1) The certification or denial shall be in writing and shall include:

(a) the name of the applicant (except for general permits) and the permit or license number;

(b) a statement that the department has examined the application or other relevant information and bases its certification upon an evaluation of the information contained in such application or other information which is relevant to water quality considerations;

(c) a statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards;

(d) a statement of any conditions which the department deems necessary or desirable with respect to the discharge of the activity;

(e) identification of any condition more stringent than that in the draft permit or license required to assure compliance with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act and with appropriate requirements of state law citing the Clean Water Act or state law upon which the condition is based;

(f) a statement of the extent to which each condition of the draft permit or license can be made less stringent without violating the requirements of state law, including water quality standards; and

(g) Such other information as the department may determine to be appropriate.

(2) With justification, including any of the reasons listed in the New Mexico Water Quality Act, NMSA 1978, Section 74-6-5(E), the department may deny certification. Denial of certification shall be in writing and shall include:

(a) the name of the applicant (except for general permits) and the permit or license number;

(b) a statement that the department has examined the application or other relevant information and bases its denial upon an evaluation of the information contained in such application or other information which is relevant to water quality considerations;

(c) a statement of denial including the reasons for the denial; and

(d) such other information as the department may determine to be appropriate.

H. Any person who is adversely affected by the certification or denial of a specific permit or license may appeal such certification or denial by filing a petition for review with the secretary within 30 days after the department issues the final certification or statement of denial. Such petition shall be in writing and shall include a concise statement of the reasons for the appeal and the relief requested. The secretary may hold a hearing on the appeal. In any such appeal hearing, the procedures of 20.1.4 NMAC shall not apply. The department shall give notice of the appeal hearing at least 30 days prior to the hearing. The notice shall state the date, time, and location of the appeal hearing and shall include the pertinent information listed in Subparagraphs (b), (c), and (d) of Paragraph (2) of Subsection E of 20.6.2.2003 NMAC. The secretary shall appoint a hearing officer to preside over the appeal hearing. Any person may present oral or written statements, data, technical information, legal arguments, or other information on the certification or denial during the appeal hearing. Any person may present oral or written statements, data, technical information, legal arguments, or other information in rebuttal of that presented by another person. Reasonable time limits may be placed on oral statements, and the submission of written statements may be

required. The hearing officer may question persons presenting oral testimony. Cross examination of persons presenting oral statements shall not otherwise be allowed. Within 30 days after the completion of the hearing, or such other time as the secretary may order given the complexities of the case, the hearing officer shall submit recommendations to the secretary. The secretary shall issue a final decision on the appeal within 30 days after receiving the recommendation, or such other time as the secretary may order given the complexities of the case.

I. Pursuant to the New Mexico Water Quality Act, NMSA 1978, Section 74-6-5(O), any person who is adversely affected by the secretary's final decision may file with the commission a petition for review of that decision based on the administrative record.

[20.6.2.2003 NMAC - N, 5-18-11]

20.6.2.2004 - 20.6.2.2099: [RESERVED]

[12-1-95; 20.6.2.2001 - 20.6.2.2099 NMAC - Rn, 20 NMAC 6.2.I.1221-2099, 1-15-01; A, 5-18-11]

20.6.2.2100 APPLICABILITY: The requirements of Section 20.6.2.2101 and 20.6.2.2102 NMAC shall not apply to any discharge which is subject to a permit under the National Pollutant Discharge Elimination System of P. L. 92-500; provided that any discharger who is given written notice of National Pollutant Discharge Elimination System permit violation from the Administrator of the Environmental Protection Agency and who has not corrected the violation within thirty days of receipt of said notice shall be subject to Section 20.6.2.2101 and 20.6.2.2102 NMAC until in compliance with the National Pollution Discharge Elimination System permit conditions; provided further that nothing in this Part shall be construed as a deterrent to action under Section 74-6-11 NMSA, 1978.

[8-13-76; 20.6.2.2100 NMAC - Rn, 20 NMAC 6.2.II.2100, 1-15-01]

20.6.2.2101 GENERAL REQUIREMENTS:

A. Except as otherwise provided in Sections 20.6.2.2000 through 20.6.2.2201 NMAC, no person shall cause or allow effluent to discharge to a watercourse if the effluent as indicated by:

(1) any two consecutive daily composite samples;

(2) more than one daily composite sample in any thirty-day period (in which less than ten (10) daily composite samples are examined);

(3) more than ten percent (10%) of the daily composite samples in any thirty-day period (in which ten (10) or more daily composite samples are examined); or

(4) a grab sample collected during flow from an intermittent or infrequent discharge does not conform to the following:

(a) Bio-chemical Oxygen Demand (BOD)—Less than 30 mg/l

(b) Chemical Oxygen Demand (COD) Less than 125 mg/l

(c) Settleable Solids Less than 0.5 mg/l

(d) Fecal Coliform Bacteria Less than 500 organisms per 100 ml

(e) pH Between 6.6 and 8.6

B. Upon application, the secretary may eliminate the pH requirement for any effluent source that the secretary determines does not unreasonably degrade the water into which the effluent is discharged.

C. Subsection A of this Section does not apply to the weight of constituents in the water diverted.

D. Samples shall be examined in accordance with the most current edition of Standard Methods for the Examination of Water and Wastewater published by the American Public Health Association or the most current edition of Methods for Chemical Analysis of Water and Wastes published by the Environmental Protection Agency, where applicable.

[4-20-68, 3-14-71, 10-8-71, 8-13-76, 2-20-81, 12-1-95; 20.6.2.2101 NMAC - Rn, 20 NMAC 6.2.II.2101, 1-15-01]

20.6.2.2102 RIO GRANDE BASIN--COMMUNITY SEWERAGE SYSTEMS:

A. No person shall cause or allow effluent from a community sewerage system to discharge to a watercourse in the Rio Grande Basin between the headwaters of Elephant Butte Reservoir and Angostura Diversion Dam as described in Subsection E of this Section if the effluent, as indicated by:

(1) any two consecutive daily composite samples;

(2) more than one daily composite sample in any thirty-day period (in which less than ten (10) daily composite samples are examined);

(3) more than ten percent (10%) of the daily composite samples in any thirty-day period (in which ten (10) or more daily composite samples are examined); or

(4) a grab sample collected during flow from an intermittent or infrequent discharge does not conform to the following:

(a)	Bio-chemical Oxygen Demand (BOD)	Less than 30 mg/l
(b)	Chemical Oxygen Demand (COD)	Less than 80 mg/l
(c)	Settleable Solids	Less than 0.1 mg/l
(d)	Fecal Coliform Bacteria	Less than 500 organisms per 100 ml
(e)	pH	Between 6.6 and 8.6

B. Upon application, the secretary may eliminate the pH requirement for any effluent source that the secretary determines does not unreasonably degrade the water into which the effluent is discharged.

C. Subsection A of this Section does not apply to the weight of constituents in the water diverted.

D. Samples shall be examined in accordance with the most current edition of Standard Methods for the Analysis of Water and Wastewater published by the American Public Health Association or the most current edition of Methods for Chemical Analysis of Water and Wastes published by the Environmental Protection Agency, where applicable.

E. The following is a description of the Rio Grande Basin from the headwaters of Elephant Butte Reservoir to Angostura Diversion Dam as used in this Section. Begin at San Marcial USGS gauging station, which is the headwaters of Elephant Butte Reservoir Irrigation Project, thence northwest to U.S. Highway 60, nine miles + west of Magdalena; thence west along the northeast edge of the San Agustin Plains closed basin; thence north along the east side of the north plains closed basin to the Continental Divide; thence northly along the Continental Divide to the community of Regina on State Highway 96; thence southeasterly along the crest of the San Pedro Mountains to Cerro Toledo Peak; thence southwesterly along the Sierra de Los Valles ridge and the Borrego Mesa to Bodega Butte; thence southerly to Angostura Diversion Dam which is the upper reach of the Rio Grande in this basin; thence southeast to the crest and the crest of the Manzano Mountains and the Los Pinos Mountains; thence southerly along the divide that contributes to the Rio Grande to San Marcial gauging station to the point and place of beginning; excluding all waters upstream of Jemez Pueblo which flow into the Jemez River drainage and the Bluewater Lake. Counties included in the basin are:

(1) north portion of Socorro County;
(2) northeast corner of Catron County;
(3) east portion of Valencia County;
(4) west portion of Bernalillo County;
(5) east portion of McKinley County; and
(6) most of Sandoval County.

[3-14-71, 9-3-72, 8-13-76, 2-20-81, 12-1-95; 20.6.2.2102 NMAC - Rn, 20 NMAC 6.2.II.2102, 1-15-01]

20.6.2.2103 - 20.6.2.2199: [RESERVED]
[12-1-95; 20.6.2.2103 - 20.6.2.2199 NMAC - Rn, 20 NMAC 6.2.II.2103-2199, 1-15-01]

20.6.2.2200 WATERCOURSE PROTECTION:
[12-1-95; 20.6.2.2200 NMAC - Rn, 20 NMAC 6.2.II.2200, 1-15-01]

20.6.2.2201 DISPOSAL OF REFUSE: No person shall dispose of any refuse in a natural watercourse or in a location and manner where there is a reasonable probability that the refuse will be moved into a natural watercourse by leaching or otherwise. Solids diverted from the stream and returned thereto are not subject to abatement under this Section.
[4-20-68, 9-3-72; 20.6.2.2201 NMAC - Rn, 20 NMAC 6.2.II.2201, 1-15-01]

20.6.2.2202 - 20.6.2.2999: [RESERVED]
[12-1-95; 20.6.2.2202 - 20.6.2.2999 NMAC - Rn, 20 NMAC 6.2.II.2202-3100, 1-15-01]

20.6.2.3000 PERMITTING AND GROUND WATER STANDARDS:
[12-1-95; 20.6.2.3000 NMAC - Rn, 20 NMAC 6.2.III, 1-15-01]

20.6.2.3001 - 20.6.2.3100: [RESERVED]
[12-1-95; 20.6.2.3001 - 20.6.2.3100 NMAC - Rn, 20 NMAC 6.2.II.2202-3100, 1-15-01]

20.6.2.3101 PURPOSE:

A. The purpose of Sections 20.6.2.3000 through 20.6.2.3114 NMAC controlling discharges onto or below the surface of the ground is to protect all ground water of the state of New Mexico which has an existing concentration of 10,000 mg/l or less TDS, for present and potential future use as domestic and agricultural water supply, and to protect those segments of surface waters which are gaining because of ground water inflow, for uses designated in the New Mexico Water Quality Standards. Sections 20.6.2.3000 through 20.6.2.3114 NMAC are written so that in general:

(1) if the existing concentration of any water contaminant in ground water is in conformance with the standard of 20.6.2.3103 NMAC, degradation of the ground water up to the limit of the standard will be allowed; and

(2) if the existing concentration of any water contaminant in ground water exceeds the standard of Section 20.6.2.3103 NMAC, no degradation of the ground water beyond the existing concentration will be allowed.

B. Ground water standards are numbers that represent the pH range and maximum concentrations of water contaminants in the ground water which still allow for the present and future use of ground water resources.

C. The standards are not intended as maximum ranges and concentrations for use, and nothing herein contained shall be construed as limiting the use of waters containing higher ranges and concentrations.

[2-18-77; 20.6.2.3101 NMAC - Rn, 20 NMAC 6.2.III.3101, 1-15-01]

20.6.2.3102: [RESERVED]

[12-1-95; 20.6.2.3102 NMAC - Rn, 20 NMAC 6.2.III.3102, 1-15-01]

20.6.2.3103 STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS: The following standards are the allowable pH range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection D of Section 20.6.2.3109 NMAC. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C of this section, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section. These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "*methods for chemical analysis of water and waste of the U.S. environmental protection agency*," with the exception that standards for mercury, organic compounds and non-aqueous phase liquids shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Subsection A and B of this section unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section 20.6.2.1101 NMAC for the combination of contaminants, or the Human Health Standard of Subsection A of Section 20.6.2.3103 NMAC for each contaminant shall apply, whichever is more stringent. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

(1)	Arsenic (As)	0.1 mg/l
(2)	Barium (Ba)	1.0 mg/l
(3)	Cadmium (Cd)	0.01 mg/l
(4)	Chromium (Cr)	0.05 mg/l
(5)	Cyanide (CN)	0.2 mg/l
(6)	Fluoride (F)	1.6 mg/l
(7)	Lead (Pb)	0.05 mg/l
(8)	Total Mercury (Hg)	0.002 mg/l
(9)	Nitrate (NO_3 as N)	10.0 mg/l
(10)	Selenium (Se)	0.05 mg/l
(11)	Silver (Ag)	0.05 mg/l
(12)	Uranium (U)	0.03 mg/l
(13)	Radioactivity: Combined Radium-226 & Radium-228	30 pCi/l
(14)	Benzene	0.01 mg/l
(15)	Polychlorinated biphenyls (PCB's)	0.001 mg/l
(16)	Toluene	0.75 mg/l

(17) Carbon Tetrachloride.....0.01 mg/l
(18) 1,2-dichloroethane (EDC) .....0.01 mg/l
(19) 1,1-dichloroethylene (1,1-DCE) .....0.005 mg/l
(20) 1,1,2,2-tetrachloroethylene (PCE) .....0.02 mg/l
(21) 1,1,2-trichloroethylene (TCE) .....0.1 mg/l
(22) ethylbenzene.....0.75 mg/l
(23) total xylenes.....0.62 mg/l
(24) methylene chloride.....0.1 mg/l
(25) chloroform.....0.1 mg/l
(26) 1,1-dichloroethane.....0.025 mg/l
(27) ethylene dibromide (EDB) .....0.0001 mg/l
(28) 1,1,1-trichloroethane.....0.06 mg/l
(29) 1,1,2-trichloroethane.....0.01 mg/l
(30) 1,1,2,2-tetrachloroethane.....0.01 mg/l
(31) vinyl chloride.....0.001 mg/l
(32) PAHs: total naphthalene plus monomethylnaphthalenes.....0.03 mg/l
(33) benzo-a-pyrene.....0.0007 mg/l

B. Other Standards for Domestic Water Supply

(1) Chloride (Cl) .....250.0 mg/l
(2) Copper (Cu) .....1.0 mg/l
(3) Iron (Fe) .....1.0 mg/l
(4) Manganese (Mn) .....0.2 mg/l
(6) Phenols.....0.005 mg/l
(7) Sulfate (SO_4) .....600.0 mg/l
(8) Total Dissolved Solids (TDS) .....1000.0 mg/l
(9) Zinc (Zn) .....10.0 mg/l
(10) pH.....between 6 and 9

C. Standards for Irrigation Use - Ground water shall meet the standards of Subsection A, B, and C of this section unless otherwise provided.

(1) Aluminum (Al).....5.0 mg/l
(2) Boron (B) .....0.75 mg/l
(3) Cobalt (Co) .....0.05 mg/l
(4) Molybdenum (Mo) .....1.0 mg/l
(5) Nickel (Ni) .....0.2 mg/l

[2-18-77, 1-29-82, 11-17-83, 3-3-86, 12-1-95; 20.6.2.3103 NMAC - Rn, 20 NMAC 6.2.III.3103, 1-15-01; A, 9-26-04]

[Note: For purposes of application of the amended numeric uranium standard to past and current water discharges (as of 9-26-04), the new standard will not become effective until June 1, 2007. For any new water discharges, the uranium standard is effective 9-26-04.]

20.6.2.3104 DISCHARGE PERMIT REQUIRED: Unless otherwise provided by this Part, no person shall cause or allow effluent or leachate to discharge so that it may move directly or indirectly into ground water unless he is discharging pursuant to a discharge permit issued by the secretary. When a permit has been issued, discharges must be consistent with the terms and conditions of the permit. In the event of a transfer of the ownership, control, or possession of a facility for which a discharge permit is in effect, the transferee shall have authority to discharge under such permit, provided that the transferee has complied with Section 20.6.2.3111 NMAC, regarding transfers. [2-18-77, 12-24-87, 12-1-95; Rn & A, 20.6.2.3104 NMAC - 20 NMAC 6.2.III.3104, 1-15-01; A, 12-1-01]

20.6.2.3105 EXEMPTIONS FROM DISCHARGE PERMIT REQUIREMENT: Sections 20.6.2.3104 and 20.6.2.3106 NMAC do not apply to the following:

A. Effluent or leachate which conforms to all the listed numerical standards of Section 20.6.2.3103 NMAC and has a total nitrogen concentration of 10 mg/l or less, and does not contain any toxic pollutant. To determine conformance, samples may be taken by the agency before the effluent or leachate is discharged so that it may move directly or indirectly into ground water; provided that if the discharge is by seepage through non-natural or altered natural materials, the agency may take samples of the solution before or after seepage. If for any reason the agency does not have access to obtain the appropriate samples, this exemption shall not apply;

B. Effluent which is regulated pursuant to 20.7.3 NMAC, "Liquid Waste Disposal and Treatment" regulations;

C. Water used for irrigated agriculture, for watering of lawns, trees, gardens or shrubs, or for irrigation for a period not to exceed five years for the revegetation of any disturbed land area, unless that water is received directly from any sewerage system;

D. Discharges resulting from the transport or storage of water diverted, provided that the water diverted has not had added to it after the point of diversion any effluent received from a sewerage system, that the source of the water diverted was not mine workings, and that the secretary has not determined that a hazard to public health may result;

E. Effluent which is discharged to a watercourse which is naturally perennial; discharges to dry arroyos and ephemeral streams are not exempt from the discharge permit requirement, except as otherwise provided in this section;

F. Those constituents which are subject to effective and enforceable effluent limitations in a National Pollutant Discharge Elimination System (NPDES) permit, where discharge onto or below the surface of the ground so that water contaminants may move directly or indirectly into ground water occurs downstream from the outfall where NPDES effluent limitations are imposed, unless the secretary determines that a hazard to public health may result. For purposes of this subsection, monitoring requirements alone do not constitute effluent limitations;

G. Discharges resulting from flood control systems;

H. Leachate which results from the direct natural infiltration of precipitation through disturbed materials, unless the secretary determines that a hazard to public health may result;

I. Leachate which results entirely from the direct natural infiltration of precipitation through undisturbed materials;

J. Leachate from materials disposed of in accordance with the Solid Waste Management Regulations (20 NMAC 9.1) adopted by the New Mexico Environmental Improvement Board;

K. Natural ground water seeping or flowing into conventional mine workings which re-enters the ground by natural gravity flow prior to pumping or transporting out of the mine and without being used in any mining process; this exemption does not apply to solution mining;

L. Effluent or leachate discharges resulting from activities regulated by a mining plan approved and permit issued by the New Mexico Coal Surface Mining Commission, provided that this exemption shall not be construed as limiting the application of appropriate ground water protection requirements by the New Mexico Coal Surface Mining Commission;

M. Effluent or leachate discharges which are regulated by the Oil Conservation Commission and the regulation of which by the Water Quality Control Commission would interfere with the exclusive authority granted under Section 70-2-12 NMSA 1978, or under other laws, to the Oil Conservation Commission.

[2-18-77, 6-26-80, 7-2-81, 12-24-87, 12-1-95; 20.6.2.3105 NMAC - Rn, 20 NMAC 6.2.III.3105, 1-15-01; A, 12-1-01; A, 8-1-14]

20.6.2.3106 APPLICATION FOR DISCHARGE PERMITS AND RENEWALS:

A. Any person who, before or on June 18, 1977, is discharging any of the water contaminants listed in 20.6.2.3103 NMAC or any toxic pollutant so that they may move directly or indirectly into ground water shall, within 120 days of receipt of written notice from the secretary that a discharge permit is required, or such longer time as the secretary shall for good cause allow, submit a discharge plan to the secretary for approval; such person may discharge without a discharge permit until 240 days after written notification by the secretary that a discharge permit is required or such longer time as the secretary shall for good cause allow.

B. Any person who intends to begin, after June 18, 1977, discharging any of the water contaminants listed in 20.6.2.3103 NMAC or any toxic pollutant so that they may move directly or indirectly into ground water shall notify the secretary giving the information enumerated in Subsection B of 20.6.2.1201 NMAC; the secretary shall, within 60 days, notify such person if a discharge permit is required; upon submission, the secretary shall review the discharge plan pursuant to 20.6.2.3108 and 20.6.2.3109 NMAC. For good cause shown the secretary may allow such person to discharge without a discharge permit for a period not to exceed 120 days.

C. A proposed discharge plan shall set forth in detail the methods or techniques the discharger proposes to use or processes expected to naturally occur which will ensure compliance with this part. At least the following information shall be included in the plan:

(1) quantity, quality and flow characteristics of the discharge;

(2) location of the discharge and of any bodies of water, watercourses and ground water discharge sites within one mile of the outside perimeter of the discharge site, and existing or proposed wells to be used for monitoring;

(3) depth to and TDS concentration of the ground water most likely to be affected by the discharge;

(4) flooding potential of the site;

(5) location and design of site(s) and method(s) to be available for sampling, and for measurement or calculation of flow;

(6) depth to and lithological description of rock at base of alluvium below the discharge site if such information is available;

(7) any additional information that may be necessary to demonstrate that the discharge permit will not result in concentrations in excess of the standards of 20.6.2.3103 NMAC or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use; detailed information on site geologic and hydrologic conditions may be required for a technical evaluation of the applicant's proposed discharge plan; and

(8) additional detailed information required for a technical evaluation of underground injection control wells as provided in 20.6.2.5000 through 20.6.2.5399 NMAC.

D. An applicant for a discharge permit shall pay fees as specified in 20.6.2.3114 and 20.6.2.5302 NMAC.

E. An applicant for a permit to dispose of or use septage or sludge, or within a source category designated by the commission, may be required by the secretary to file a disclosure statement as specified in 74-6-5.1 of the Water Quality Act.

F. If the holder of a discharge permit submits an application for discharge permit renewal at least 120 days before the discharge permit expires, and the discharger is not in violation of the discharge permit on the date of its expiration, then the existing discharge permit for the same activity shall not expire until the application for renewal has been approved or disapproved. A discharge permit continued under this provision remains fully effective and enforceable. An application for discharge permit renewal must include and adequately address all of the information necessary for evaluation of a new discharge permit. Previously submitted materials may be included by reference provided they are current, readily available to the secretary and sufficiently identified to be retrieved. [2-18-77, 6-26-80, 7-2-81, 9-20-82, 8-17-91, 12-1-95; 20.6.2.3106 NMAC - Rn, 20 NMAC 6.2.III.3106, 1-15-01; A, 12-1-01; A, 9-15-02; A, 8-31-15]

20.6.2.3107 MONITORING, REPORTING, AND OTHER REQUIREMENTS:

A. Each discharge plan shall provide for the following as the secretary may require:

(1) the installation, use, and maintenance of effluent monitoring devices;

(2) the installation, use, and maintenance of monitoring devices for the ground water most likely to be affected by the discharge;

(3) monitoring in the vadose zone;

(4) continuation of monitoring after cessation of operations;

(5) periodic submission to the secretary of results obtained pursuant to any monitoring requirements in the discharge permit and the methods used to obtain these results;

(6) periodic reporting to the secretary of any other information that may be required as set forth in the discharge permit;

(7) the discharger to retain for a period of at least five years any monitoring data required in the discharge permit;

(8) a system of monitoring and reporting to verify that the permit is achieving the expected results;

(9) procedures for detecting failure of the discharge system;

(10) contingency plans to cope with failure of the discharge permit or system;

(11) a closure plan to prevent the exceedance of standards of 20.6.2.3103 NMAC or the presence of a toxic pollutant in ground water after the cessation of operation which includes: a description of closure measures, maintenance and monitoring plans, post-closure maintenance and monitoring plans, financial assurance, and other measures necessary to prevent or abate such contamination; the obligation to implement the closure plan as well as the requirements of the closure plan, if any is required, survives the termination or expiration of the permit; a closure plan for any underground injection control well must also incorporate the applicable requirements of 20.6.2.5005, 20.6.2.5209, and 20.6.2.5361 NMAC.

B. Sampling and analytical techniques shall conform with the following references unless otherwise specified by the secretary:

(1) standard methods for the examination of water and wastewater, latest edition, American public health association; or

(2) methods for chemical analysis of water and waste, and other publications of the analytical quality laboratory, EPA; or

(3) techniques of water resource investigations of the U.S. geological survey; or

(4) annual book of ASTM standards; Part 31; water, latest edition, American society for testing and materials; or

(5) federal register, latest methods published for monitoring pursuant to Resource Conservation and Recovery Act regulations; or

(6) national handbook of recommended methods for water-data acquisition, latest edition, prepared cooperatively by agencies of the United States government under the sponsorship of the U.S. geological survey.

C. The discharger shall notify the secretary of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants.

D. Any discharger of effluent or leachate shall allow any authorized representative of the secretary to:

(1) inspect and copy records required by a discharge permit;

(2) inspect any treatment works, monitoring and analytical equipment;

(3) sample any effluent before or after discharge;

(4) use monitoring systems and wells installed pursuant to a discharge permit requirement in order to collect samples from ground water or the vadose zone.

E. Each discharge permit for an underground injection control well shall incorporate the applicable requirements of 20.6.2.5000 through 20.6.2.5399 NMAC.

[2-18-77, 9-20-82, 11-17-83, 12-1-95; 20.6.2.3107 NMAC - Rn, 20 NMAC 6.2.III.3107, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.3108 PUBLIC NOTICE AND PARTICIPATION:

A. Within 15 days of receipt of an application for a discharge permit, modification or renewal, the department shall review the application for administrative completeness. To be deemed administratively complete, an application shall provide all of the information required by Paragraphs (1) through (5) of Subsection F of 20.6.2.3108 NMAC and shall indicate, for department approval, the proposed locations and newspaper for providing notice required by Paragraphs (1) and (4) of Subsection B or Paragraph (2) of Subsection C of 20.6.2.3108 NMAC. The department shall notify the applicant in writing when the application is deemed administratively complete. If the department determines that the application is not administratively complete, the department shall notify the applicant of the deficiencies in writing within 15 days of receipt of the application and state what additional information is necessary.

B. Within 30 days of the department deeming an application for discharge permit or discharge permit modification administratively complete, the applicant shall provide notice, in accordance with the requirements of Subsection F of 20.6.2.3108 NMAC, to the general public in the locale of the proposed discharge in a form provided by the department by each of the methods listed below:

(1) for each 640 contiguous acres or less of a discharge site, prominently posting a synopsis of the public notice at least 2 feet by 3 feet in size, in English and in Spanish, at a place conspicuous to the public, approved by the department, at or near the proposed facility for 30 days; one additional notice, in a form approved by and may be provided by the department, shall be posted at a place located off the discharge site, at a place conspicuous to the public and approved by the department; the department may require a second posting location for more than 640 contiguous acres or when the discharge site is not located on contiguous properties;

(2) providing written notice of the discharge by mail, to owners of record of all properties within a 1/3 mile distance from the boundary of the property where the discharge site is located; if there are no properties other than properties owned by the discharger within a 1/3 mile distance from the boundary of property where the discharge site is located, the applicant shall provide notice to owners of record of the next nearest adjacent properties not owned by the discharger;

(3) providing notice by certified mail, return receipt requested, to the owner of the discharge site if the applicant is not the owner; and

(4) publishing a synopsis of the notice in English and in Spanish, in a display ad at least three inches by four inches not in the classified or legal advertisements section, in a newspaper of general circulation in the location of the proposed discharge.

C. Within 30 days of the department deeming an application for discharge permit renewal administratively complete, the applicant shall provide notice, in accordance with the requirements of Subsection F of 20.6.2.3108 NMAC, to the general public in the locale of the proposed discharge in a form provided by the department by each of the methods listed below:

(1) providing notice by certified mail to the owner of the discharge site if the applicant is not the owner; and

(2) publishing a synopsis of the notice, in English and in Spanish, in a display ad at least two inches by three inches, not in the classified or legal advertisements section, in a newspaper of general circulation in the location of the discharge.

D. Within 15 days of completion of the public notice requirements in Subsections B or C of 20.6.2.3108 NMAC, the applicant shall submit to the department proof of notice, including an affidavit of mailing(s) and the list of property owner(s), proof of publication, and an affidavit of posting, as appropriate.

E. Within 30 days of determining an application for a discharge permit, modification or renewal is administratively complete, the department shall post a notice on its website and shall mail notice to any affected local, state, federal, tribal or pueblo governmental agency, political subdivisions, ditch associations and land grants, as identified by the department. The department shall also mail or e-mail notice to those persons on a general and facility-specific list maintained by the department who have requested notice of discharge permit applications. The notice shall include the information listed in Subsection F of 20.6.2.3108 NMAC.

F. The notice provided under Subsection B, C and E of 20.6.2.3108 NMAC shall include:

(1) the name and address of the proposed discharger;

(2) the location of the discharge, including a street address, if available, and sufficient information to locate the facility with respect to surrounding landmarks;

(3) a brief description of the activities that produce the discharge described in the application;

(4) a brief description of the expected quality and volume of the discharge;

(5) the depth to and total dissolved solids concentration of the ground water most likely to be affected by the discharge;

(6) the address and phone number within the department by which interested persons may obtain information, submit comments, and request to be placed on a facility-specific mailing list for future notices; and

(7) a statement that the department will accept comments and statements of interest regarding the application and will create a facility-specific mailing list for persons who wish to receive future notices.

G. All persons who submit comments or statements of interest to the department or previously participated in a public hearing and who provide a mail or e-mail address shall be placed on a facility-specific mailing list and the department shall send those persons the public notice issued pursuant to Subsection H of 20.6.2.3108 NMAC, and notice of any public meeting or hearing scheduled on the application. All persons who contact the department to inquire about a specific facility shall be informed of the opportunity to be placed on the facility-specific mailing list.

H. Within 60 days after the department makes its administrative completeness determination and all required technical information is available, the department shall make available a proposed approval or disapproval of the application for a discharge permit, modification or renewal, including conditions for approval proposed by the department or the reasons for disapproval. The department shall mail by certified mail a copy of the proposed approval or disapproval to the applicant, and shall provide notice of the proposed approval or disapproval of the application for a discharge permit, modification or renewal by:

(1) posting on the department's website;

(2) publishing notice in a newspaper of general circulation in this state and a newspaper of general circulation in the location of the facility;

(3) mailing or e-mailing to those persons on a facility-specific mailing list;

(4) mailing to any affected local, state, or federal governmental agency, ditch associations and land grants, as identified by the department; and

(5) mailing to the governor, chairperson, or president of each Indian tribe, pueblo or nation within the state of New Mexico, as identified by the department.

I. The public notice issued under Subsection H shall include the information in Subsection F of 20.6.2.3108 NMAC and the following information:

(1) a brief description of the procedures to be followed by the secretary in making a final determination;

(2) a statement of the comment period and description of the procedures for a person to request a hearing on the application; and

(3) the address and telephone number at which interested persons may obtain a copy of the proposed approval or disapproval of an application for a discharge permit, modification or renewal.

J. In the event that the proposed approval or disapproval of an application for a discharge permit, modification or renewal is available for review within 30 days of deeming the application administratively complete, the department may combine the public notice procedures of Subsections E and H of 20.6.2.3108 NMAC.

K. Following the public notice of the proposed approval or disapproval of an application for a discharge permit, modification or renewal, and prior to a final decision by the secretary, there shall be a period of at least 30 days during which written comments may be submitted to the department and/or a public hearing may be requested in writing. The 30-day comment period shall begin on the date of publication of notice in the newspaper. All comments will be considered by the department. Requests for a hearing shall be in writing and shall set forth the reasons why a hearing should be held. A public hearing shall be held if the secretary determines there is substantial public interest. The department shall notify the applicant and any person requesting a hearing of the decision whether to hold a hearing and the reasons therefore in writing.

L. If a hearing is held, pursuant to Subsection K of 20.6.2.3108 NMAC, notice of the hearing shall be given by the department at least 30 days prior to the hearing in accordance with Subsection H of 20.6.2.3108 NMAC. The notice shall include the information identified in Subsection F of 20.6.2.3108 NMAC in addition to the time and place of the hearing and a brief description of the hearing procedures. The hearing shall be held pursuant to 20.6.2.3110 NMAC.

[2-18-77, 12-24-87, 12-1-95, 11-15-96; 20.6.2.3108 NMAC - Rn, 20 NMAC 6.2.III.3108, 1-15-01; A, 12-1-01; A, 9-15-02; A, 7-16-06]

20.6.2.3109 SECRETARY APPROVAL, DISAPPROVAL, MODIFICATION OR TERMINATION OF DISCHARGE PERMITS, AND REQUIREMENT FOR ABATEMENT PLANS:

A. The department shall evaluate the application for a discharge permit, modification or renewal based on information contained in the department's administrative record. The department may request from the discharger, either before or after the issuance of any public notice, additional information necessary for the evaluation of the application. The administrative record shall consist of the application, any additional information required by the department, any information submitted by the discharger or the general public, other information considered by the department, the proposed approval or disapproval of an application for a discharge permit, modification or renewal prepared pursuant to Subsection G of 20.6.2.3108 NMAC, and, if a public hearing is held, all of the documents filed with the hearing clerk, all exhibits offered into evidence at the hearing, the written transcript or tape recording of the hearing, any hearing officer report, and any post hearing submissions.

B. The secretary shall, within 30 days after the administrative record is complete and all required information is available, approve, approve with conditions or disapprove the proposed discharge permit, modification or renewal based on the administrative record. The secretary shall give written notice of the action taken to the applicant or permittee and any other person who participated in the permitting action who requests a copy in writing.

C. Provided that the other requirements of this part are met and the proposed discharge plan, modification or renewal demonstrates that neither a hazard to public health nor undue risk to property will result, the secretary shall approve the proposed discharge plan, modification or renewal if the following requirements are met:

(1) ground water that has a TDS concentration of 10,000 mg/l or less will not be affected by the discharge; or

(2) the person proposing to discharge demonstrates that approval of the proposed discharge plan, modification or renewal will not result in either concentrations in excess of the standards of 20.6.2.3103 NMAC or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use, except for contaminants in the water diverted as provided in Subsection D of 20.6.2.3109 NMAC; or

(3) the proposed discharge plan conforms to either Subparagraph (a) or (b) below and Subparagraph (c) below:

(a) municipal, other domestic discharges, and discharges from sewerage systems handling only animal wastes: the effluent is entirely domestic, is entirely from a sewerage system handling only animal wastes or is from a municipality and conforms to the following:

(i) the discharge is from an impoundment or a leach field existing on February 18, 1977 which receives less than 10,000 gallons per day and the secretary has not found that the discharge may cause a hazard to public health; or

(ii) the discharger has demonstrated that the total nitrogen in effluent that enters the subsurface from a leach field or surface impoundment will not exceed 200 pounds per acre per year and that the effluent will meet the standards of 20.6.2.3103 NMAC except for nitrates and except for contaminants in the water diverted as provided in Subsection D of 20.6.2.3109 NMAC; or

(iii) the total nitrogen in effluent that is applied to a crop which is harvested shall not exceed by more than 25 percent the maximum amount of nitrogen reasonably expected to be taken up by the crop and the effluent shall meet the standards of 20.6.2.3103 NMAC except for nitrates and except for contaminants in the water diverted as provided in Subsection D of 20.6.2.3109 NMAC;

(b) discharges from industrial, mining or manufacturing operations:

(i) the discharger has demonstrated that the amount of effluent that enters the subsurface from a surface impoundment will not exceed 0.5 acre-feet per acre per year; or

(ii) the discharger has demonstrated that the total nitrogen in effluent that enters the subsurface from a leach field or surface impoundment shall not exceed 200 pounds per acre per year and the effluent shall meet the standards of 20.6.2.3103 NMAC except for nitrate and contaminants in the water diverted as provided in Subsection D of 20.6.2.3109 NMAC; or

(iii) the total nitrogen in effluent that is applied to a crop that is harvested shall not exceed by more than 25 percent the maximum amount of nitrogen reasonably expected to be taken up by the crop and the effluent shall meet the standards of 20.6.2.3103 NMAC except for nitrate and contaminants in the water diverted as provided in Subsection D of 20.6.2.3109 NMAC;

(c) all discharges:

(i) the monitoring system proposed in the discharge plan includes adequate provision for sampling of effluent and adequate flow monitoring so that the amount being discharged onto or below the surface of the ground can be determined;

(ii) the monitoring data is reported to the secretary at a frequency determined by the secretary.

D. The secretary shall allow the following unless he determines that a hazard to public health may result:

(1) the weight of water contaminants in water diverted from any source may be discharged provided that the discharge is to the aquifer from which the water was diverted or to an aquifer containing a greater concentration of the contaminants than contained in the water diverted; and provided further that contaminants added as a result of the means of diversion shall not be considered to be part of the weight of water contaminants in the water diverted;

(2) the water contaminants leached from undisturbed natural materials may be discharged provided that:

(a) the contaminants were not leached as a product or incidentally pursuant to a solution mining operation; and

(b) the contaminants were not leached as a result of direct discharge into the vadose zone from municipal or industrial facilities used for the storage, disposal, or treatment of effluent;

(3) the water contaminants leached from undisturbed natural materials as a result of discharge into ground water from lakes used as a source of cooling water.

E. If data submitted pursuant to any monitoring requirements specified in the discharge permit or other information available to the secretary indicates that this part is being or may be violated or that the standards of 20.6.2.3103 NMAC are being or will be exceeded, or a toxic pollutant as defined in 20.6.2.7 NMAC is present, in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the water quality standards for interstate and intrastate streams in New Mexico are being or may be violated in surface water, due to the discharge, except as provided in Subsection D of 20.6.2.3109 NMAC.

(1) The secretary may require a discharge permit modification within the shortest reasonable time so as to achieve compliance with this part and to provide that any exceeding of standards in ground water at any place of withdrawal for present or reasonably foreseeable future use, or in surface water, due to the discharge

except as provided in Subsection D of 20.6.2.3109 NMAC will be abated or prevented. If the secretary requires a discharge permit modification to abate water pollution:

(a) the abatement shall be consistent with the requirements and provisions of 20.6.2.4101, 20.6.2.4103, Subsections C and E of 20.6.2.4106, 20.6.2.4107, 20.6.2.4108 and 20.6.2.4112 NMAC; and

(b) the discharger may request of the secretary approval to carry out the abatement under 20.6.2.4000 through 20.6.2.4115 NMAC, in lieu of modifying the discharge permit; the discharger shall make the request in writing and shall include the reasons for the request.

(2) The secretary may terminate a discharge permit when a discharger fails to modify the permit in accordance with Paragraph (1) of Subsection E of 20.6.2.3109 NMAC.

(3) The secretary may require modification, or may terminate a discharge permit for a Class I well, a Class III well or other type of well specified in Subsection A of 20.6.2.5101 NMAC, pursuant to the requirements of Subsection I of 20.6.2.5101 NMAC.

F. If a discharge permit expires or is terminated for any reason and the standards of 20.6.2.3103 NMAC are being or will be exceeded, or a toxic pollutant as defined in 20.6.2.7 NMAC is present in ground water, or that the water quality standards for interstate and intrastate streams in New Mexico are being or may be violated, the secretary may require the discharger to submit an abatement plan pursuant to 20.6.2.4104 and Subsection A of 20.6.2.4106 NMAC.

G. At the request of the discharger, a discharge permit may be modified in accordance with 20.6.2.3000 through 20.6.2.3114 NMAC.

H. The secretary shall not approve a proposed discharge plan, modification, or renewal for:

(1) any discharge for which the discharger has not provided a site and method for flow measurement and sampling;

(2) any discharge that will cause any stream standard to be violated;

(3) the discharge of any water contaminant which may result in a hazard to public health; or

(4) a period longer than five years, except that for new discharges, the term of the discharge permit approval shall commence on the date the discharge begins, but in no event shall the term of the approval exceed seven years from the date the permit was issued; for those permits expiring more than five years from the date of issuance, the discharger shall give prior written notification to the department of the date the discharge is to commence; the term of the permit shall not exceed five years from that date.

[2-18-77, 6-26-80, 9-20-82, 7-2-81, 3-3-86, 12-1-95, 11-15-96; 20.6.2.3109 NMAC - Rn, 20 NMAC 6.2.III.3109, 1-15-01; A, 12-1-01; A, 9-15-02; A, 7-16-06; A, 8-31-15]

20.6.2.3110 PUBLIC HEARING PARTICIPATION:

A. The secretary may appoint an impartial hearing officer to preside over the hearing. The hearing officer may be a department employee other than an employee of the bureau evaluating the application.

B. The hearing shall be at a place in the area affected by the facility for which the discharge permit proposal, modification or renewal is sought.

C. Any person who wishes to present technical evidence at the hearing shall, no later than ten (10) days prior to the hearing, file with the department, and if filed by a person who is not the applicant, serve on the applicant, a statement of intent to present evidence. A person who does not file a statement of intent to present evidence may present a general non-technical statement in support of or in opposition to the proposed discharge plan, modification or renewal. The statement of intent to present technical evidence shall include:

(1) the name of the person filing the statement;

(2) indication of whether the person filing the statement supports or opposes the proposed discharge plan proposal, modification or renewal;

(3) the name of each witness;

(4) an estimate of the length of the direct testimony of each witness;

(5) a list of exhibits, if any, to be offered into evidence at the hearing; and

(6) a summary or outline of the anticipated direct testimony of each witness.

D. At the hearing, the New Mexico Rules of Civil Procedure, SCRA 1986, 1-001 to 1-102 and the New Mexico Rules of Evidence, SCRA 1986, 11-101 to 11-1102 shall not apply. At the discretion of the hearing officer, the rules may be used as guidance. Any reference to the Rules of Civil Procedure and the Rules of Evidence shall not be construed to extend or otherwise modify the authority and jurisdiction of the department under the Act.

E. The hearing officer shall conduct a fair and impartial proceeding, assure that the facts are fully elicited, and avoid delay. The hearing officer shall have authority to take all measures necessary for the maintenance of order and for the efficient, fair and impartial adjudication of issues arising in the proceedings.

F. At the hearing, all persons shall be given a reasonable chance to submit data, views or arguments orally or in writing and to examine witnesses testifying at the hearing.

G. Unless otherwise allowed by the hearing officer, testimony shall be presented in the following order:

(1) testimony by and examination of the applicant or permittee proving the facts relied upon to justify the proposed discharge plan, renewal or modification and meeting the requirements of the regulations;

(2) testimony by and examination of technical witnesses supporting or opposing approval, approval subject to conditions, or disapproval of the proposed discharge plan, renewal or modification, in any reasonable order;

(3) testimony by the general public; and

(4) rebuttal testimony, if appropriate.

H. The secretary may provide translation service at a public hearing conducted in a locale where the Department can reasonably expect to receive testimony from non-English speaking people.

I. If determined useful by the hearing officer, within thirty (30) days after conclusion of the hearing, or within such time as may be fixed by the hearing officer, the hearing officer may allow proposed findings of fact and conclusions of law and closing argument. All such submissions, if allowed, shall be in writing, shall be served upon the applicant or permittee, the department and all persons who request copies in advance in writing, and shall contain adequate references to the record and authorities relied on. No new evidence shall be presented unless specifically allowed by the hearing officer.

J. The department shall make an audio recording of the hearing. If the applicant or permittee, or a participant requests a written transcript or certified copy of the audio recording, the requestor shall pay the cost of the transcription or audio copying.

K. The hearing officer shall issue a report within thirty (30) days after the close of the hearing record. The report may include findings of fact, conclusions regarding all material issues of law or discretion, as well as reasons therefore. The report shall be served on the applicant or permittee, the department, and all persons who request copies in advance in writing. The report will be available for public inspection at the department's office in Santa Fe and at the field office closest to the point of the proposed discharge.

L. The secretary shall issue a decision in the matter no later than thirty (30) days of receipt of the hearing report. The decision shall be served and made available for inspection pursuant to Subsection K of this section.

M. Any person who testifies at the hearing or submits a written statement for the record will be considered a participant for purposes of Subsection 20.6.2.3113 NMAC and NMSA 1978, Section 74-6-5.N.

[2-18-77, 12-1-95, 11-15-96; 20.6.2.3110 NMAC - Rn, 20 NMAC 6.2.III.3110, 1-15-01; A, 12-1-01]

20.6.2.3111 TRANSFER OF DISCHARGE PERMIT: No purported transfer of any discharge permit shall be effective to create, alter or extinguish any right or responsibility of any person subject to this Part, unless the following transfer requirements are met:

A. Prior to any transfer of ownership, control, or possession (whether by lease, conveyance or otherwise) of a facility with a discharge permit, the transferror shall notify the transferee in writing of the existence of the discharge permit, and shall deliver or send by certified mail to the department a copy of such written notification, together with a certification or other proof that such notification has in fact been received by the transferee.

B. Upon receipt of such notification, the transferee shall have the duty to inquire into all of the provisions and requirements contained in such discharge permit, and the transferee shall be charged with notice of all such provisions and requirements as they appear of record in the department's file or files concerning such discharge permit.

C. Until both ownership and possession of the facility have been transferred to the transferee, the transferor shall continue to be responsible for any discharge from the facility.

D. Upon assuming either ownership or possession of the facility, the transferee shall have the same rights and responsibilities under the discharge permit as were applicable to the transferor.

E. Nothing in this section or in this part shall be construed to relieve any person of responsibility or liability for any act or omission which occurred while that person owned, controlled or was in possession of the facility.

[2-18-77, 12-24-87, 12-1-95, 11-15-96; 20.6.2.3111 NMAC - Rn, 20 NMAC 6.2.III.3111, 1-15-01; A, 12-1-01]

20.6.2.3112 APPEALS OF SECRETARY'S DECISIONS:

A. If the secretary approves, approves subject to conditions, or disapproves a proposed discharge plan, renewal or modification, or modifies or terminates a discharge permit, appeal therefrom shall be in accordance with the provisions of Sections 74-6-5(N), (O) and (P), NMSA 1978. The filing of an appeal does not act as a stay of any provision of the Act, the regulations, or any permit issued pursuant to the Act, unless otherwise ordered by the secretary or the commission.

B. If the secretary determines that a discharger is not exempt from obtaining a discharge permit, or that the material to be discharged contains any toxic pollutant as defined in 20.6.2.7 NMAC, which is not included in the numerical standards of 20.6.2.3103 NMAC, then the discharger may appeal such determination by filing with the commission's secretary a notice of appeal to the commission within thirty days after receiving the secretary's written determination, and the appeal therefrom and any action of the commission thereon shall be in accordance with the provisions of Sections 74-6-5(O), (P), (Q), (R) and (S) NMSA 1978.

C. Proceedings before the commission shall be conducted in accordance with the commission's adjudicatory procedures, 20 NMAC 1.3.

[2-18-77, 7-2-81, 12-1-95, 11-15-96; 20.6.2.3112 NMAC - Rn, 20 NMAC 6.2.III.3112, 1-15-01; A, 12-1-01; A, 7-16-06]

20.6.2.3113 APPEALS OF COMMISSION DECISIONS: An applicant, permittee or a person who participated in a permitting action and who is adversely affected by such action may appeal the decision of the commission in accordance with the provisions of Section 74-6-7(A), NMSA 1978.

[2-18-77, 12-1-95, 11-15-96; 20.6.2.3113 NMAC - Rn, 20 NMAC 6.2.III.3113, 1-15-01; A, 12-1-01]

20.6.2.3114 FEES:

A. FEE AMOUNT AND SCHEDULE OF PAYMENT - Every facility submitting a discharge permit application for approval or renewal shall pay the permit fees specified in Table 1 of this section and shall pay a filing fee as specified in Table 2 of this section to the Water Quality Management Fund. Every facility submitting a request for temporary permission to discharge pursuant to Subsection B of Section 20.6.2.3106 NMAC, or financial assurance pursuant to Paragraph 11 of Subsection A of Section 20.6.2.3107 NMAC shall pay the fees specified in Table 2 of this section to the Water Quality Management Fund.

B. Facilities applying for discharge permits which are subsequently withdrawn or denied shall pay one-half of the permit fee at the time of denial or withdrawal.

C. Every facility submitting an application for discharge permit modification will be assessed a filing fee plus one-half of the permit fee. Applications for both renewal and modification will pay the filing fee plus the permit fee.

D. If the secretary requires a discharge permit modification as a component of an enforcement action, the facility shall pay the applicable discharge permit modification fee. If the secretary requires a discharge permit modification outside the context of an enforcement action, the facility shall not be assessed a fee.

E. The secretary may waive or reduce fees for discharge permit modifications or renewals which require little or no cost for investigation or issuance.

F. Facilities shall pay the filing fee at the time of discharge permit application. The filing fee is nonrefundable. The required permit fees may be paid in a single payment at the time of discharge permit approval or in equal installments over the term of the discharge permit. Installment payments shall be remitted yearly, with the first installment due on the date of discharge permit approval. Subsequent installment payments shall be remitted yearly thereafter. The discharge permit or discharge permit application review of any facility shall be suspended or terminated if the facility fails to submit an installment payment by its due date.

G. Every three years beginning in 2004, the department shall review the fees specified in Table 1 and 2 of this section and shall provide a report to the commission. The department shall revise the fees as necessary in accordance with Section 74-6-5(J), NMSA 1978.

20.6.2.3114 TABLE 1 (gpd=gallons per day)	**Permit Fee**
Agriculture <10,000 gpd	$ 1,150
Agriculture 10,000 to 49,999 gpd	$ 2,300
Agriculture 50,000 to 99,999 gpd	$ 3,450

Agriculture 100,000 gpd or greater	$ 4,600
Domestic Waste <10,000 gpd	$ 1,150
Domestic Waste 10,000 to 49,999 gpd	$ 2,300
Domestic Waste 50,000 to 99,999 gpd	$ 3,450
Domestic Waste 100,000 to 999,999 gpd	$ 4,600
Domestic Waste 1,000,000 to 9,999,999 gpd	$ 7,000
Domestic Waste 10,000,000 gpd or greater	$ 9,200
Food Processing <10,000 gpd	$ 1,150
Food Processing 10,000 to 49,999 gpd	$ 2,300
Food Processing 50,000 to 99,999 gpd	$ 3,450
Food Processing 100,000 to 999,999 gpd	$ 4,600
Food Processing 1,000,000 or greater	$ 7,000
Grease/Septage surface disposal <10,000 gpd	$ 1,725
Grease/Septage surface disposal 10,000 gpd or greater	$ 3,450
Industrial <10,000 gpd; or <10,000 yd^3 of contaminated solids	$ 1,725
Industrial 10,000 to 99,999 gpd; or 10,000 to 99,999 yd^3 of contaminated solids	$ 3,450
Industrial 100,000 to 999,999 gpd; or 100,000 to 999,999 yd^3 of contaminated solids or greater	$ 6,900
Industrial 1,000,000 gpd or greater; or 1,000,000 yd^3 of contaminated solids or greater	$10,350
Discharge of remediation system effluent - remediation plan approved under separate regulatory authority	$ 1,600
Mining dewatering	$ 3,250
Mining leach dump	$13,000
Mining tailings	$13,000
Mining waste rock	$13,000
Mining in-situ leach (except salt) and old stope leaching	$13,000
Mining other (mines with minimal environmental impact, post closure operation and maintenance, evaporation lagoons and land application at uranium mines)	$ 4,750
Gas Compressor Stations 0 to 1000 Horsepower	$ 400
Gas Compressor Stations >1001 Horsepower	$ 1,700
Gas Processing Plants	$ 4,000
Injection Wells: Class I	$ 4,500
Injection Wells: Class III and Geothermal	$ 1,700
Oil and Gas Service Companies	$ 1,700
Refineries	$ 8,400
Crude Pump Station	$ 1,200
Underground Gas Storage	$ 1,700
Abatement of ground water and vadose zone contamination at oil and gas Sites	$ 2,600
General permit	$ 600

20.6.2.3114 Table 2

	Fee Amount
Filing fee	$

	100
Temporary permission	$ 150
Financial assurance: approval of instrument	greater of $250 or .01%
Financial assurance: annual review	greater of $100 or .001%

[8-17-91, 12-1-95; 20.6.2.3114, Rn & A, 20 NMAC 6.2.III.3114, 01-01-01]

20.6.2.3115 - 20.6.2.3999: [RESERVED]
[12-1-95; 20.6.2.3115 - 20.6.2.3999 NMAC - Rn, 20 NMAC 6.2.III.3115-4100, 1-15-01]

20.6.2.4000 PREVENTION AND ABATEMENT OF WATER POLLUTION:
[12-1-95; 20.6.2.4000 NMAC - Rn, 20 NMAC 6.2.IV, 1-15-01]

20.6.2.4001 - 20.6.2.4100: [RESERVED]
[12-1-95; 20.6.2.4001 - 20.6.2.4100 NMAC - Rn, 20 NMAC 6.2.III.3115-4100, 1-15-01]

20.6.2.4101 PURPOSE:

A. The purposes of Sections 20.6.2.4000 through 20.6.2.4115 NMAC are to:

(1) Abate pollution of subsurface water so that all ground water of the State of New Mexico which has a background concentration of 10,000 mg/L or less TDS, is either remediated or protected for use as domestic and agricultural water supply, and to remediate or protect those segments of surface waters which are gaining because of subsurface-water inflow, for uses designated in the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20.6.4 NMAC); and

(2) Abate surface-water pollution so that all surface waters of the State of New Mexico are remediated or protected for designated or attainable uses as defined in the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20.6.4 NMAC).

B. If the background concentration of any water contaminant exceeds the standard or requirement of Subsections A, B and C of Section 20.6.2.4103 NMAC, pollution shall be abated by the responsible person to the background concentration.

C. The standards and requirements set forth in Section 20.6.2.4103 NMAC are not intended as maximum ranges and concentrations for use, and nothing herein contained shall be construed as limiting the use of waters containing higher ranges and concentrations.
[12-1-95; 20.6.2.4101 NMAC - Rn, 20 NMAC 6.2.IV.4101, 1-15-01]

20.6.2.4102: [RESERVED]
[12-1-95; 20.6.2.4102 NMAC - Rn, 20 NMAC 6.2.IV.4102, 1-15-01]

20.6.2.4103 ABATEMENT STANDARDS AND REQUIREMENTS:

A. The vadose zone shall be abated so that water contaminants in the vadose zone shall not be capable of contaminating ground water or surface water, in excess of the standards in Subsections B and C below, through leaching, percolation or as the water table elevation fluctuates.

B. Ground-water pollution at any place of withdrawal for present or reasonably foreseeable future use, where the TDS concentration is 10,000 mg/L or less, shall be abated to conform to the following standards:

(1) toxic pollutant(s) as defined in Section 20.6.2.1101 NMAC shall not be present; and

(2) the standards of Section 20.6.2.3103 NMAC shall be met.

C. Surface-water pollution shall be abated to conform to the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20.6.4 NMAC).

D. Subsurface-water and surface-water abatement shall not be considered complete until a minimum of eight (8) consecutive quarterly samples from all compliance sampling stations approved by the secretary meet the abatement standards of Subsections A, B and C of this section. Abatement of water contaminants measured in solid-matrix samples of the vadose zone shall be considered complete after one-time sampling from compliance stations approved by the secretary.

E. Technical Infeasibility.

(1) If any responsible person is unable to fully meet the abatement standards set forth in Subsections A and B of this section using commercially accepted abatement technology pursuant to an approved

abatement plan, he may propose that abatement standards compliance is technically infeasible. Technical infeasibility proposals involving the use of experimental abatement technology shall be considered at the discretion of the secretary. Technical infeasibility may be demonstrated by a statistically valid extrapolation of the decrease in concentration(s) of any water contaminant(s) over the remainder of a twenty (20) year period, such that projected future reductions during that time would be less than 20 percent of the concentration(s) at the time technical infeasibility is proposed. A statistically valid decrease cannot be demonstrated by fewer than eight (8) consecutive quarters. The technical infeasibility proposal shall include a substitute abatement standard(s) for those contaminants that is/are technically feasible. Abatement standards for all other water contaminants not demonstrated to be technically infeasible shall be met.

(2) In no event shall a proposed technical infeasibility demonstration be approved by the secretary for any water contaminant if its concentration is greater than 200 percent of the abatement standard for that contaminant.

(3) If the secretary cannot approve any or all portions of a proposed technical infeasibility demonstration because the water contaminant concentration(s) is/are greater than 200 percent of the abatement standard(s) for each contaminant, the responsible person may further pursue the issue of technical infeasibility by filing a petition with the commission seeking:

(a) approval of alternate abatement standard(s) pursuant to Subsection F of this section; or

(b) granting of a variance pursuant to Section 20.6.2.1210 NMAC.

F. Alternative Abatement Standards.

(1) At any time during or after the submission of a Stage 2 abatement plan, the responsible person may file a petition seeking approval of alternative abatement standard(s) for the standards set forth in Subsections A and B of this section. The commission may approve alternative abatement standard(s) if the petitioner demonstrates that:

(a) compliance with the abatement standard(s) is/are not feasible, by the maximum use of technology within the economic capability of the responsible person; OR there is no reasonable relationship between the economic and social costs and benefits (including attainment of the standard(s) set forth in Section 20.6.2.4103 NMAC) to be obtained;

(b) the proposed alternative abatement standard(s) is/are technically achievable and cost-benefit justifiable; and

(c) compliance with the proposed alternative abatement standard(s) will not create a present or future hazard to public health or undue damage to property.

(2) The petition shall be in writing, filed with the secretary. The petition shall specify, in addition to the information required by Subsection A of Section 20.6.2.1210 NMAC, the water contaminant(s) for which alternative standard(s) is/are proposed, the alternative standard(s) proposed, the three-dimensional body of water pollution for which approval is sought, and the extent to which the abatement standard(s) set forth in Section 20.6.2.4103 NMAC is/are now, and will in the future be, violated. The petition may include a transport, fate and risk assessment in accordance with accepted methods, and other information as the petitioner deems necessary to support the petition.

(3) The commission shall review a petition for alternative abatement standards in accordance with the procedures for review of a variance petition provided in the commission's adjudicatory procedures, 20.1.3 NMAC.

[12-1-95, 11-15-96; 20.6.2.4103 NMAC - Rn, 20 NMAC 6.2.IV.4103, 1-15-01]

20.6.2.4104 ABATEMENT PLAN REQUIRED:

A. Unless otherwise provided by this Part, all responsible persons who are abating, or who are required to abate, water pollution in excess of the standards and requirements set forth in Section 20.6.2.4103 NMAC of this Part shall do so pursuant to an abatement plan approved by the secretary. When an abatement plan has been approved, all actions leading to and including abatement shall be consistent with the terms and conditions of the abatement plan.

B. In the event of a transfer of the ownership, control or possession of a facility for which an abatement plan is required or approved, where the transferor is a responsible person, the transferee also shall be considered a responsible person for the duration of the abatement plan, and may jointly share the responsibility to conduct the actions required by this Part with other responsible persons. The transferor shall notify the transferee in writing, at least thirty (30) days prior to the transfer, that an abatement plan has been required or approved for the facility, and shall deliver or send by certified mail to the secretary a copy of such notification together with a

certificate or other proof that such notification has in fact been received by the transferee. The transferor and transferee may agree to a designated responsible person who shall assume the responsibility to conduct the actions required by this Part. The responsible persons shall notify the secretary in writing if a designated responsible person is agreed upon. If the secretary determines that the designated responsible person has failed to conduct the actions required by this Part, the secretary shall notify all responsible persons of this failure in writing and allow them thirty (30) days, or longer for good cause shown, to conduct the required actions before issuing a compliance order pursuant to Section 20.6.2.1220 NMAC.

C. If the source of the water pollution to be abated is a facility that operated under a discharge plan, the secretary may require the responsible person(s) to submit a financial assurance plan which covers the estimated costs to conduct the actions required by the abatement plan. Such a financial assurance plan shall be consistent with any financial assurance requirements adopted by the commission.

[12-1-95; 20.6.2.4104 NMAC - Rn, 20 NMAC 6.2.IV.4104, 1-15-01]

20.6.2.4105 EXEMPTIONS FROM ABATEMENT PLAN REQUIREMENTS:

A. Except as provided in Subsection B of this Section, Sections 20.6.2.4104 and 20.6.2.4106 NMAC do not apply to a person who is abating water pollution:

(1) from a storage tank, under the authority of the Petroleum Storage Tank Regulations (20.5 NMAC) adopted by the New Mexico Environmental Improvement Board, or in accordance with the New Mexico Ground Water Protection Act;

(2) under the authority of the U.S. Environmental Protection Agency pursuant to either the federal Comprehensive Environmental Response, Compensation and Liability Act, and amendments, or the Resource Conservation and Recovery Act;

(3) under the authority of the secretary pursuant to the Hazardous Waste Management Regulations (20.4.1 NMAC) adopted by the New Mexico Environmental Improvement Board;

(4) under the authority of the U.S. Nuclear Regulatory Commission or the U.S. Department of Energy pursuant to the Atomic Energy Act;

(5) from a solid waste landfill, under the authority of the secretary pursuant to the Solid Waste Management Regulations (20.9.1 NMAC) adopted by the N.M. Environmental Improvement Board;

(6) under the authority of a ground-water discharge plan approved by the secretary, provided that such abatement is consistent with the requirements and provisions of Sections 20.6.2.4101, 20.6.2.4103, Subsections C and E of Section 20.6.2.4106, Sections 20.6.2.4107 and 20.6.2.4112 NMAC;

(7) under the authority of a Letter of Understanding, Settlement Agreement or Administrative Order on Consent signed by the secretary prior to December 1, 1995, provided that abatement is being performed in full compliance with the terms of the Letter of Understanding, Settlement Agreement or Administrative Order on Consent; and

(8) on an emergency basis, or while abatement plan approval is pending, or in a manner that will result in compliance with the standards and requirements set forth in Section 20.6.2.4103 NMAC within one hundred and eighty (180) days after notice is required to be given pursuant to Paragraph (1) of Subsection A of Section 20.6.2.1203 NMAC, provided that the delegated agency does not object to the abatement action pursuant to Paragraphs (6) and (7) of Subsection A of Section 20.6.2.1203 NMAC.

B. If the secretary determines that abatement of water pollution subject to Subsection A of this section will not meet the standards of Subsections B and C of Section 20.6.2.4103 NMAC, or that additional action is necessary to protect health, welfare, environment or property, the secretary may notify a responsible person, by certified mail, to submit an abatement plan pursuant to Section 20.6.2.4104 and Subsection A of Section 20.6.2.4106 NMAC. The notification shall state the reasons for the secretary's determination. In any appeal of the secretary's determination under this Section, the secretary shall have the burden of proof.

C. Sections 20.6.2.4104 and 20.6.2.4106 NMAC do not apply to the following activities:

(1) Discharges subject to an effective and enforceable National Pollutant Discharge Elimination System (NPDES) permit;

(2) Land application of ground water contaminated with nitrogen originating from human or animal waste and not otherwise exceeding the standards of Subsection A of Section 20.6.2.3103 NMAC and not containing a toxic pollutant as defined in Section 20.6.2.1101 NMAC, provided that it is done in compliance with a discharge plan approved by the secretary;

(3) Abatement of water pollution resulting from the withdrawal and decontamination or blending of polluted water for use as a public or private drinking-water supply, by any person other than a responsible person, unless the secretary determines that a hazard to public health may result; and

(4) Reasonable operation and maintenance of irrigation and flood control facilities.
[12-1-95; 20.6.2.4105 NMAC - Rn, 20 NMAC 6.2.IV.4105, 1-15-01; A, 10/15/03]

20.6.2.4106 ABATEMENT PLAN PROPOSAL:

A. Except as provided for in Section 20.6.2.4105 NMAC, a responsible person shall, within sixty (60) days of receipt of written notice from the secretary that an abatement plan is required, submit an abatement plan proposal to the secretary for approval. For good cause shown, the secretary may allow for a total of one hundred and twenty (120) days to prepare and submit the abatement plan proposal.

B. Voluntary Abatement:

(1) Any person wishing to abate water pollution in excess of the standards and requirements set forth in Section 20.6.2.4103 NMAC may submit a Stage 1 abatement plan proposal to the secretary for approval. Following approval by the secretary of a final site investigation report prepared pursuant to Stage 1 of an abatement plan, any person may submit a Stage 2 abatement plan proposal to the secretary for approval.

(2) Following approval of a Stage 1 or Stage 2 abatement plan proposal under Paragraph (1) of Subsection B of this Section, the person submitting the approved plan shall be a responsible person under Sections 20.6.2.4000 through 20.6.2.4115 NMAC for the purpose of performing the approved Stage 1 or Stage 2 abatement plan. Nothing in this Section shall preclude the secretary from applying Paragraph (9) of Subsection A of Section 20.6.2.1203 NMAC to a responsible person if applicable.

C. Stage 1 Abatement Plan: The purpose of Stage 1 of the abatement plan shall be to design and conduct a site investigation that will adequately define site conditions, and provide the data necessary to select and design an effective abatement option. Stage 1 of the abatement plan may include, but not necessarily be limited to, the following information depending on the media affected, and as needed to select and implement an expeditious abatement option:

(1) Descriptions of the site, including a site map, and of site history including the nature of the discharge that caused the water pollution, and a summary of previous investigations;

(2) Site investigation workplan to define:

(a) site geology and hydrogeology, the vertical and horizontal extent and magnitude of vadose-zone and ground-water contamination, subsurface hydraulic parameters including hydraulic conductivity, transmissivity, storativity, and rate and direction of contaminant migration, inventory of water wells inside and within one (1) mile from the perimeter of the three-dimensional body where the standards set forth in Subsection B of Section 20.6.2.4103 NMAC are exceeded, and location and number of such wells actually or potentially affected by the pollution; and

(b) surface-water hydrology, seasonal stream flow characteristics, ground-water/surface-water relationships, the vertical and horizontal extent and magnitude of contamination and impacts to surface water and stream sediments. The magnitude of contamination and impacts on surface water may be, in part, defined by conducting a biological assessment of fish, benthic macroinvertebrates and other wildlife populations. Seasonal variations should be accounted for when conducting these assessments.

(3) Monitoring program, including sampling stations and frequencies, for the duration of the abatement plan that may be modified, after approval by the secretary, as additional sampling stations are created;

(4) Quality assurance plan, consistent with the sampling and analytical techniques listed in Subsection B of Section 20.6.2.3107 NMAC and with Section 20.6.4.10 NMAC of the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20.6.4 NMAC), for all work to be conducted pursuant to the abatement plan;

(5) Site health and safety plan for all work to be performed pursuant to the abatement plan;

(6) A schedule for all Stage 1 abatement plan activities, including the submission of summary quarterly progress reports, and the submission, for approval by the secretary, of a detailed final site investigation report; and

(7) Any additional information that may be required to design and perform an adequate site investigation.

D. Stage 2 Abatement Plan: Any responsible person shall submit a Stage 2 abatement plan proposal to the secretary for approval within sixty (60) days, or up to one hundred and twenty (120) days for good cause shown, after approval by the secretary of the final site investigation report prepared pursuant to Stage 1 of the abatement plan.

E. The purpose of Stage 2 of the abatement plan shall be to select and design, if necessary, an abatement option that, when implemented, will result in attainment of the abatement standards and requirements set

forth in Section 20.6.2.4103 NMAC, including post-closure maintenance activities. Stage 2 of the abatement plan should include, at a minimum, the following information:

(1) Brief description of the current situation at the site;

(2) Development and assessment of abatement options;

(3) Description, justification and design, if necessary, of preferred abatement option;

(4) Modification, if necessary, of the monitoring program approved pursuant to Stage 1 of the abatement plan, including the designation of pre and post abatement-completion sampling stations and sampling frequencies to be used to demonstrate compliance with the standards and requirements set forth in Section 20.6.2.4103 NMAC;

(5) Site maintenance activities, if needed, proposed to be performed after termination of abatement activities;

(6) A schedule for the duration of abatement activities, including the submission of summary quarterly progress reports;

(7) A public notification proposal designed to satisfy the requirements of Subsections B and C of Sections 20.6.2.4108 and 20.6.2.4108 NMAC; and

(8) Any additional information that may be reasonably required to select, describe, justify and design an effective abatement option.

[12-1-95; 20.6.2.4106 NMAC - Rn, 20 NMAC 6.2.IV.4106, 1-15-01]

20.6.2.4107 OTHER REQUIREMENTS:

A. Any responsible person shall allow any authorized representative of the secretary to:

(1) upon presentation of proper credentials, enter the facility at reasonable times;

(2) inspect and copy records required by an abatement plan;

(3) inspect any treatment works, monitoring and analytical equipment;

(4) sample any wastes, ground water, surface water, stream sediment, plants, animals, or vadose-zone material including vadose-zone vapor;

(5) use monitoring systems and wells under such responsible person's control in order to collect samples of any media listed in Paragraph (4) of Subsection A of this section; and

(6) gain access to off-site property not owned or controlled by such responsible person, but accessible to such responsible person through a third-party access agreement, provided that it is allowed by the agreement.

B. Any responsible person shall provide the secretary, or a representative of the secretary, with at least four (4) working days advance notice of any sampling to be performed pursuant to an abatement plan, or any well plugging, abandonment or destruction at any facility where an abatement plan has been required.

C. Any responsible person wishing to plug, abandon or destroy a monitoring or water supply well within the perimeter of the 3-dimensional body where the standards set forth in Subsection B of Section 20.6.2.4103 NMAC are exceeded, at any facility where an abatement plan has been required, shall propose such action by certified mail to the secretary for approval, unless such approval is required from the State Engineer. The proposed action shall be designed to prevent water pollution that could result from water contaminants migrating through the well or borehole. The proposed action shall not take place without written approval from the secretary, unless written approval or disapproval is not received by the responsible person within thirty (30) days of the date of receipt of the proposal.

[12-1-95; 20.6.2.4107 NMAC - Rn, 20 NMAC 6.2.IV.4107, 1-15-01]

20.6.2.4108 PUBLIC NOTICE AND PARTICIPATION:

A. Within thirty (30) days of filing of a Stage 1 abatement plan proposal, the secretary shall issue a news release summarizing:

(1) the source, extent, magnitude and significance of water pollution, as known at that time;

(2) the proposed Stage 1 abatement plan investigation; and

(3) the name and telephone number of an agency contact who can provide additional information.

B. Within thirty (30) days of filing of a Stage 2 abatement plan proposal, or proposed significant modification of Stage 2 of the abatement plan, any responsible person shall provide to the secretary proof of public notice of the abatement plan to the following persons:

(1) the public, who shall be notified through publication of a notice in newspapers of general circulation in this state and in the county where the abatement will occur and, in areas with large percentages of non-

English speaking people, through the mailing of the public notice in English to a bilingual radio station serving the area where the abatement will occur with a request that it be aired as a public service announcement in the predominant non-English language of the area;

(2) those persons, as identified by the secretary, who have requested notification, who shall be notified by mail;

(3) the New Mexico Trustee for Natural Resources, and any other local, state or federal governmental agency affected, as identified by the secretary, which shall be notified by certified mail;

(4) owners and residents of surface property located inside, and within one (1) mile from, the perimeter of the geographic area where the standards and requirements set forth in Section 20.6.2.4103 NMAC are exceeded who shall be notified by a means approved by the secretary; and

(5) the Governor or President of each Indian Tribe, Pueblo or Nation within the state of New Mexico, as identified by the secretary, who shall be notified by mail.

C. The public notice shall include, as approved in advance by the secretary:

(1) name and address of the responsible person;

(2) location of the proposed abatement;

(3) brief description of the nature of the water pollution and of the proposed abatement action;

(4) brief description of the procedures followed by the secretary in making a final determination;

(5) statement on the comment period;

(6) statement that a copy of the abatement plan can be viewed by the public at the department's main office or at the department field office for the area in which the discharge occurred;

(7) statement that written comments on the abatement plan, and requests for a public meeting or hearing that include the reasons why a meeting or hearing should be held, will be accepted for consideration if sent to the secretary within sixty (60) days after the determination of administrative completeness; and

(8) address and phone number at which interested persons may obtain further information.

D. A public meeting or hearing may be held if the secretary determines there is significant public interest. Notice of the time and place of the meeting or hearing shall be given at least thirty (30) days prior to the meeting or hearing pursuant to Subsections A and B above. The secretary may appoint a meeting facilitator or hearing officer. The secretary may require the responsible person to prepare for approval by the secretary a fact sheet, to be distributed at the public meeting or hearing and afterwards upon request, written in English and Spanish, describing site history, the nature and extent of water pollution, and the proposed abatement. The record of the meeting or hearing, requested under this Section, consists of a tape recorded or transcribed session, provided that the cost of a court recorder shall be paid by the person requesting the transcript. If requested by the secretary, the responsible person will provide a translator approved by the secretary at a public meeting or hearing conducted in a locale where testimony from non-English speaking people can reasonably be expected. At the meeting or hearing, all interested persons shall be given a reasonable chance to submit data, views or arguments orally or in writing, and to ask questions of the secretary or the secretary's designee and of the responsible person, or their authorized representatives.

[12-1-95; 20.6.2.4108 NMAC - Rn, 20 NMAC 6.2.IV.4108, 1-15-01]

20.6.2.4109 SECRETARY APPROVAL OR NOTICE OF DEFICIENCY OF SUBMITTALS:

A. The secretary shall, within sixty (60) days of receiving a Stage 1 abatement plan proposal, a site investigation report, a technical infeasibility demonstration, or an abatement completion report, approve the document, or notify the responsible person of the document's deficiency, based upon the information available.

B. The secretary shall, within thirty (30) days of receiving a fact sheet, approve or notify the responsible person of the document's deficiency, based upon the information available.

C. If no public meeting or hearing is held pursuant to Subsection D of Section 20.6.2.4108 NMAC, then the secretary shall, within ninety (90) days of receiving a Stage 2 abatement plan proposal, approve the plan, or notify the responsible person of the plan's deficiency, based upon the information available.

D. If a public meeting or hearing is held pursuant to Subsection D of Section 20.6.2.4108, then the secretary shall, within sixty (60) days of receipt of all required information, approve Stage 2 of the abatement plan proposal, or notify the responsible person of the plan's deficiency, based upon the information contained in the plan and information submitted at the meeting or hearing.

E. If the secretary notifies a responsible person of any deficiencies in a site investigation report, or in a Stage 1 or Stage 2 abatement plan proposal, the responsible person shall submit a modified document to cure the

deficiencies specified by the secretary within thirty (30) days of receipt of the notice of deficiency. The responsible person shall be in violation of Sections 20.6.2.4000 through 20.6.2.4115 NMAC if he fails to submit a modified document within the required time, or if the modified document does not make a good faith effort to cure the deficiencies specified by the secretary.

F. Provided that the other requirements of this Part are met and provided further that Stage 2 of the abatement plan, if implemented, will result in the standards and requirements set forth in Section 20.6.2.4103 NMAC being met within a schedule that is reasonable given the particular circumstances of the site, the secretary shall approve the plan.

[12-1-95; 20.6.2.4109 NMAC - Rn, 20 NMAC 6.2.IV.4109, 1-15-01]

20.6.2.4110 INVESTIGATION AND ABATEMENT: Any responsible person who receives approval for Stage 1 and/or Stage 2 of an abatement plan shall conduct all investigation, abatement, monitoring and reporting activity in full compliance with Sections 20.6.2.4000 through 20.6.2.4115 NMAC and according to the terms and schedules contained in the approved abatement plans.

[12-1-95; 20.6.2.4110 NMAC - Rn, 20 NMAC 6.2.IV.4110, 1-15-01]

20.6.2.4111 ABATEMENT PLAN MODIFICATION:

A. Any approved abatement plan may be modified, at the written request of the responsible person, in accordance with Sections 20.6.2.4000 through 20.6.2.4115 NMAC, and with written approval of the secretary.

B. If data submitted pursuant to any monitoring requirements specified in the approved abatement plan or other information available to the secretary indicates that the abatement action is ineffective, or is creating unreasonable injury to or interference with health, welfare, environment or property, the secretary may require a responsible person to modify an abatement plan within the shortest reasonable time so as to effectively abate water pollution which exceeds the standards and requirements set forth in Section 20.6.2.4103 NMAC, and to abate and prevent unreasonable injury to or interference with health, welfare, environment or property.

[12-1-95; 20.6.2.4111 NMAC - Rn, 20 NMAC 6.2.IV.4111, 1-15-01]

20.6.2.4112 COMPLETION AND TERMINATION:

A. Abatement shall be considered complete when the standards and requirements set forth in Section 20.6.2.4103 NMAC are met. At that time, the responsible person shall submit an abatement completion report, documenting compliance with the standards and requirements set forth in Section 20.6.2.4103 NMAC, to the secretary for approval. The abatement completion report also shall propose any changes to long term monitoring and site maintenance activities, if needed, to be performed after termination of the abatement plan.

B. Provided that the other requirements of this Part are met and provided further that the standards and requirements set forth in Section 20.6.2.4103 NMAC have been met, the secretary shall approve the abatement completion report. When the secretary approves the abatement completion report, he shall also notify the responsible person in writing that the abatement plan is terminated.

[12-1-95; 20.6.2.4112 NMAC - Rn, 20 NMAC 6.2.IV.4112, 1-15-01]

20.6.2.4113 DISPUTE RESOLUTION: In the event of any technical dispute regarding the requirements of Paragraph (9) of Subsection A and Subsection E of Section 20.6.2.1203, Sections 20.6.2.4103, 20.6.2.4105, 20.6.2.4106, 20.6.2.4111 or 20.6.2.4112 NMAC, including notices of deficiency, the responsible person may notify the secretary by certified mail that a dispute has arisen, and desires to invoke the dispute resolution provisions of this Section, provided that such notification must be made within thirty (30) days after receipt by the responsible person of the decision of the secretary that causes the dispute. Upon such notification, all deadlines affected by the technical dispute shall be extended for a thirty (30) day negotiation period, or for a maximum of sixty (60) days if approved by the secretary for good cause shown. During this negotiation period, the secretary or his/her designee and the responsible person shall meet at least once. Such meeting(s) may be facilitated by a mutually agreed upon third party, but the third party shall assume no power or authority granted or delegated to the secretary by the Water Quality Act or by the commission. If the dispute remains unresolved after the negotiation period, the decision of secretary shall be final.

[12-1-95; 20.6.2.4113 NMAC - Rn, 20 NMAC 6.2.IV.4113, 1-15-01]

20.6.2.4114 APPEALS FROM SECRETARY'S DECISIONS:

A. If the secretary determines that an abatement plan is required pursuant to Paragraph (9) of Subsection A of 20.6.2.1203, Paragraph (4) of Subsection E of 20.6.2.3109, or Subsection B of 20.6.2.4105 NMAC,

approves or provides notice of deficiency of a proposed abatement plan, technical infeasibility demonstration or abatement completion report, or modifies or terminates an approved abatement plan, he shall provide written notice of such action by certified mail to the responsible person and any person who participated in the action.

B. Any person who participated in the action before the secretary and who is adversely affected by the action listed in Subsection A of 20.6.2.4114 NMAC may file a petition requesting a review before the commission.

C. The petition shall be made in writing to the commission and shall be filed with the commission's secretary within thirty (30) days after receiving notice of the secretary's action. The petition shall specify the portions of the action to which the petitioner objects, certify that a copy of the petition has been mailed or hand-delivered to the secretary, and to the applicant or permittee if the petitioner is not the applicant or permittee, and attach a copy of the action for which review is sought. Unless a timely petition for hearing is made, the secretary's action is final.

D. The proceedings before the commission shall be conducted as provided in the commission's adjudicatory procedures, 20 NMAC 1.3.

E. The cost of the court reporter for the hearing shall be paid by the petitioner.

F. The appeal provisions do not relieve the owner, operator or responsible person of their obligations to comply with any federal or state laws or regulations.

[12-1-95, 11-15-96; 20.6.2.4114 NMAC - Rn, 20 NMAC 6.2.IV.4114, 1-15-01; A, 7-16-06]

20.6.2.4115 COURT REVIEW OF COMMISSION DECISIONS: Court review of commission decisions shall be as provided by law.

[12-1-95; 20.6.2.4115 NMAC - Rn, 20 NMAC 6.2.IV.4115, 1-15-01]

20.6.2.4116 - 20.6.2.4999: [RESERVED]

[12-1-95; 20.6.2.4116 - 20.6.2.4999 NMAC - Rn, 20 NMAC 6.2.IV.4116-5100, 1-15-01]

20.6.2.5000 UNDERGROUND INJECTION CONTROL:

[12-1-95; 20.6.2.5000 NMAC - Rn, 20 NMAC 6.2.V, 1-15-01]

20.6.2.5001 PURPOSE: The purpose of 20.6.2.5000 through 20.6.2.5399 NMAC controlling discharges from underground injection control wells is to protect all ground water of the state of New Mexico which has an existing concentration of 10,000 mg/l or less TDS, for present and potential future use as domestic and agricultural water supply, and to protect those segments of surface waters which are gaining because of ground water inflow for uses designated in the New Mexico water quality standards. 20.6.2.5000 through 20.6.2.5399 NMAC include notification requirements, and requirements for discharges directly into the subsurface through underground injection control wells.

[20.6.2.5001 NMAC - N, 12-1-01; A, 8-31-15]

20.6.2.5002 UNDERGROUND INJECTION CONTROL WELL CLASSIFICATIONS:

A. Underground injection control wells include the following.

(1) Any dug hole or well that is deeper than its largest surface dimension, where the principal function of the hole is emplacement of fluids.

(2) Any septic tank or cesspool used by generators of hazardous waste, or by owners or operators of hazardous waste management facilities, to dispose of fluids containing hazardous waste.

(3) Any subsurface distribution system, cesspool or other well which is used for the injection of wastes.

B. Underground injection control wells are classified as follows:

(1) Class I wells inject fluids beneath the lowermost formation that contains 10,000 milligrams per liter or less TDS. Class I hazardous or radioactive waste injection wells inject fluids containing any hazardous or radioactive waste as defined in 74-4-3 and 74-4A-4 NMSA 1978 or 20.4.1.200 NMAC (incorporating 40 C.F.R. Section 261.3), including any combination of these wastes. Class I non-hazardous waste injection wells inject non-hazardous and non-radioactive fluids, and they inject naturally-occurring radioactive material (NORM) as provided by 20.3.1.1407 NMAC.

(2) Class II wells inject fluids associated with oil and gas recovery;

(3) Class III wells inject fluids for extraction of minerals or other natural resources, including sulfur, uranium, metals, salts or potash by in situ extraction. This classification includes only in situ production

from ore bodies that have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.

(4) Class IV wells inject fluids containing any radioactive or hazardous waste as defined in 74-4-3 and 74-4A-4 NMSA 1978, including any combination of these wastes, above or into a formation that contains 10,000 mg/l or less TDS.

(5) Class V wells inject a variety of fluids and are those wells not included in Class I, II, III or IV. Types of Class V wells include, but are not limited to, the following:

(a) domestic liquid waste injection wells:

(i) domestic liquid waste disposal wells used to inject liquid waste volumes greater than that regulated by 20.7.3 NMAC through subsurface fluid distribution systems or vertical wells;

(ii) septic system wells used to emplace liquid waste volumes greater than that regulated by 20.7.3 NMAC into the subsurface, which are comprised of a septic tank and subsurface fluid distribution system;

(iii) large capacity cesspools used to inject liquid waste volumes greater than that regulated by 20.7.3 NMAC, including drywells that sometimes have an open bottom or perforated sides;

(b) industrial waste injection wells:

(i) air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling;

(ii) dry wells used for the injection of wastes into a subsurface formation;

(iii) geothermal energy injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electrical power;

(iv) stormwater drainage wells used to inject storm runoff from the surface into the subsurface;

(v) motor vehicle waste disposal wells that receive or have received fluids from vehicular repair or maintenance activities;

(vi) car wash waste disposal wells used to inject fluids from motor vehicle washing activities;

(c) mining injection wells:

(i) stopes leaching wells used for solution mining of conventional mines;

(ii) brine injection wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts;

(iii) backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines whether water injected is a radioactive waste or not;

(iv) injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale;

(d) ground water management injection wells:

(i) ground water remediation injection wells used to inject contaminated ground water that has been treated to ground water quality standards;

(ii) in situ ground water remediation wells used to inject a fluid that facilitates vadose zone or ground water remediation.

(iii) recharge wells used to replenish the water in an aquifer, including use to reclaim or improve the quality of existing ground water;

(iv) barrier wells used to inject fluids into ground water to prevent the intrusion of saline or contaminated water into ground water of better quality;

(v) subsidence control wells (not used for purposes of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water;

(vi) wells used in experimental technologies;

(e) agricultural injection wells - drainage wells used to inject fluids into ground water to prevent the intrusion of saline or contaminated water into ground water of better quality.

[20.6.2.5002 NMAC - N, 12-1-01; A, 8-1-14; A, 8-31-15]

20.6.2.5003 NOTIFICATION AND GENERAL OPERATION REQUIREMENTS FOR ALL UNDERGROUND INJECTION CONTROL WELLS: All operators of underground injection control wells, except those wells regulated under the Oil and Gas Act, the Geothermal Resources Conservation Act, and the Surface Mining Act, shall:

A. for existing underground injection control wells, submit to the secretary the information enumerated in Subsection C of 20.6.2.1201 NMAC of this part; provided, however, that if the information in Subsection C of 20.6.2.1201 NMAC has been previously submitted to the secretary and acknowledged by him, the information need not be resubmitted; and

B. operate and continue to operate in conformance with 20.6.2.1 through 20.6.2.5399 NMAC;

C. for new underground injection control wells, submit to the secretary the information enumerated in Subsection C of 20.6.2.1201 NMAC of this part at least 120 days prior to well construction.

[9-20-82, 12-1-95; 20.6.2.5300 NMAC - Rn, 20 NMAC 6.2.V.5300, 1-15-01; 20.6.2.5003 NMAC - Rn, 20.6.2.5300 NMAC, 12-1-01; A, 12-1-01; A, 9-15-02; A, 8-31-15]

20.6.2.5004 PROHIBITED UNDERGROUND INJECTION CONTROL ACTIVITIES AND WELLS:

A. No person shall perform the following underground injection activities nor operate the following underground injection control wells.

(1) The injection of fluids into a motor vehicle waste disposal well is prohibited. Motor vehicle waste disposal wells are prohibited. Any person operating a new motor vehicle waste disposal well (for which construction began after April 5, 2000) must close the well immediately. Any person operating an existing motor vehicle waste disposal well must cease injection immediately and must close the well by December 31, 2002, except as provided in this subsection.

(2) The injection of fluids into a large capacity cesspool is prohibited. Large capacity cesspools are prohibited. Any person operating a new large capacity cesspool (for which construction began after April 5, 2000) must close the cesspool immediately. Any person operating an existing large capacity cesspool must cease injection immediately and must close the cesspool by December 31, 2002.

(3) The injection of any hazardous or radioactive waste into a well is prohibited, except as provided in 20.6.2.5300 through 20.6.2.5399 NMAC or this subsection.

(a) Class I radioactive waste injection wells are prohibited, except naturally-occurring radioactive material (NORM) regulated under 20.3.1.1407 NMAC is allowed as a Class I non-hazardous waste injection well pursuant to Paragraph (1) of Subsection B of 20.6.2.5002 NMAC.

(b) Class IV wells are prohibited, except for wells re-injecting treated ground water into the same formation from which it was drawn as part of a removal or remedial action if the injection has prior approval from the environmental protection agency (EPA) or the department under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or the Resource Conservation and Recovery Act (RCRA).

(4) Barrier wells, drainage wells, recharge wells, return flow wells, and motor vehicle waste disposal wells are prohibited, except when the discharger can demonstrate that the discharge will not adversely affect the health of persons, and

(a) the injection fluid does not contain a contaminant which may cause an exceedance at any place of present or reasonable foreseeable future use of any primary state drinking water maximum contaminant level as specified in the water supply regulations, "Drinking Water" (20.7.10 NMAC), adopted by the environmental improvement board under the Environmental Improvement Act or the standard of 20.6.2.3103 NMAC, whichever is more stringent;

(b) the discharger can demonstrate that the injection will result in an overall or net improvement in water quality as determined by the secretary.

B. Closure of prohibited underground injection control wells shall be in accordance with 20.6.2.5005 and 20.6.2.5209 NMAC.

[20.6.2.5004 NMAC - N, 12-1-01; A, 8-31-15]

20.6.2.5005 PRE-CLOSURE NOTIFICATION AND CLOSURE REQUIREMENTS:

A. Any person proposing to close a Class I, III, IV or V underground injection control well must submit pre-closure notification to the department at least 30 days prior to closure. Pre-closure notification must include the following information:

(1) Name of facility.

(2) Address of facility.

(3) Name of Owner/Operator.

(4) Address of Owner/Operator.

(5) Contact Person.

(6) Phone Number.

(7) Type of Well(s).
(8) Number of Well(s).
(9) Well Construction (e.g. drywell, improved sinkhole, septic tank, leachfield, cesspool, other...).
(10) Type of Discharge.
(11) Average Flow (gallons per day).
(12) Year of Well Construction.
(13) Proposed Well Closure Activities (e.g. sample fluids/sediment, appropriate disposal of remaining fluids/sediments, remove well and any contaminated soil, clean out well, install permanent plug, conversion to other type well, ground water and vadose zone investigation, other).
(14) Proposed Date of Well Closure.
(15) Name of Preparer.
(16) Date.

B. Proposed well closure activities must be approved by the department prior to implementation.
[20.6.2.5005 NMAC - N, 12-1-01]

20.6.2.5006 DISCHARGE PERMIT REQUIREMENTS FOR CLASS V INJECTION WELLS: Class V injection wells must meet the requirements of Sections 20.6.2.3000 through 20.6.2.3999 NMAC and Sections 20.6.2.5000 through 20.6.2.5006 NMAC.
[20.6.2.5006 NMAC - N, 12-1-01]

20.6.2.5007 - 20.6.2.5100: [RESERVED]
[12-1-95; 20.6.2.5001 - 20.6.2.5100 NMAC - Rn, 20 NMAC 6.2.IV.4116-5100, 1-15-01; 20.6.2.5007 -20.6.2.5100 NMAC - Rn 20.6.2.5001 - 20.6.2.5100 NMAC, 12-1-01]

20.6.2.5101 DISCHARGE PERMIT AND OTHER REQUIREMENTS FOR CLASS I WELLS AND CLASS III WELLS:

A. Class I wells and Class III wells must meet the requirements of 20.6.2.5000 through 20.6.2.5399 NMAC in addition to other applicable requirements of the commission regulations. The secretary may also require that some Class IV and Class V wells comply with the requirements for Class I wells in 20.6.2.5000 through 20.6.2.5399 NMAC if the secretary determines that the additional requirements are necessary to prevent the movement of water contaminants from a specified injection zone into ground water having 10,000 mg/l or less TDS. No Class I well or Class III well may be approved which allows for movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to 20.6.2.5103 NMAC, or pursuant to a temporary designation as provided in Paragraph (2) of Subsection C of 20.6.2.5101 NMAC.

B. Operation of a Class I well or Class III well must be pursuant to a discharge permit meeting the requirements of 20.6.2.3000 through 20.6.2.3999 NMAC and 20.6.2.5000 through 20.6.2.5399 NMAC.

C. Discharge permits for Class I wells, or Class III wells affecting ground water of 10,000 mg/l or less TDS submitted for secretary approval shall:

(1) receive an aquifer designation if required in 20.6.2.5103 NMAC prior to discharge permit issuance; or

(2) for Class III wells only, address the methods or techniques to be used to restore ground water so that upon final termination of operations including restoration efforts, ground water at any place of withdrawal for present or reasonably foreseeable future use will not contain either concentrations in excess of the standards of 20.6.2.3103 NMAC or any toxic pollutant; issuance of a discharge permit or project discharge permit for Class III wells that provides for restoration of ground water in accordance with the requirements of this subsection shall substitute for the aquifer designation provisions of 20.6.2.5103 NMAC; the approval shall constitute a temporary aquifer designation for a mineral bearing or producing aquifer, or portion thereof, to allow injection as provided for in the discharge permit; such temporary designation shall expire upon final termination of operations including restoration efforts.

D. The exemptions from the discharge permit requirement listed in 20.6.2.3105 NMAC do not apply to underground injection control wells except as provided below:

(1) wells regulated by the oil conservation division under the exclusive authority granted under Section 70-2-12 NMSA 1978 or under other sections of the "Oil and Gas Act";

(2) wells regulated by the oil conservation division under the "Geothermal Resources Act";

(3) wells regulated by the New Mexico coal surface mining bureau under the "Surface Mining Act";

(4) wells for the disposal of effluent from systems which are regulated under the "Liquid Waste Disposal and Treatment" regulations (20.7.3 NMAC) adopted by the environmental improvement board under the "Environmental Improvement Act".

E. Project permits for Class III wells.

(1) The secretary may consider a project discharge permit for Class III wells, if the wells are:

(a) within the same well field, facility site or similar unit;

(b) within the same aquifer and ore deposit;

(c) of similar construction;

(d) of the same purpose; and

(e) operated by a single owner or operator.

(2) A project discharge permit does not allow the discharger to commence injection in any individual operational area until the secretary approves an application for injection in that operational area (operational area approval).

(3) A project discharge permit shall:

(a) specify the approximate locations and number of wells for which operational area approvals are or will be sought with approximate time frames for operation and restoration (if restoration is required) of each area; and

(b) provide the information required under the following sections of this part, except for such additional site-specific information as needed to evaluate applications for individual operational area approvals: Subsection C of 20.6.2.3106, 20.6.2.3107, 20.6.2.5204 through 20.6.2.5209, and Subsection B of 20.6.2.5210 NMAC.

(4) Applications for individual operational area approval shall include the following:

(a) site-specific information demonstrating that the requirements of this part are met; and

(b) information required under 20.6.2.5202 through 20.6.2.5210 NMAC and not previously provided pursuant to Subparagraph (b) of Paragraph (3) of Subsection E of this section.

(5) Applications for project discharge permits and for operational area approval shall be processed in accordance with the same procedures provided for discharge permits under 20.6.2.3000 through 20.6.2.3114 NMAC, allowing for public notice on the project discharge permit and on each application for operational area approval pursuant to 20.6.2.3108 NMAC with opportunity for public hearing prior to approval or disapproval.

(6) The discharger shall comply with additional requirements that may be imposed by the secretary pursuant to this part on wells in each new operational area.

F. If the holder of a discharge permit for a Class I well, or Class III well submits an application for discharge permit renewal at least 120 days before discharge permit expiration, and the discharger is in compliance with his discharge permit on the date of its expiration, then the existing discharge permit for the same activity shall not expire until the application for renewal has been approved or disapproved. An application for discharge permit renewal must include and adequately address all of the information necessary for evaluation of a new discharge permit. Previously submitted materials may be included by reference provided they are current, readily available to the secretary and sufficiently identified to be retrieved.

G. Discharge permit signatory requirements: No discharge permit for a Class I well or Class III well may be issued unless:

(1) the application for a discharge permit has been signed as follows:

(a) for a corporation: by a principal executive officer of at least the level of vice-president, or a representative who performs similar policy-making functions for the corporation who has authority to sign for the corporation; or

(b) for a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(c) for a municipality, state, federal, or other public agency: by either a principal executive officer who has authority to sign for the agency, or a ranking elected official; and

(2) all reports required by Class I hazardous waste injection well permits and other information requested by the director pursuant to a Class I hazardous waste injection well permit shall be signed by a person described in Paragraph (1) of this subsection, or by a duly authorized representative of that person; a person is a duly authorized representative only if:

(a) the authorization is made in writing by a person described in Paragraph (1) of this subsection;

(b) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility; (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and

(c) the written authorization is submitted to the director.

(3) *Changes to authorization.* If an authorization under Paragraph (2) of this subsection is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Paragraph (2) of this subsection must be submitted to the director prior to or together with any reports, information, or applications to be signed by an authorized representative.

(4) The signature on an application, report or other information requested by the director must be directly preceded by the following certification: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

H. Transfer of Class I non-hazardous waste injection well and Class III well discharge permits.

(1) The transfer provisions of 20.6.2.3111 NMAC do not apply to a discharge permit for a Class I non-hazardous waste injection well or Class III well.

(2) A Class I non-hazardous waste injection well or Class III well discharge permit may be transferred if:

(a) the secretary receives written notice 30 days prior to the transfer date; and

(b) the secretary does not object prior to the proposed transfer date; the secretary may require modification of the discharge permit as a condition of transfer, and may require demonstration of adequate financial responsibility.

(3) The written notice required by Subparagraph (a) of Paragraph (2) of Subsection H above shall:

(a) have been signed by the discharger and the succeeding discharger, including an acknowledgement that the succeeding discharger shall be responsible for compliance with the discharge permit upon taking possession of the facility; and

(b) set a specific date for transfer of discharge permit responsibility, coverage and liability; and

(c) include information relating to the succeeding discharger's financial responsibility required by Paragraph (17) of Subsection B of 20.6.2.5210 NMAC.

I. Modification or termination of a discharge permit for a Class I well or Class III well: If data submitted pursuant to any monitoring requirements specified in the discharge permit or other information available to the secretary indicate that this part are being or may be violated, the secretary may require modification or, if it is determined by the secretary that the modification may not be adequate, may terminate a discharge permit for a Class I well, or Class III well or well field, that was approved pursuant to the requirements of this under 20.6.2.5000 through 20.6.2.5399 NMAC for the following causes:

(1) noncompliance by the discharger with any condition of the discharge permit; or

(2) the discharger's failure in the discharge permit application or during the discharge permit review process to disclose fully all relevant facts, or the discharger's misrepresentation of any relevant facts at any time; or

(3) a determination that the permitted activity may cause a hazard to public health or undue risk to property and can only be regulated to acceptable levels by discharge permit modification or termination.

[9-20-82, 12-1-95, 11-15-96; 20.6.2.5101 NMAC - Rn, 20 NMAC 6.2.V.5101, 1-15-01; A, 12-1-01; A, 9-15-02; A, 8-1-14; A, 8-31-15]

20.6.2.5102 PRE-CONSTRUCTION REQUIREMENTS FOR CLASS I WELLS AND CLASS III WELLS:

A. Discharge permit requirement for Class I wells.

(1) Prior to construction of a Class I well or conversion of an existing well to a Class I well, an approved discharge permit is required that incorporates the requirements of 20.6.2.5000 through 20.6.2.5399

NMAC, except Subsection C of 20.6.2.5210 NMAC. As a condition of discharge permit issuance, the operation of the Class I well under the discharge permit will not be authorized until the secretary has:

(a) reviewed the information submitted for his consideration pursuant to Subsection C of 20.6.2.5210 NMAC; and

(b) determined that the information submitted demonstrates that the operation will be in compliance with this part and the discharge permit.

(2) If conditions encountered during construction represent a substantial change which could adversely impact ground water quality from those anticipated in the discharge permit, the secretary shall require a discharge permit modification or may terminate the discharge permit pursuant to Subsection I of 20.6.2.5101 NMAC, and the secretary shall publish public notice and allow for comments and hearing in accordance with 20.6.2.3108 NMAC.

B. Notification requirement for Class III wells.

(1) The discharger shall notify the secretary in writing prior to the commencement of drilling or construction of wells which are expected to be used for in situ extraction, unless the discharger has previously received a discharge permit or project discharge permit for the Class III well operation.

(a) Any person proposing to drill or construct a new Class III well or well field, or convert an existing well to a Class III well, shall file plans, specifications and pertinent documents regarding such construction or conversion, with the ground water quality bureau of the environment department.

(b) Plans, specifications, and pertinent documents required by this section, if pertaining to geothermal installations, carbon dioxide facilities, or facilities for the exploration, production, refinement or pipeline transmission of oil and natural gas, shall be filed instead with the oil conservation division.

(c) Plans, specifications and pertinent documents required to be filed under this section must be filed 90 days prior to the planned commencement of construction or conversion.

(d) The following plans, specifications and pertinent documents shall be provided with the notification:

(i) information required in Subsection C of 20.6.2.3106 NMAC;

(ii) a map showing the Class III wells which are to be constructed; the map must also show, in so far as is known or is reasonably available from the public records, the number, name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features, including residences and roads, that are within the expected area of review (20.6.2.5202 NMAC) of the Class III well or well field perimeter;

(iii) maps and cross-sections indicating the general vertical and lateral limits of all ground water having 10,000 mg/l or less TDS within one mile of the site, the position of such ground water within this area relative to the injection formation, and the direction of water movement, where known, in each zone of ground water which may be affected by the proposed injection operation;

(iv) maps and cross-sections detailing the geology and geologic structure of the local area, including faults, if known or suspected;

(v) the proposed formation testing program to obtain an analysis or description, whichever the secretary requires, of the chemical, physical, and radiological characteristics of, and other information on, the receiving formation;

(vi) the proposed stimulation program;

(vii) the proposed injection procedure;

(viii) schematic or other appropriate drawings of the surface and subsurface construction details of the well;

(ix) proposed construction procedures, including a cementing and casing program, logging procedures, deviation checks, and a drilling, testing, and coring program;

(x) information, as described in Paragraph (17) of Subsection B of 20.6.2.5210 NMAC, showing the ability of the discharger to undertake measures necessary to prevent groundwater contamination; and

(xi) a plugging and abandonment plan showing that the requirements of Subsections B, C and D of 20.6.2.5209 NMAC will be met.

(2) Prior to construction, the discharger shall have received written notice from the secretary that the information submitted under item 10 of Subparagraph (d) of Paragraph (1) of Subsection B of 20.6.2.5102 NMAC is acceptable. Within 30 days of submission of the above information the secretary shall notify the discharger that the information submitted is acceptable or unacceptable.

(3) Prior to construction, the secretary shall review said plans, specifications and pertinent documents and shall comment upon their adequacy of design for the intended purpose and their compliance with pertinent sections of this part. Review of plans, specifications and pertinent documents shall be based on the criteria contained in 20.6.2.5205, Subsection E of 20.6.2.5209, and Subparagraph (d) of Paragraph (1) of Subsection B of 20.6.2.5102 NMAC.

(4) Within 30 days of receipt, the secretary shall issue public notice, consistent with Subsection B of 20.6.2.3108 NMAC, that notification was submitted pursuant to Subsection B of 20.6.2.5102 NMAC. The secretary shall allow a period of at least 30 days during which comments may be submitted. The public notice shall include:

(a) name and address of the proposed discharger;

(b) location of the discharge;

(c) brief description of the proposed activities;

(d) statement of the public comment period; and

(e) address and telephone number at which interested persons may obtain further information.

(5) The secretary shall comment in writing upon the plans and specifications within 60 days of their receipt by the secretary.

(6) Within 30 days after completion, the discharger shall submit written notice to the secretary that the construction or conversion was completed in accordance with submitted plans and specifications, or shall submit as-built plans detailing changes from the originally submitted plans and specifications.

(7) In the event a discharge permit application is not submitted or approved, all wells which may cause groundwater contamination shall be plugged and abandoned by the applicant pursuant to the plugging and abandonment plan submitted in the notification; these measures shall be consistent with any comments made by the secretary in his review. If the wells are not to be permanently abandoned and the discharger demonstrates that plugging at this time is unnecessary to prevent groundwater contamination, plugging pursuant to the notification is not required. Financial responsibility established pursuant to 20.6.2.5000 through 20.6.2.5299 NMAC will remain in effect until the discharger permanently abandons and plugs the wells in accordance with the plugging and abandonment plan.

[9-20-82, 12-24-87, 12-1-95; 20.6.2.5102 NMAC - Rn, 20 NMAC 6.2.V.5102, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.5103 DESIGNATED AQUIFERS FOR CLASS I WELLS AND CLASS III WELLS:

A. Any person may file a written petition with the secretary seeking commission consideration of certain aquifers or portions of aquifers as "designated aquifers". The purpose of aquifer designation is:

(1) for Class I wells, to allow as a result of injection, the addition of water contaminants into ground water, which before initiation of injection has a concentration between 5,000 and 10,000 mg/l TDS; or

(2) for Class III wells, to allow as a result of injection, the addition of water contaminants into ground water, which before initiation of injection has a concentration between 5,000 and 10,000 mg/l TDS, and not provide for restoration or complete restoration of that ground water pursuant to Paragraph (2) of Subsection C of 20.6.2.5101 NMAC.

B. The applicant shall identify (by narrative description, illustrations, maps or other means) and describe such aquifers, in geologic and geometric terms (such as vertical and lateral limits and gradient) which are clear and definite.

C. An aquifer or portion of an aquifer may be considered for aquifer designation under Subsection A of this section, if the applicant demonstrates that the following criteria are met:

(1) it is not currently used as a domestic or agricultural water supply; and

(2) there is no reasonable relationship between the economic and social costs of failure to designate and benefits to be obtained from its use as a domestic or agricultural water supply because:

(a) it is situated at a depth or location which makes recovery of water for drinking or agricultural purposes economically or technologically impractical at present and in the reasonably foreseeable future; or

(b) it is already so contaminated that it would be economically or technologically impractical to render that water fit for human consumption or agricultural use at present and in the reasonably foreseeable future.

D. The petition shall state the extent to which injection would add water contaminants to ground water and why the proposed aquifer designation should be approved. For Class III wells, the applicant shall state whether and to what extent restoration will be carried out.

E. The secretary shall either transmit the petition to the commission within 60 recommending that a public hearing be held, or refuse to transmit the petition and notify the applicant in writing citing reasons for such refusal.

F. If the secretary transmits the petition to the commission, the commission shall review the petition and determine to either grant or deny a public hearing on the petition. If the commission grants a public hearing, it shall issue a public notice, including the following information:

(1) name and address of the applicant;

(2) location, depth, TDS, areal extent, general description and common name or other identification of the aquifer for which designation is sought;

(3) nature of injection and extent to which the injection will add water contaminants to ground water; and

(4) address and telephone number at which interested persons may obtain further information.

G. If the secretary refuses to transmit the petition to the commission, then the applicant may appeal the secretary's disapproval of the proposed aquifer designation to the commission within 30 days, and address the issue of whether the proposed aquifer designation meets the criteria of Subsections A, B, C, and D of this section.

H. If the commission grants a public hearing, the hearing shall be held in accordance with the provisions of Section 74-6-6 NMSA 1978.

I. If the commission does not grant a public hearing on the petition, the aquifer designation shall not be approved.

J. After public hearing and consideration of all facts and circumstances included in Section 74-6-4(D) NMSA 1978, the commission may authorize the secretary to approve a proposed designated aquifer if the commission determines that the criteria of Subsections A, B, C, and D of this section are met.

K. Approval of a designated aquifer petition does not alleviate the applicant from complying with other sections of 20.6.2.5000 through 20.6.2.5399 NMAC, or of the responsibility for protection, pursuant to this part, of other nondesignated aquifers containing ground water having 10,000 mg/l or less TDS.

L. Persons other than the petitioner may add water contaminants as a result of injection into an aquifer designated for injection, provided the person receives a discharge permit pursuant to the requirements of 20.6.2.5000 through 20.6.2.5399 NMAC. Persons, other than the original petitioner or his designee, requesting addition of water contaminants as a result of injection into aquifers previously designated only for injection with partial restoration shall file a petition with the commission pursuant to the requirements of Subsections A, B, C, and D of this section.

[9-20-82, 12-1-95; 20.6.2.5103 NMAC - Rn, 20 NMAC 6.2.V.5103, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.5104 WAIVER OF REQUIREMENT BY SECRETARY FOR CLASS I WELLS AND CLASS III WELLS:

A. Where a Class I well or a Class III well or well field, does not penetrate, or inject into or above, and which will not affect, ground water having 10,000 mg/l of less TDS, the secretary may:

(1) issue a discharge permit for a well or well field with less stringent requirements for area of review, construction, mechanical integrity, operation, monitoring, and reporting than required by 20.6.2.5000 through 20.6.2.5399 NMAC; or

(2) for Class III wells only, issue a discharge permit pursuant to the requirements of 20.6.2.3000 through 20.6.2.3114 NMAC.

B. Authorization of a reduction in requirements under Subsection A of this section shall be granted only if injection will not result in an increased risk of movement of fluids into ground water having 10,000 mg/l or less TDS, except for fluid movement approved pursuant to 20.6.2.5103 NMAC.

[9-20-82, 12-1-95; 20.6.2.5104 NMAC - Rn & A, 20 NMAC 6.2.V.5104, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.5105 - 20.6.2.5199: [RESERVED]

[12-1-95; 20.6.2.5105 - 20.6.2.5199 NMAC - Rn, 20 NMAC 6.2.V.5105-5199, 1-15-01]

20.6.2.5200 TECHNICAL CRITERIA AND PERFORMANCE STANDARDS FOR CLASS I WELLS AND CLASS III WELLS:

[12-1-95; 20.6.2.5200 NMAC - Rn, 20 NMAC 6.2.V.5200, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.5201 PURPOSE: 20.6.2.5200 through 20.6.2.5210 NMAC provide the technical criteria and performance standards for Class I wells and Class III wells. (20.6.2.5300 through 20.6.2.5399 NMAC provide certain additional technical and performance standards for Class I hazardous waste injection wells.) [9-20-82; 20.6.2.5201 NMAC - Rn, 20 NMAC 6.2.V.5201, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.5202 AREA OF REVIEW:

A. The area of review is the area surrounding a Class I non-hazardous waste injection well or Class III well or the area within and surrounding a well field that is to be examined to identify possible fluid conduits, including the location of all known wells and fractures which may penetrate the injection zone.

B. The area of review for each Class I non-hazardous waste injection well, or each Class III well or well field shall be an area which extends:

(1) two and one half (2 1/2) miles from the well, or well field; or

(2) one-quarter (1/4) mile from a well or well field where the area of review is calculated to be zero pursuant to Paragraph (3) of Subsection B below, or where the well field production at all times exceeds injection to produce a net withdrawal; or

(3) a suitable distance, not less than one-quarter (1/4) mile, proposed by the discharger and approved by the secretary, based upon a mathematical calculation to determine the area of review; computations to determine the area of review may be based upon the parameters listed below and should be calculated for an injection time period equal to the expected life of the Class I non-hazardous waste injection well, or Class III well or well field; the following modified Theis equation illustrates one form which the mathematical model may take to compute the area of review; the discharger must demonstrate that any equation or simulation used to compute the area of review applies to the hydrogeologic conditions in the area of review.

$$r = \left(\frac{2.25\,K\,H\,t}{S\,10^{x}} \right)^{1/2}$$

Where:

$$x = \frac{4BKH\,(H_w - H_{bo}) x\, S_p G_b}{2.3\,Q}$$

r = Radius of the area of review for a Class I non-hazardous waste injection well or Class III well (length)

K = Hydraulic conductivity of the injection zone (length/time)

H = Thickness of the injection zone (length)

t = Time of injection (time)

S = Storage coefficient (dimensionless)

Q = Injection rate (volume/time)

H_{bo} = Observed original hydrostatic head of injection zone (length) measured from the base of the lowest aquifer containing ground water of 10,000 mg/l or less TDS

H_w = Hydrostatic head of underground source of drinking water (length) measured from the base of the lowest aquifer containing ground water of 10,000 mg/l or less TDS

S_pG_b = Specific gravity of fluid in the injection zone (dimensionless)

B = 3.142 (dimensionless)

(4) The above equation is based on the following assumptions:

(a) the injection zone is homogenous and isotropic;

(b) the injection zone has infinite areal extent;

(c) the Class I non-hazardous waste injection well or Class III well penetrates the entire thickness of the injection zone;

(d) the well diameter is infinitesimal compared to "r" when injection time is longer than a few minutes; and

(e) the emplacement of fluid into the injection zone creates an instantaneous increase in pressure.

C. The secretary shall require submittal by the discharger of information regarding the area of review including the information to be considered by the secretary in Subsection B of Section 20.6.2.5210 NMAC.
[9-20-82, 12-1-95; 20.6.2.5202 NMAC - Rn, 20 NMAC 6.2.V.5202, 1-15-01; A, 12-1-01]

20.6.2.5203 CORRECTIVE ACTION FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. Persons applying for approval of a Class I non-hazardous waste injection well, or a Class III well or well field shall identify the location of all known wells, drill holes, shafts, stopes and other conduits within the area of review which may penetrate the injection zone, in so far as is known or is reasonably available from the public records. For such wells or other conduits which are improperly sealed, completed, or abandoned, or otherwise provide a pathway for the migration of contaminants, the discharger shall address in the proposed discharge plan such steps or modifications (corrective action) as are necessary to prevent movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

B. Prior to operation, or continued operation of a well for which corrective action is required pursuant to Subsections A or D of Section 20.6.2.5203 NMAC, the discharger must demonstrate that:

(1) all required corrective action has been taken; or

(2) injection pressure is to be limited so that pressure in the injection zone does not cause fluid movement through any well or other conduit within the area of review into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC; this pressure limitation may be removed after all required corrective action has been taken.

C. In determining the adequacy of corrective action proposed in the discharge permit application, the following factors will be considered by the secretary:

(1) chemical nature and volume of the injected fluid;

(2) chemical nature of native fluids and by-products of injection;

(3) geology and hydrology;

(4) history of the injection and production operation;

(5) completion and plugging records;

(6) abandonment procedures in effect at the time a well, drill hole, or shaft was abandoned; and

(7) hydraulic connections with waters having 10,000 mg/l or less TDS

D. In the event that, after approval for a Class I non-hazardous waste injection well or Class III well has been granted, additional information is submitted or it is discovered that a well or other conduit within the applicable area of review might allow movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC, the secretary may require action in accordance with Subsection I of Section 20.6.2.5101 and Subsection B Section 20.6.2.5203 NMAC.
[9-20-82, 12-1-95; 20.6.2.5203 NMAC - Rn, 20 NMAC 6.2.V.5203, 1-15-01; A, 12-1-01]

20.6.2.5204 MECHANICAL INTEGRITY FOR CLASS I WELLS AND CLASS III WELLS:

A. A Class I well or Class III well has mechanical integrity if there is no detectable leak in the casing, tubing or packer which the secretary considers to be significant at maximum operating temperature and pressure; and no detectable conduit for fluid movement out of the injection zone through the well bore or vertical channels adjacent to the well bore which the secretary considers to be significant.

B. Prior to well injection and at least once every five years or more frequently as the secretary may require for good cause during the life of the well, the discharger must demonstrate that a Class I well or Class III well has mechanical integrity. The demonstration shall be made through use of the following tests:

(1) for evaluation of leaks:

(a) monitoring of annulus pressure (after an initial pressure test with liquid or gas before operation commences); or

(b) pressure test with liquid or gas;

(2) for determination of conduits for fluid movement:

(a) the results of a temperature or noise log; or

(b) where the nature of the casing used for Class III wells precludes use of these logs, cementing records and an appropriate monitoring program as the secretary may require which will demonstrate the presence of adequate cement to prevent such movement;

(3) other appropriate tests as the secretary may require.

C. The secretary may consider the use by the discharger of equivalent alternative test methods to determine mechanical integrity. The discharger shall submit information on the proposed test and all technical data supporting its use. The secretary may approve the request if it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. For Class III wells this demonstration may be made by submission of adequate monitoring data after the initial mechanical integrity tests.

D. In conducting and evaluating the tests enumerated in this section or others to be allowed by the secretary, the discharger and the secretary shall apply methods and standards generally accepted in the affected industry. When the discharger reports the results of mechanical integrity tests to the secretary, he shall include a description of the test(s), the method(s) used, and the test results. In making an evaluation, the secretary's review shall include monitoring and other test data submitted since the previous evaluation.

[9-20-82, 12-1-95; 20.6.2.5204 NMAC - Rn, 20 NMAC 6.2.V.5204, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.5205 CONSTRUCTION REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. General Construction Requirements Applicable to Class I non-hazardous waste injection wells and Class III wells.

(1) Construction of all Class I non-hazardous waste injection wells and all new Class III wells shall include casing and cementing. Prior to well injection, the discharger shall demonstrate that the construction and operation of:

(a) Class I non-hazardous waste injection wells will not cause or allow movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC;

(b) Class III wells will not cause or allow movement of fluids out of the injection zone into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

(2) The construction of each newly drilled well shall be designed for the proposed life expectancy of the well.

(3) In determining if the discharger has met the construction requirements of this section and has demonstrated adequate construction, the secretary shall consider the following factors:

(a) depth to the injection zone;

(b) injection pressure, external pressure, annular pressure, axial loading, and other stresses that may cause well failure;

(c) hole size;

(d) size and grade of all casing strings, including wall thickness, diameter, nominal weight, length, joint specification, and construction material;

(e) type and grade of cement;

(f) rate, temperature, and volume of injected fluid;

(g) chemical and physical characteristics of the injected fluid, including corrosiveness, density, and temperature;

(h) chemical and physical characteristics of the formation fluids including pressure and temperature;

(i) chemical and physical characteristics of the receiving formation and confining zones including lithology and stratigraphy, and fracture pressure; and

(j) depth, thickness and chemical characteristics of penetrated formations which may contain ground water.

(4) To demonstrate adequate construction, appropriate logs and other tests shall be conducted during the drilling and construction of new Class I non-hazardous waste injection wells or Class III wells or during work-over of existing wells in preparation for reactivation or for change to injection use. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the secretary for review prior to well injection. The logs and tests appropriate to each type of injection well shall be based on the intended function, depth, construction and other characteristics of the well, availability of similar data in the area of the drilling site and the need for additional information that may arise from time to time as the construction of the well progresses.

(a) The discharger shall demonstrate through use of sufficiently frequent deviation checks, or another equivalent method, that a Class I non-hazardous waste injection well or Class III well drilled using a pilot hole then enlarged by reaming or another method, does not allow a vertical avenue for fluid migration in the form of diverging holes created during drilling.

(b) The secretary may require use by the discharger of the following logs to assist in characterizing the formations penetrated and to demonstrate the integrity of the confining zones and the lack of vertical avenues for fluid migration:

(i) for casing intended to protect ground water having 10,000 mg/l or less TDS: resistivity, spontaneous potential, and caliper logs before the casing is installed; and a cement bond, or temperature log after the casing is set and cemented.

(ii) for intermediate and long strings of casing intended to facilitate injection: resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed; and fracture finder or spectral logs; and a cement bond or temperature log after the casing is set and cemented.

(5) In addition to the requirements of Section 20.6.2.5102 NMAC, the discharger shall provide notice prior to commencement of drilling, cementing and casing, well logging, mechanical integrity tests, and any well work-over to allow opportunity for on-site inspection by the secretary or his representative.

B. Additional construction requirements for Class I non-hazardous waste injection wells.

(1) All Class I non-hazardous waste injection wells shall be sited in such a manner that they inject into a formation which is beneath the lowermost formation containing, within one quarter mile of the well bore, ground water having 10,000 mg/l TDS or less except as approved pursuant to Section 20.6.2.5103 NMAC.

(2) All Class I non-hazardous waste injection wells shall be cased and cemented by circulating cement to the surface.

(3) All Class I non-hazardous waste injection wells, except those municipal wells injecting noncorrosive wastes, shall inject fluids through tubing with a packer set in the annulus immediately above the injection zone, or tubing with an approved fluid seal as an alternative. The tubing, packer, and fluid seal shall be designed for the expected length of service.

(a) The use of other alternatives to a packer may be allowed with the written approval of the secretary. To obtain approval, the operator shall submit a written request to the secretary which shall set forth the proposed alternative and all technical data supporting its use. The secretary may approve the request if the alternative method will reliably provide a comparable level of protection to ground water. The secretary may approve an alternative method solely for an individual well or for general use.

(b) In determining the adequacy of the specifications proposed by the discharger for tubing and packer, or a packer alternative, the secretary shall consider the following factors:

(i) depth of setting;

(ii) characteristics of injection fluid (chemical nature or characteristics, corrosiveness, and density);

(iii) injection pressure;

(iv) annular pressure;

(v) rate, temperature and volume of injected fluid; and

(vi) size of casing.

C. Additional construction requirements for Class III wells.

(1) Where injection is into a formation containing ground water having 10,000 mg/l or less TDS, monitoring wells shall be completed into the injection zone and into the first formation above the injection zone containing ground water having 10,000 mg/l or less TDS which could be affected by the extraction operation. If ground water having 10,000 mg/l or less TDS below the injection zone could be affected by the extraction operation, monitoring of such ground water may be required. These wells shall be of sufficient number, located and

constructed so as to detect any excursion of injection fluids, process byproducts, or formation fluids outside the extraction area or injection zone. The requirement for monitoring wells in aquifers designated pursuant to Section 20.6.2.5103 NMAC may be waived by the secretary, provided that the absence of monitoring wells does not result in an increased risk of movement of fluids into protected ground waters having 10,000 mg/l or less TDS.

(2) Where injection is into a formation which does not contain ground water having 10,000 mg/l or less TDS, no monitoring wells are necessary in the injection zone. However, monitoring wells may be necessary in adjoining zones with ground water having 10,000 mg/l or less TDS that could be affected by the extraction operation.

(3) In an area that the secretary determines is subject to subsidence or collapse, the required monitoring wells may be required to be located outside the physical influence of that area.

(4) In determining the adequacy of monitoring well location, number, construction and frequency of monitoring proposed by the discharger, the secretary shall consider the following factors:

(a) the local geology and hydrology;

(b) the operating pressures and whether a negative pressure gradient to the monitor well is being maintained;

(c) the nature and volume of injected fluid, formation water, and process by-products; and

(d) the number and spacing of Class III wells in the well field.

[9-20-82, 12-1-95; 20.6.2.5205 NMAC - Rn, 20 NMAC 6.2.V.5205, 1-15-01; A, 12-1-01]

20.6.2.5206 OPERATING REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. General operating requirements applicable to Class I non-hazardous waste injection wells and Class III wells.

(1) The maximum injection pressure at the wellhead shall not initiate new fractures or propagate existing fractures in the confining zone, or cause the movement of injection or formation fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

(2) Injection between the outermost casing and the well bore is prohibited in a zone other than the authorized injection zone.

B. Additional operating requirements for Class I non-hazardous waste injection wells.

(1) Except during well stimulation, the maximum injection pressure shall not initiate new fractures or propagate existing fractures in the injection zone.

(2) Unless an alternative to a packer has been approved under Subparagraph (c) of Paragraph (3) of Subsection B of Section 20.6.2.5205 NMAC, the annulus between the tubing and the long string of casing shall be filled with a fluid approved by the secretary and a pressure, also approved by the secretary shall be maintained on the annulus.

C. Additional operating requirements for Class III wells: Initiation of new fractures or propagation of existing fractures in the injection zone will not be approved by the secretary as part of a discharge permit unless it is done during well stimulation and the discharger demonstrates:

(1) that such fracturing will not cause movement of fluids out of the injection zone into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC; and

(2) that the provisions of Subsection C of Section 20.6.2.3109 and Subsection C of Section 20.6.2.5101 NMAC for protection of ground water are met.

[9-20-82, 12-1-95; 20.6.2.5206 NMAC - Rn, 20 NMAC 6.2.V.5206, 1-15-01; A, 12-1-01]

20.6.2.5207 MONITORING REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. The discharger shall demonstrate mechanical integrity for each Class I non-hazardous waste injection well or Class III well at least once every five years during the life of the well pursuant to Section 20.6.2.5204 NMAC.

B. Additional monitoring requirements for Class I non-hazardous waste injection wells.

(1) The discharger shall provide analysis of the injected fluids at least quarterly or, if necessary, more frequently to yield data representative of their characteristics.

(2) Continuous monitoring devices shall be used to provide a record of injection pressure, flow rate, flow volume, and pressure on the annulus between the tubing and the long string of casing.

(3) The discharger shall provide wells within the area of review as required by the discharge permit to be used by the discharger to monitor pressure in, and possible fluid movement into, ground water having 10,000 mg/l or less TDS except for such ground waters designated pursuant to Section 20.6.2.5103 NMAC. This Section does not require monitoring wells for Class I non-hazardous waste injection wells unless monitoring wells are necessary due to possible flow paths within the area of review.

C. Additional monitoring requirements for Class III wells.

(1) The discharger shall provide an analysis or description, whichever the secretary requires, of the injected fluids at least quarterly or, if necessary, more frequently to yield representative data.

(2) The discharger shall perform:

(a) appropriate monitoring of injected and produced fluid volumes by whichever of the following methods the secretary requires:

(i) recording injection pressure and either flow rate or volume every two weeks; or

(ii) metering and daily recording of fluid volumes;

(b) monitoring every two weeks, or more frequently as the secretary determines, of the monitor wells, required in Subsection C of Section 20.6.2.5205 NMAC for:

(i) water chemistry parameters used to detect any migration from the injection zone;

(ii) fluid levels adjacent to the injection zone; and

(c) other necessary monitoring as the secretary for good cause may require to detect movement of fluids from the injection zone into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

(3) With the approval of the secretary, all Class III wells may be monitored on a well field basis by manifold monitoring rather than on an individual well basis. Manifold monitoring to determine the quality, pressure, and flow rate of the injected fluid may be approved in cases of facilities consisting of more than one Class III well, operating with a common manifold, provided that the discharger demonstrates that manifold monitoring is comparable to individual well monitoring.

[9-20-82, 12-1-95; 20.6.2.5207 NMAC - Rn, 20 NMAC 6.2.V.5207, 1-15-01; A, 12-1-01]

20.6.2.5208 REPORTING REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. Reporting requirements for Class I non-hazardous waste injection wells.

(1) If a Class I non-hazardous waste injection well is found to be discharging or is suspected of discharging fluids into a zone or zones other than the permitted or authorized injection zone, the discharger shall within 24 hours notify the secretary of the circumstances and action taken. The discharger shall provide subsequent written reports as required by the secretary.

(2) The discharger shall provide reports quarterly to the secretary on:

(a) the physical, chemical and other relevant characteristics of injection fluids;

(b) monthly average, maximum and minimum values for injection pressure, flow rate and volume, and annular pressure; and

(c) the results of monitoring prescribed under Subsection B of Section 20.6.2.5207 NMAC.

(3) The discharger shall report, no later than the first quarterly report after completion, the results of:

(a) periodic tests of mechanical integrity as required in Sections 20.6.2.5204 and 20.6.2.5207 NMAC;

(b) any other test of the Class I non-hazardous waste injection well conducted by the discharger if required by the secretary;

(c) any well work-over; and

(d) any changes within the area of review which might impact subsurface conditions.

B. Reporting requirements for Class III wells.

(1) The discharger shall notify the secretary within 48 hours of the detection or suspected detection of a leachate excursion, and provide subsequent reports as required by the secretary.

(2) The discharger shall provide to the secretary:

(a) reports on required monitoring quarterly, or more frequently as required by the secretary; and

(b) results of mechanical integrity testing as required in Sections 20.6.2.5204 and 20.6.2.5207 NMAC and any other periodic tests required by the secretary; these results are to be reported no later than the first regular report after the completion of the test.

(3) Where manifold monitoring is permitted, monitoring results may be reported on a well field basis, rather than individual well basis.

C. Report signatory requirements.

(1) All reports submitted pursuant to this sction shall be signed and certified as provided in Subsection G of Section 20.6.2.5101 NMAC, or by a duly authorized representative.

(2) For a person to be a duly authorized representative, authorization must:

(a) be made in writing by a signatory described in Paragraph (1) of Subsection G of Section 20.6.2.5101 NMAC;

(b) specify either an individual or a position having responsibility for the overall operation of that regulated facility or activity, such as the position of plant manager, operator of a well or well field, superintendent, or position of equivalent responsibility; and

(c) have been submitted to the secretary.

[9-20-82, 12-1-95; 20.6.2.5208 NMAC - Rn, 20 NMAC 6.2.V.5208, 1-15-01; A, 12-1-01]

20.6.2.5209 PLUGGING AND ABANDONMENT FOR CLASS I WELLS AND CLASS III WELLS:

A. The discharger shall submit as part of the discharge permit application, a plan for plugging and abandonment of a Class I well or a Class III well that meets the requirements of Subsection C of 20.6.2.3109, Subsection C of 20.6.2.5101, and 20.6.2.5005 NMAC for protection of ground water. If requested, a revised or updated abandonment plan shall be submitted for approval prior to closure. The obligation to implement the plugging and abandonment plan as well as the requirements of the plan survives the termination or expiration of the permit.

B. Prior to abandonment of a well used in a Class I well or Class III well operation, the well shall be plugged in a manner which will not allow the movement of fluids through the well bore out of the injection zone or between other zones of ground water. Cement plugs shall be used unless a comparable method has been approved by the secretary for the plugging of Class III wells at that site.

C. Prior to placement of the plugs, the well to be abandoned shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or by a comparable method approved by the secretary.

D. Placement of the plugs shall be accomplished by one of the following:

(1) the balance method; or

(2) the dump bailer method; or

(3) the two-plug method; or

(4) an equivalent method with the approval of the secretary.

E. The following shall be considered by the secretary in determining the adequacy of a plugging and abandonment plan:

(1) the type and number of plugs to be used;

(2) the placement of each plug, including the elevation of the top and bottom;

(3) the type, grade and quantity of cementing slurry to be used;

(4) the method of placement of the plugs;

(5) the procedure to be used to plug and abandon the well; and

(6) such other factors that may affect the adequacy of the plan.

F. The discharger shall retain all records concerning the nature and composition of injected fluids until five years after completion of any plugging and abandonment procedures.

[9-20-82, 12-1-95; 20.6.2.5209 NMAC - Rn, 20 NMAC 6.2.V.5209, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.5210 INFORMATION TO BE CONSIDERED BY THE SECRETARY FOR CLASS I WELLS AND CLASS III WELLS:

A. This section sets forth the information to be considered by the secretary in authorizing construction and use of a Class I well or Class III well or well field. Certain maps, cross-sections, tabulations of all

wells within the area of review, and other data may be included in the discharge permit application submittal by reference provided they are current, readily available to the secretary and sufficiently identified to be retrieved.

B. Prior to the issuance of a discharge permit or project discharge permit allowing construction of a new Class I well, operation of an existing Class I well, or operation of a new or existing Class III well or well field, or conversion of any well to injection use, the secretary shall consider the following:

(1) information required in Subsection C of 20.6.2.3106 NMAC;

(2) a map showing the Class I well, or Class III well or well fields, for which approval is sought and the applicable area of review; within the area of review, the map must show, in so far as is known or is reasonably available from the public records, the number, name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features, including residences and roads;

(3) a tabulation of data on all wells within the area of review which may penetrate into the proposed injection zone; such data shall include, as available, a description of each well's type, the distance and direction to the injection well or well field, construction, date drilled, location, depth, record of plugging or completion, and any additional information the secretary may require;

(4) for wells within the area of review which penetrate the injection zone, but are not properly completed or plugged, the corrective action proposed to be taken under 20.6.2.5203 NMAC;

(5) maps and cross-sections indicating the general vertical and lateral limits of all ground water having 10,000 mg/l or less TDS within the area of review, the position of such ground water within the area of review relative to the injection formation, and the direction of water movement, where known, in each zone of ground water which may be affected by the proposed injection operation;

(6) maps and cross-sections detailing the geology and geologic structure of the local area, including faults, if known or suspected;

(7) generalized maps and cross-sections illustrating the regional geologic setting;

(8) proposed operating data, including:

(a) average and maximum daily flow rate and volume of the fluid to be injected;

(b) average and maximum injection pressure;

(c) source of injection fluids and an analysis or description, whichever the secretary requires, of their chemical, physical, radiological and biological characteristics;

(9) results of the formation testing program to obtain an analysis or description, whichever the secretary requires, of the chemical, physical, and radiological characteristics of, and other information on, the receiving formation, provided that the secretary may issue a conditional approval of a discharge permit if he finds that further formation testing is necessary for final approval;

(10) expected pressure changes, native fluid displacement, and direction of movement of the injected fluid;

(11) proposed stimulation program;

(12) proposed or actual injection procedure;

(13) schematic or other appropriate drawings of the surface and subsurface construction details of the well;

(14) construction procedures, including a cementing and casing program, logging procedures, deviation checks, and a drilling, testing, and coring program;

(15) contingency plans to cope with all shut-ins or well failures so as to prevent movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to 20.6.2.5103 NMAC;

(16) plans, including maps, for meeting the monitoring requirements of 20.6.2.5207 NMAC; and

(17) the ability of the discharger to undertake measures necessary to prevent contamination of ground water having 10,000 mg/l or less TDS after the cessation of operation, including the proper closing, plugging and abandonment of a well, ground water restoration if applicable, and any post-operational monitoring as may be needed; methods by which the discharger shall demonstrate the ability to undertake these measures shall include submission of a surety bond or other adequate assurances, such as financial statements or other materials acceptable to the secretary, such as: (1) a surety bond; (2) a trust fund with a New Mexico bank in the name of the state of New Mexico, with the state as beneficiary; (3) a non-renewable letter of credit made out to the state of New Mexico; (4) liability insurance specifically covering the contingencies listed in this paragraph; or (5) a performance bond, generally in conjunction with another type of financial assurance; such bond or materials shall be approved and executed prior to discharge permit issuance and shall become effective upon commencement of construction; if an

adequate bond is posted by the discharger to a federal or another state agency, and this bond covers all of the measures referred to above, the secretary shall consider this bond as satisfying the bonding requirements of 20.6.2.5000 through 20.6.2.5299 NMAC wholly or in part, depending upon the extent to which such bond is adequate to ensure that the discharger will fully perform the measures required hereinabove.

C. Prior to the secretary's approval that allows the operation of a new or existing Class I well or Class III well or well field, the secretary shall consider the following:

(1) update of pertinent information required under Subsection B of 20.6.2.5210 NMAC;

(2) all available logging and testing program data on the well;

(3) the demonstration of mechanical integrity pursuant to 20.6.2.5204 NMAC;

(4) the anticipated maximum pressure and flow rate at which the permittee will operate;

(5) the results of the formation testing program;

(6) the physical, chemical, and biological interactions between the injected fluids and fluids in the injection zone, and minerals in both the injection zone and the confining zone; and

(7) the status of corrective action on defective wells in the area of review.

[9-20-82, 12-24-87, 12-1-95; 20.6.2.5210 NMAC - Rn, 20 NMAC 6.2.V.5210, 1-15-01; A, 12-1-01; A, 8-31-15]

20.6.2.5211 - 20.6.2.5299: [RESERVED]

[12-1-95; 20.6.2.5211 - 20.6.2.5299 NMAC - Rn, 20 NMAC 6.2.V.5211-5299, 1-15-01]

20.6.2.5300 REQUIREMENTS FOR CLASS I HAZARDOUS WASTE INJECTION WELLS:

A. Except as otherwise provided for in 20.6.2.5300 through 20.6.2.5399 NMAC, Class I hazardous waste wells are subject to the minimum permit requirements for all Class I wells in 20.6.2.5000 through 20.6.2.5299 NMAC, in addition to the requirements of 20.6.2.5300 through 20.6.2.5399 NMAC. To the extent any requirement in 20.6.2.5300 through 20.6.2.5399 NMAC conflicts with a requirement of 20.6.2.5000 through 20.6.2.5299 NMAC, Class I hazardous waste injection wells must comply with 20.6.2.5300 through 20.6.2.5399 NMAC.

B. Class I hazardous waste injection wells are only authorized for use by petroleum refineries for the waste generated by the refinery ("generator").

C. The New Mexico energy, minerals and natural resources department, oil conservation division will administer and oversee all permitting of Class I hazardous waste wells pursuant to 20.6.2.5300 through 20.6.2.5399 NMAC.

[20.6.2.5300 NMAC - N, 8-31-15]

20.6.2.5301 DEFINITIONS: As used in 20.6.2.5300 through 20.6.2.5399 NMAC:

A. "**cone of influence**" means that area around the well within which increased injection zone pressures caused by injection into the hazardous waste injection well would be sufficient to drive fluids into groundwater of the state of New Mexico;

B. "**director**" means the director of the New Mexico energy, minerals and natural resources department, oil conservation division or his/her designee;

C. "**existing well**" means a Class I hazardous waste injection well which has become a Class I hazardous waste injection well as a result of a change in the definition of the injected waste which would render the waste hazardous under 20.4.1.200 NMAC (incorporating 40 C.F.R. Section 261.3);

D. "**groundwater of the state of New Mexico**" means, consistent with 20.6.2.5001 NMAC, an aquifer that contains ground water having a TDS concentration of 10,000 mg/l or less;

E. "**injection interval**" means that part of the injection zone in which the well is screened, or in which the waste is otherwise directly emplaced;

F. "**new well**" means any Class I hazardous waste injection well which is not an existing well;

G. "**transmissive fault or fracture**" is a fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.

[20.6.2.5301 NMAC - N, 8-31-15]

20.6.2.5302 FEES FOR CLASS I HAZARDOUS WASTE INJECTION WELLS: For the purposes of Class I hazardous waste wells, this section shall apply to the exclusion of 20.6.2.3114 NMAC.

A. *Filing Fee.* Every facility submitting a discharge permit application for approval of a Class I hazardous waste injection well shall pay a filing fee of $100 to the water quality management fund at the time the permit application is submitted. The filing fee is nonrefundable.

B. *Permit fee.*

(1) Every facility submitting a discharge permit application for approval of a Class I hazardous waste injection well shall pay a permit fee of $30,000 to the water quality management fund. The permit fee may be paid in a single payment at the time of permit approval or in equal installments over the term of the permit. Installment payments shall be remitted yearly, with the first installment due on the date of permit approval. Subsequent installments shall be remitted yearly thereafter. The permit or permit application review of any facility shall be suspended or terminated if the facility fails to submit an installment payment by its due date.

(2) Facilities applying for permits which are subsequently withdrawn or denied shall pay one-half of the permit fee at the time of denial or withdrawal.

C. *Annual administration fee.* Every facility that receives a Class I hazardous waste injection well permit shall pay an annual administrative fee of $20,000 to the water quality management fund. The initial administrative fee shall be remitted one year after commencement of disposal operations pursuant to the permit. Subsequent administrative fees shall be remitted annually thereafter.

D. *Renewal fee.*

(1) Every facility submitting a discharge permit application for renewal of a Class I hazardous waste injection well shall pay a renewal fee of $10,000 to the water quality management fund. The renewal fee may be paid in a single payment at the time of permit renewal or in equal installments over the term of the permit. Installment payments shall be remitted yearly, with the first installment due on the date of permit renewal. Subsequent installments shall be remitted yearly thereafter. The permit or permit renewal review of any facility shall be suspended or terminated if the facility fails to submit an installment payment by its due date.

(2) The director may waive or reduce fees for discharge permit renewals which require little or no cost for investigation or issuance.

E. *Modification fees.*

(1) Every facility submitting an application for a discharge permit modification of a Class I hazardous waste injection well will be assessed a filing fee plus a modification fee of $10,000 to the water quality management fund.

(2) Every facility submitting an application for other changes to a Class I hazardous waste injection well discharge permit will be assessed a filing fee plus a minor modification fee of $1,000 to the water quality management fund.

(3) Applications for both renewal and modification shall pay a filing fee plus renewal fee.

(4) If the director requires a discharge permit change as a component of an enforcement action, the facility shall pay the applicable modification fee. If the director requires a discharge permit change outside the context of an enforcement action, the facility shall not be assessed a fee.

(5) The director may waive or reduce fees for discharge permit changes which require little or no cost for investigation or issuance.

F. *Financial assurance fees.*

(1) Facilities with approved Class I hazardous waste injection well permits shall pay the financial assurance fees specified in Table 2 of 20.6.2.3114 NMAC.

(2) Facilities relying on the corporate guarantee for financial assurance shall pay an additional fee of $5,000 to the water quality management fund.

[20.6.2.5302 NMAC - N, 8-31-15]

20.6.2.5303 CONVERSION OF EXISTING INJECTION WELLS: An existing Class I non-hazardous waste injection well may be converted to a Class I hazardous waste injection well provided the well meets the modeling, design, compatibility, and other requirements set forth in 20.6.2.5300 through 20.6.2.5399 NMAC and the permittee receives a Class I hazardous waste permit pursuant to those sections.

[20.6.2.5303 NMAC - N, 8-31-15]

20.6.2.5304 - 20.6.2.5309: [RESERVED]

20.6.2.5310 REQUIREMENTS FOR WELLS INJECTING HAZARDOUS WASTE REQUIRED TO BE ACCOMPANIED BY A MANIFEST:

A. *Applicability.* The regulations in this section apply to all generators of hazardous waste, and to the owners or operators of all hazardous waste management facilities, using any class of well to inject hazardous wastes accompanied by a manifest. (See also Subparagraph (b) of Paragraph (3) of Subsection A of 20.6.2.5004 NMAC.)

B. *Authorization.* The owner or operator of any well that is used to inject hazardous waste required to be accompanied by a manifest or delivery document shall apply for authorization to inject as specified in 20.6.2.5102 NMAC within six months after the approval or promulgation of the state UIC program.

C. *Requirements.* In addition to complying with the applicable requirements of this part, the owner or operator of each facility meeting the requirements of Subsection B of this section, shall comply with the following.

(1) *Notification.* The owner or operator shall comply with the notification requirements of 42 U.S.C. Section 6930.

(2) *Identification number.* The owner or operator shall comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR Section 264.11).

(3) *Manifest system.* The owner or operator shall comply with the applicable recordkeeping and reporting requirements for manifested wastes in 20.4.1.500 NMAC (incorporating 40 CFR Section 264.71).

(4) *Manifest discrepancies.* The owner or operator shall comply with 20.4.1.500 NMAC (incorporating 40 CFR Section 264.72).

(5) *Operating record.* The owner or operator shall comply with 20.4.1.500 NMAC (incorporating 40 CFR Sections 264.73(a), (b)(1), and (b)(2)).

(6) *Annual report.* The owner or operator shall comply with 20.4.1.500 NMAC (incorporating 40 CFR Section 264.75).

(7) *Unmanifested waste report.* The owner or operator shall comply with 20.4.1.500 NMAC (incorporating 40 CFR Section 264.75).

(8) *Personnel training.* The owner or operator shall comply with the applicable personnel training requirements of 20.4.1.500 NMAC (incorporating 40 CFR Section 264.16).

(9) *Certification of closure.* When abandonment is completed, the owner or operator must submit to the director certification by the owner or operator and certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in 20.6.2.5209 NMAC.

[20.6.2.5310 NMAC - N, 8-31-15]

20.6.2.5311 - 20.6.2.5319: [RESERVED]

20.6.2.5320 ADOPTION OF 40 CFR PART 144, SUBPART F (FINANCIAL RESPONSIBILITY: CLASS I HAZARDOUS WASTE INJECTION WELLS): Except as otherwise provided, the regulations of the United States environmental protection agency set forth in 40 CFR Part 144, Subpart F are hereby incorporated by reference.

[20.6.2.5320 NMAC - N, 8-31-15]

20.6.2.5321 MODIFICATIONS, EXCEPTIONS, AND OMISSIONS: Except as otherwise provided, the following modifications, exceptions, and omissions are made to the incorporated federal regulations.

A. The following term defined in 40 CFR Section 144.61 has the meaning set forth herein, in lieu of the meaning set forth in 40 CFR Section 144.61: "plugging and abandonment plan" means the plan for plugging and abandonment prepared in accordance with the requirements of 20.6.2.5341 NMAC.

B. The following terms not defined in 40 CFR Part 144, Subsection F have the meanings set forth herein when the terms are used in this part:

(1) "administrator," "regional administrator" and other similar variations means the director of the New Mexico energy, minerals and natural resources department, oil conservation division or his/her designee;

(2) "United States environmental protection agency" or "EPA" means New Mexico energy, minerals and natural resources department, oil conservation division or OCD, except when used in 40 CFR Section 144.70(f).

C. The following provisions of 40 CFR Part 144, Subpart F are modified in 20.6.2.5321 NMAC:

(1) cross references to 40 CFR Part 144 shall be replaced by cross references to 20.6.2.5300 through 20.6.2.5399 NMAC;

(2) the cross reference to Sections 144.28 and 144.51 in Section 144.62(a) shall be replaced by a cross reference to 20.6.2.5341 NMAC;

(3) the cross references to 40 CFR Parts 264, Subpart H and 265, Subpart H shall be modified to include cross references to 40 CFR Parts 264, Subpart H and 265, Subpart H and 20.4.1.500 and 20.4.1.600 NMAC;

(4) references to EPA identification numbers in financial assurance documents shall be replaced by references to API well numbers (US well numbers);

(5) the first sentence of 40 CFR Section 144.63(f)(1) shall be replaced with the following sentence: "An owner or operator may satisfy the requirements of this section by obtaining a guarantee from a corporate parent that meets the requirements of 40 CFR Section 144.63(f)(10), including the guarantor meeting the requirements for the owner or operator under the financial test specified in this paragraph.";

(6) trust agreements prepared in accordance with 40 CFR Section 144.70(a) must state that they will be administered, construed, and enforced according to the laws of New Mexico;

(7) surety companies issuing bonds prepared in accordance with 40 CFR Section 144, Subpart F must be registered with the New Mexico office of superintendent of insurance;

D. The following provisions of 40 CFR Part 144, Subpart F are omitted from 20.6.2.5320 NMAC:

(1) Section 144.65;

(2) Section 144.66;

(3) the third sentence in 40 CFR Section 144.63(h).

[20.6.2.5321 NMAC - N, 8-31-15]

20.6.2.5322 - 20.6.2.5340 [RESERVED]

20.6.2.5341 CONDITIONS APPLICABLE TO ALL PERMITS: The following conditions apply to all Class I hazardous permits. All conditions applicable to all permits shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to these regulations must be given in the permit.

A. *Duty to comply.* The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the New Mexico Water Quality Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application; except that the permittee need not comply with the provisions of this permit to the extent and for the duration such noncompliance is authorized in a variance issued under 20.6.2.1210 NMAC.

B. *Duty to reapply.* If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a permit renewal pursuant to Subsection F of 20.6.2.3106 NMAC.

C. *Need to halt or reduce activity not a defense.* It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. *Duty to mitigate.* The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

E. *Proper operation and maintenance.* The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

F. *Permit actions.* This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

G. *Property rights.* This permit does not convey any property rights of any sort, or any exclusive privilege.

H. *Duty to provide information.* The permittee shall furnish to the director, within a time specified, any information which the director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the director, upon request, copies of records required to be kept by this permit.

I. *Duty to provide notice.* Public notice, when required, shall be provided as set forth in 20.6.2.3108 NMAC except that the following notice shall be provided in lieu of the notice required by Paragraph (2) of Subsection B of 20.6.2.3108 NMAC: a written notice must be sent by certified mail, return receipt requested, to all surface and mineral owners of record within a ½ mile radius of the proposed well or wells.

J. *Inspection and entry.* The permittee shall allow the director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

(1) enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(2) have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(3) inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(4) sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the 20.6.2.5300 through 20.6.2.5399 NMAC, any substances or parameters at any location.

K. *Monitoring and records.*

(1) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(2) The permittee shall retain records of all monitoring information, including the following:

(a) calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report, or application; this period may be extended by request of the director at any time; and

(b) the nature and composition of all injected fluids until three years after the completion of any plugging and abandonment procedures specified under 20.6.2.5351 through 20.6.2.5363 NMAC; the director may require the owner or operator to deliver the records to the director at the conclusion of the retention period.

(3) Records of monitoring information shall include:

(a) the date, exact place, and time of sampling or measurements;

(b) the individual(s) who performed the sampling or measurements;

(c) the date(s) analyses were performed;

(d) the individual(s) who performed the analyses;

(e) the analytical techniques or methods used; and

(f) the results of such analyses.

L. *Signatory requirement.* All applications, reports, or information submitted to the director shall be signed and certified. (See Subsection G of 20.6.2.5101 NMAC.)

M. *Reporting requirements.*

(1) *Planned changes.* The permittee shall give notice to the director as soon as possible of any planned physical alterations or additions to the permitted facility.

(2) *Anticipated noncompliance.* The permittee shall give advance notice to the director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(3) *Monitoring reports.* Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(4) *Compliance schedules.* Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.

(5) *Twenty-four hour reporting.* The permittee shall report any noncompliance which may endanger health or the environment, including:

(a) any monitoring or other information which indicates that any contaminant may cause an endangerment to groundwater of the state of New Mexico; or

(b) any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between groundwater of the state of New Mexico; any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances; a written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances; the written submission shall contain a description of the noncompliance and its cause; the area affected by the noncompliance, including any groundwater of the state of New Mexico; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; the date and time the permittee became aware of the noncompliance; and steps taken or planned to reduce, remediate, eliminate, and prevent reoccurrence of the noncompliance.

(6) *Other noncompliance.* The permittee shall report all instances of noncompliance not reported under Paragraphs (3), (4), and (5) of Subsection M of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph (5) of Subsection M of this section.

(7) *Other information.* Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the director, it shall promptly submit such facts or information.

N. *Requirements prior to commencing injection.* A new injection well may not commence injection until construction is complete; and

(1) the permittee has submitted notice of completion of construction to the director; and

(2) the director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or the permittee has not received notice from the director of his or her intent to inspect or otherwise review the new injection well within 13 days of the date of the notice in Paragraph (1) of Subsection N of this section, in which case prior inspection or review is waived and the permittee may commence injection; the director shall include in his notice a reasonable time period in which he shall inspect the well.

O. The permittee shall notify the director at such times as the permit requires before conversion or abandonment of the well.

P. The permittee shall meet the requirements of 20.6.2.5209 NMAC.

Q. *Plugging and abandonment report.* Within 60 days after plugging a well or at the time of the next quarterly report (whichever is less) the owner or operator shall submit a report to the director. If the quarterly report is due less than 15 days before completion of plugging, then the report shall be submitted within 60 days. The report shall be certified as accurate by the person who performed the plugging operation. Such report shall consist of either:

(1) a statement that the well was plugged in accordance with the plan previously submitted to the director; or

(2) where actual plugging differed from the plan previously submitted, and updated version of the plan on the form supplied by the director, specifying the differences.

R. *Duty to establish and maintain mechanical integrity.*

(1) The permittee shall meet the requirements of 20.6.2.5204 NMAC.

(2) When the director determines that a Class I hazardous well lacks mechanical integrity pursuant to 20.6.2.5204 NMAC, the director shall give written notice of the director's determination to the owner or operator. Unless the director requires immediate cessation, the owner or operator shall cease injection into the well within 48 hours of receipt of the director's determination. The director may allow plugging of the well pursuant to the requirements of 20.6.2.5209 NMAC or require the permittee to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between groundwater of the state of New Mexico caused by the lack of mechanical integrity. The owner or operator may resume injection upon written notification from the director that the owner or operator has demonstrated mechanical integrity pursuant to 20.6.2.5204 and 20.6.2.5358 NMAC.

(3) The director may allow the owner or operator of a well which lacks mechanical integrity pursuant to Subsection A of 20.6.2.5204 NMAC to continue or resume injection, if the owner or operator has made a satisfactory demonstration that there is no movement of fluid into or between groundwater of the state of New Mexico.

S. *Transfer of a permit.* The operator shall not transfer a permit without the director's prior written approval. A request for transfer of a permit shall identify officers, directors and owners of 25% or greater in the transferee. Unless the director otherwise orders, public notice or hearing are not required for the transfer request's approval. If the director denies the transfer request, it shall notify the operator and the proposed transferee of the denial by certified mail, return receipt requested, and either the operator or the proposed transferee may request a hearing with 10 days after receipt of the notice. Until the director approves the transfer and the required financial assurance is in place, the director shall not release the transferor's financial assurance.

[20.6.2.5341 NMAC - N, 8-31-15]

20.6.2.5342 ESTABLISHING PERMIT CONDITIONS:

A. In addition to conditions required in 20.6.2.5341 NMAC, the director shall establish conditions, as required on a case-by-case basis under Subsection H of 20.6.2.3109 NMAC, Subsection A of 20.6.2.5343 NMAC, and 20.6.2.5344 NMAC. Permits for owners or operators of hazardous waste injection wells shall also include conditions meeting the requirements of 20.6.2.5310 NMAC, Paragraphs (1) and (2) of Subsection A of this section, and 20.6.2.5351 through 20.6.2.5363 NMAC.

(1) *Financial responsibility.*

(a) The permittee, including the transferor of a permit, is required to demonstrate and maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the director until:

(i) the well has been plugged and abandoned in accordance with an approved plugging and abandonment plan pursuant to Subsection P of 20.6.2.5341 NMAC, and 20.6.2.5209 NMAC, and submitted a plugging and abandonment report pursuant to Subsection Q of 20.6.2.5341 NMAC; or

(ii) the well has been converted in compliance with the requirements of Subsection O of 20.6.2.5341 NMAC; or

(iii) the transferor of a permit has received notice from the director that the transfer has been approved and that the transferee's required financial assurance is in place.

(b) The owner or operator of a well injecting hazardous waste must comply with the financial responsibility requirements of 20.6.2.5320 NMAC.

(2) *Additional conditions.* The director shall impose on a case-by-case basis such additional conditions as are necessary to prevent the migration of fluids into groundwater of the state of New Mexico.

B. *Applicable requirements.*

(1) In addition to conditions required in all permits the director shall establish conditions in permits as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of this part.

(2) An applicable requirement is a state statutory or regulatory requirement which takes effect prior to final administrative disposition of the permit. An applicable requirement is also any requirement which takes effect prior to the modification or revocation and reissuance of a permit.

(3) New or renewed permits, and to the extent allowed under 20.6.2.3109 NMAC modified or terminated permits, shall incorporate each of the applicable requirements referenced in 20.6.2.5342 NMAC.

C. *Incorporation.* All permit conditions shall be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the applicable regulations or requirements must be given in the permit.

[20.6.2.5342 NMAC - N, 8-31-15]

20.6.2.5343 SCHEDULE OF COMPLIANCE:

A. *General.* The permit may, when appropriate, specify a schedule of compliance leading to compliance with this part.

(1) *Time for compliance.* Any schedules of compliance shall require compliance as soon as possible, and in no case later than three years after the effective date of the permit.

(2) *Interim dates.* Except as provided in Subparagraph (b) of Paragraph (1) of Subsection B of this section, if a permit establishes a schedule of compliance which exceeds one year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

(a) The time between interim dates shall not exceed one year.

(b) If the time necessary for completion of any interim requirement is more than one year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

(3) *Reporting.* The permit shall be written to require that if Paragraph (1) of Subsection A of this section is applicable, progress reports be submitted no later than 30 days following each interim date and the final date of compliance.

B. *Alternative schedules of compliance.* A permit applicant or permittee may cease conducting regulated activities (by plugging and abandonment) rather than continue to operate and meet permit requirements as follows.

(1) If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:

(a) the permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or

(b) the permittee shall cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement already specified in the permit.

(2) If the decision to cease conducting regulated activities is made before issuance of a permit whose term will include the termination date, the permit shall contain a schedule leading to termination which will ensure timely compliance with applicable requirements.

(3) If the permittee is undecided whether to cease conducting regulated activities, the director may issue or modify a permit to contain two schedules as follows:

(a) both schedules shall contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities;

(b) one schedule shall lead to timely compliance with applicable requirements;

(c) the second schedule shall lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements;

(d) each permit containing two schedules shall include a requirement that after the permittee has made a final decision under Subparagraph (a) of Paragraph (3) of Subsection B of this section it shall follow the schedule leading to compliance if the decision is to continue conducting regulated activities, and follow the schedule leading to termination if the decision is to cease conducting regulated activities.

(4) The applicant's or permittee's decision to cease conducting regulated activities shall be evidenced by a firm public commitment satisfactory to the director, such as a resolution of the board of directors of a corporation.

[20.6.2.5343 NMAC - N, 8-31-15]

20.6.2.5344 REQUIERMENTS FOR RECORDING AND REPORTING OF MONITORING RESULTS: All permits shall specify:

A. requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods (including biological monitoring methods when appropriate);

B. required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including when appropriate, continuous monitoring;

C. applicable reporting requirements based upon the impact of the regulated activity and as specified in 20.6.2.5359 NMAC; reporting shall be no less frequent than specified in the above regulations.

[20.6.2.5344 NMAC - N, 8-31-15]

20.6.2.5345 - 20.6.2.5350: [RESERVED]

20.6.2.5351 APPLICABILITY: 20.6.2.5351 through 20.6.2.5363 NMAC establish criteria and standards for underground injection control programs to regulate Class I hazardous waste injection wells. Unless otherwise noted, these sections supplement the requirements of 20.6.2.5000 through 20.6.2.5299 NMAC and apply instead of any inconsistent requirements for Class I non-hazardous waste injection wells.

[20.6.2.5351 NMAC - N, 8-31-15]

20.6.2.5352 MINIMUM CRITERIA FOR SITING:

A. All Class I hazardous waste injection wells shall be sited such that they inject into a formation that is beneath the lowermost formation containing within one quarter mile of the well bore groundwater of the state of New Mexico.

B. The siting of Class I hazardous waste injection wells shall be limited to areas that are geologically suitable. The director shall determine geologic suitability based upon:

(1) an analysis of the structural and stratigraphic geology, the hydrogeology, and the seismicity of the region;

(2) an analysis of the local geology and hydrogeology of the well site, including, at a minimum, detailed information regarding stratigraphy, structure and rock properties, aquifer hydrodynamics and mineral resources; and

(3) a determination that the geology of the area can be described confidently and that limits of waste fate and transport can be accurately predicted through the use of models.

C. Class I hazardous waste injection wells shall be sited such that:

(1) the injection zone has sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into groundwater of the state of New Mexico; and

(2) the confining zone:

(a) is laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into groundwater of the state of New Mexico; and

(b) contains at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.

D. The owner or operator shall demonstrate to the satisfaction of the director that:

(1) the confining zone is separated from the base of the lowermost groundwater of the state of New Mexico by at least one sequence of permeable and less permeable strata that will provide an added layer of protection for groundwater of the state of New Mexico in the event of fluid movement in an unlocated borehole or transmissive fault; or

(2) within the area of review, the piezometric surface of the fluid in the injection zone is less than the piezometric surface of the lowermost groundwater of the state of New Mexico, considering density effects, injection pressures and any significant pumping in the overlying groundwater of the state of New Mexico; or

(3) there is no groundwater of the state of New Mexico present.

(4) The director may approve a site which does not meet the requirements in Paragraphs (1), (2), or (3) of Subsections D of this section if the owner or operator can demonstrate to the director that because of the geology, nature of the waste, or other considerations, abandoned boreholes or other conduits would not cause endangerment of groundwater of the state of New Mexico.

[20.6.2.5352 NMAC - N, 8-31-15]

20.6.2.5353 AREA OF REVIEW: For the purposes of Class I hazardous waste wells, this section shall apply to the exclusion of 20.6.2.5202 NMAC. The area of review for Class I hazardous waste injection wells shall be a two-mile radius around the well bore. The director may specify a larger area of review based on the calculated cone of influence of the well.

[20.6.2.5353 NMAC - N, 8-31-15]

20.6.2.5354 CORRECTIVE ACTION FOR WELLS IN THE AREA OF REVIEW: For the purposes of Class I hazardous waste wells, this section shall apply to the exclusion of 20.6.2.5203 NMAC.

A. The owner or operator of a Class I hazardous waste well shall as part of the permit application submit a plan to the director outlining the protocol used to:

(1) identify all wells penetrating the confining zone or injection zone within the area of review; and

(2) determine whether wells are adequately completed or plugged.

B. The owner or operator of a Class I hazardous waste well shall identify the location of all wells within the area of review that penetrate the injection zone or the confining zone and shall submit as required in Subsection A of 20.6.2.5360 NMAC:

(1) a tabulation of all wells within the area of review that penetrate the injection zone or the confining zone; and

(2) a description of each well or type of well and any records of its plugging or completion.

C. For wells that the director determines are improperly plugged, completed, or abandoned, or for which plugging or completion information is unavailable, the applicant shall also submit a plan consisting of such steps or modification as are necessary to prevent movement of fluids into or between groundwater of the state of New Mexico. Where the plan is adequate, the director shall incorporate it into the permit as a condition. Where the director's review of an application indicates that the permittee's plan is inadequate (based at a minimum on the factors in Subsection E of this section), the director shall:

(1) require the applicant to revise the plan;

(2) prescribe a plan for corrective action as a condition of the permit; or

(3) deny the application.

D. Requirements.

(1) Existing injection wells. Any permit issued for an existing Class I hazardous waste injection well requiring corrective action other than pressure limitations shall include a compliance schedule requiring any corrective action accepted or prescribed under Subsection C of this section. Any such compliance schedule shall provide for compliance no later than two years following issuance of the permit and shall require observance of appropriate pressure limitations under Paragraph (3) of Subsection D until all other corrective action measures have been implemented.

(2) New injection wells. No owner or operator of a new Class I hazardous waste injection well may begin injection until all corrective actions required under this section have been taken.

(3) The director may require pressure limitations in lieu of plugging. If pressure limitations are used in lieu of plugging, the director shall require as a permit condition that injection pressure be so limited that

pressure in the injection zone at the site of any improperly completed or abandoned well within the area of review would not be sufficient to drive fluids into or between groundwater of the state of New Mexico. This pressure limitation shall satisfy the corrective action requirement. Alternatively, such injection pressure limitation may be made part of a compliance schedule and may be required to be maintained until all other required corrective actions have been implemented.

E. In determining the adequacy of corrective action proposed by the applicant under Subsection C of this section and in determining the additional steps needed to prevent fluid movement into and between groundwater of the state of New Mexico, the following criteria and factors shall be considered by the director:

(1) nature and volume of injected fluid;
(2) nature of native fluids or byproducts of injection;
(3) geology;
(4) hydrology;
(5) history of the injection operation;
(6) completion and plugging records;
(7) closure procedures in effect at the time the well was closed;
(8) hydraulic connections with groundwater of the state of New Mexico;
(9) reliability of the procedures used to identify abandoned wells; and
(10) any other factors which might affect the movement of fluids into or between groundwater of the state of New Mexico.

[20.6.2.5354 NMAC - N, 8-31-15]

20.6.2.5355 CONSTRUCTION REQUIREMENTS:

A. *General.* All existing and new Class I hazardous waste injection wells shall be constructed and completed to:

(1) prevent the movement of fluids into or between groundwater of the state of New Mexico or into any unauthorized zones;
(2) permit the use of appropriate testing devices and workover tools; and
(3) permit continuous monitoring of injection tubing and long string casing as required pursuant to Subsection F of 20.6.2.5357 NMAC.

B. *Compatibility.* All well materials must be compatible with fluids with which the materials may be expected to come into contact. A well shall be deemed to have compatibility as long as the materials used in the construction of the well meet or exceed standards developed for such materials by the American petroleum institute, ASTM, or comparable standards acceptable to the director.

C. *Casing and cementing of new wells.*

(1) Casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well, including the post-closure care period. The casing and cementing program shall be designed to prevent the movement of fluids into or between groundwater of the state of New Mexico, and to prevent potential leaks of fluids from the well. In determining and specifying casing and cementing requirements, the director shall consider the following information as required by 20.6.2.5360 NMAC:

(a) depth to the injection zone;
(b) injection pressure, external pressure, internal pressure and axial loading;
(c) hole size;
(d) size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification and construction material);
(e) corrosiveness of injected fluid, formation fluids and temperature;
(f) lithology of injection and confining zones;
(g) type or grade of cement; and
(h) quantity and chemical composition of the injected fluid.

(2) One surface casing string shall, at a minimum, extend into the confining bed below the lowest formation that contains groundwater of the state of New Mexico and be cemented by circulating cement from the base of the casing to the surface, using a minimum of 120% of the calculated annual volume. The director may require more than 120% when the geology or other circumstances warrant it.

(3) At least one long string casing, using a sufficient number of centralizers, shall extend to the injection zone and shall be cemented by circulating cement to the surface in one or more stages:

(a) of sufficient quantity and quality to withstand the maximum operating pressure; and

(b) in a quantity no less than 120% of the calculated volume necessary to fill the annular space; the director may require more than 120% when the geology or other circumstances warrant it.

(4) Circulation of cement may be accomplished by staging. The director may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the owner or operator can demonstrate by using logs that the cement is continuous and does not allow fluid movement behind the well bore.

(5) Casings, including any casing connections, must be rated to have sufficient structural strength to withstand, for the design life of the well:

(a) the maximum burst and collapse pressures which may be experienced during the construction, operation and closure of the well; and

(b) the maximum tensile stress which may be experienced at any point along the length of the casing during the construction, operation, and closure of the well.

(6) At a minimum, cement and cement additives must be of sufficient quality and quantity to maintain integrity over the design life of the well.

D. *Tubing and packer.*

(1) All Class I hazardous waste injection wells shall inject fluids through tubing with a packer set at a point specified by the director.

(2) In determining and specifying requirements for tubing and packer, the following factors shall be considered:

(a) depth of setting;

(b) characteristics of injection fluid (chemical content, corrosiveness, temperature and density);

(c) injection pressure;

(d) annular pressure;

(e) rate (intermittent or continuous), temperature and volume of injected fluid;

(f) size of casing; and

(g) tubing tensile, burst, and collapse strengths.

(3) The director may approve the use of a fluid seal if he determines that the following conditions are met:

(a) the operator demonstrates that the seal will provide a level of protection comparable to a packer;

(b) the operator demonstrates that the staff is, and will remain, adequately trained to operate and maintain the well and to identify and interpret variations in parameters of concern;

(c) the permit contains specific limitations on variations in annular pressure and loss of annular fluid;

(d) the design and construction of the well allows continuous monitoring of the annular pressure and mass balance of annular fluid; and

(e) a secondary system is used to monitor the interface between the annulus fluid and the injection fluid and the permit contains requirements for testing the system every three months and recording the results.

[20.6.2.5355 NMAC - N, 8-31-15]

20.6.2.5356 LOGGING, SAMPLING, AND TESTING PRIOR TO NEW WELL OPERATION:

A. During the drilling and construction of a new Class I hazardous waste injection well, appropriate logs and tests shall be run to determine or verify the depth, thickness, porosity, permeability, and rock type of, and the salinity of any entrained fluids in, all relevant geologic units to assure conformance with performance standards in 20.6.2.5355 NMAC, and to establish accurate baseline data against which future measurements may be compared. A descriptive report interpreting results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the director. At a minimum, such logs and tests shall include:

(1) deviation checks during drilling on all holes constructed by drilling pilot holes which are enlarged by reaming or another method; such checks shall be at sufficiently frequent intervals to determine the location of the borehole and to assure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling; and

(2) such other logs and tests as may be needed after taking into account the availability of similar data in the area of the drilling site, the construction plan, and the need for additional information that may

arise from time to time as the construction of the well progresses; at a minimum, the following logs shall be required in the following situations:

(a) upon installation of the surface casing:

(i) resistivity, spontaneous potential, and caliper logs before the casing is installed; and

(ii) a cement bond and variable density log, and a temperature log after the casing is set and cemented;

(b) upon installation of the long string casing:

(i) resistivity, spontaneous potential, porosity, caliper, gamma ray, and fracture finder logs before the casing is installed; and

(ii) a cement bond and variable density log, and a temperature log after the casing is set and cemented;

(c) the director may allow the use of an alternative to the above logs when an alternative will provide equivalent or better information; and

(3) a mechanical integrity test consisting of:

(a) a pressure test with liquid or gas;

(b) a radioactive tracer survey;

(c) a temperature or noise log;

(d) a casing inspection log, if required by the director; and

(e) any other test required by the director.

B. Whole cores or sidewall cores of the confining and injection zones and formation fluid samples from the injection zone shall be taken. The director may accept cores from nearby wells if the owner or operator can demonstrate that core retrieval is not possible and that such cores are representative of conditions at the well. The director may require the owner or operator to core other formations in the borehole.

C. The fluid temperature, pH, conductivity, pressure and the static fluid level of the injection zone must be recorded.

D. At a minimum, the following information concerning the injection and confining zones shall be determined or calculated for Class I hazardous waste injection wells:

(1) fracture pressure;

(2) other physical and chemical characteristics of the injection and confining zones; and

(3) physical and chemical characteristics of the formation fluids in the injection zone.

E. Upon completion, but prior to operation, the owner or operator shall conduct the following tests to verify hydrogeologic characteristics of the injection zone:

(1) a pump test; or

(2) injectivity tests.

F. The director shall have the opportunity to witness all logging and testing required by 20.6.2.5351 through 20.6.2.5363 NMAC. The owner or operator shall submit a schedule of such activities to the director 30 days prior to conducting the first test.

[20.6.2.5356 NMAC - N, 8-31-15]

20.6.2.5357 OPERATING REQUIREMENTS:

A. Except during stimulation, the owner or operator shall assure that injection pressure at the wellhead does not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. The owner or operator shall assure that the injection pressure does not initiate fractures or propagate existing fractures in the confining zone, nor cause the movement of injection or formation fluids into groundwater of the state of New Mexico.

B. Injection between the outermost casing protecting groundwater of the state of New Mexico and the well bore is prohibited.

C. The owner or operator shall maintain an annulus pressure that exceeds the operating injection pressure, unless the director determines that such a requirement might harm the integrity of the well. The fluid in the annulus shall be noncorrosive, or shall contain a corrosion inhibitor.

D. The owner or operator shall maintain mechanical integrity of the injection well at all times.

E. Permit requirements for owners or operators of hazardous waste wells which inject wastes which have the potential to react with the injection formation to generate gases shall include:

(1) conditions limiting the temperature, pH or acidity of the injected waste; and

(2) procedures necessary to assure that pressure imbalances which might cause a backflow or blowout do not occur.

F. The owner or operator shall install and use continuous recording devices to monitor: the injection pressure; the flow rate, volume, and temperature of injected fluids; and the pressure on the annulus between the tubing and the long string casing, and shall install and use:

(1) automatic alarm and automatic shut-off systems, designed to sound and shut-in the well when pressures and flow rates or other parameters approved by the director exceed a range or gradient specified in the permit; or

(2) automatic alarms, designed to sound when the pressures and flow rates or other parameters approved by the director exceed a rate or gradient specified in the permit, in cases where the owner or operator certifies that a trained operator will be on-site at all times when the well is operating.

G. If an automatic alarm or shutdown is triggered, the owner or operator shall immediately investigate and identify as expeditiously as possible the cause of the alarm or shutoff. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under Subsection F of this section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator shall:

(1) cease injection of waste fluids unless authorized by the director to continue or resume injection;

(2) take all necessary steps to determine the presence or absence of a leak; and

(3) notify the director within 24 hours after the alarm or shutdown.

H. If a loss of mechanical integrity is discovered pursuant to Subsection G of this section or during periodic mechanical integrity testing, the owner or operator shall:

(1) immediately cease injection of waste fluids;

(2) take all steps reasonably necessary to determine whether there may have been a release of hazardous wastes or hazardous waste constituents into any unauthorized zone;

(3) notify the director within 24 hours after loss of mechanical integrity is discovered;

(4) notify the director when injection can be expected to resume; and

(5) restore and demonstrate mechanical integrity to the satisfaction of the director prior to resuming injection of waste fluids.

I. Whenever the owner or operator obtains evidence that there may have been a release of injected wastes into an unauthorized zone:

(1) the owner or operator shall immediately case injection of waste fluids, and:

(a) notify the director within 24 hours of obtaining such evidence;

(b) take all necessary steps to identify and characterize the extent of any release;

(c) comply with any remediation plan specified by the director;

(d) implement any remediation plan approved by the director; and

(e) where such release is into groundwater of the state of New Mexico currently serving as a water supply, place a notice in a newspaper of general circulation.

(2) The director may allow the operator to resume injection prior to completing cleanup action if the owner or operator demonstrates that the injection operation will not endanger groundwater of the state of New Mexico.

J. The owner or operator shall notify the director and obtain his approval prior to conducting any well workover.

[20.6.2.5357 NMAC - N, 8-31-15]

20.6.2.5358 TESTING AND MONITORING REQUIREMENTS: Testing and monitoring requirements shall at a minimum include.

A. Monitoring of the injected wastes.

(1) The owner or operator shall develop and follow an approved written waste analysis plan that describes the procedures to be carried out to obtain a detailed chemical and physical analysis of a representative sample of the waste, including the quality assurance procedures used. At a minimum, the plan shall specify:

(a) the parameters for which the waste will be analyzed and the rationale for the selection of these parameters;

(b) the test methods that will be used to test for these parameters; and

(c) the sampling method that will be used to obtain a representative sample of the waste to be analyzed.

(2) The owner or operator shall repeat the analysis of the injected wastes as described in the waste analysis plan at frequencies specified in the waste analysis plan and when process or operating changes occur that may significantly alter the characteristics of the waste stream.

(3) The owner or operator shall conduct continuous or periodic monitoring of selected parameters as required by the director.

(4) The owner or operator shall assure that the plan remains accurate and the analyses remain representative.

B. Hydrogeologic compatibility determination. The owner or operator shall submit information demonstrating to the satisfaction of the director that the waste stream and its anticipated reaction products will not alter the permeability, thickness or other relevant characteristics of the confining or injection zones such that they would no longer meet the requirements specified in 20.6.2.5352 NMAC.

C. Compatibility of well materials.

(1) The owner or operator shall demonstrate that the waste stream will be compatible with the well materials with which the waste is expected to come into contact, and submit to the director a description of the methodology used to make that determination. Compatibility for purposes of this requirement is established if contact with injected fluids will not cause the well materials to fail to satisfy any design requirement imposed under Subsection B of 20.6.2.5355 NMAC.

(2) The director shall require continuous corrosion monitoring of the construction materials used in the well for wells injecting corrosive waste, and may require such monitoring for other waste, by:

(a) placing coupons of the well construction materials in contact with the waste stream; or

(b) routing the waste stream through a loop constructed with the material used in the well; or

(c) using an alternative method approved by the director.

(3) If a corrosion monitoring program is required:

(a) the test shall use materials identical to those used in the construction of the well, and such materials must be continuously exposed to the operating pressures and temperatures (measured at the well head) and flow rates of the injection operation; and

(b) the owner or operator shall monitor the materials for loss of mass, thickness, cracking, pitting and other signs of corrosion on a quarterly basis to ensure that the well components meet the minimum standards for material strength and performance set forth in Subsection B of 20.6.2.5355 NMAC.

D. Periodic mechanical integrity testing. In fulfilling the requirements of 20.6.2.5204 NMAC, the owner or operator of a Class I hazardous waste injection well shall conduct the mechanical integrity testing as follows:

(1) the long string casing, injection tube, and annular seal shall be tested by means of an approved pressure test with a liquid or gas annually and whenever there has been a well workover;

(2) the bottom-hole cement shall be tested by means of an approved radioactive tracer survey annually;

(3) an approved temperature, noise, or other approved log shall be run at least once every five years to test for movement of fluid along the borehole; the director may require such tests whenever the well is worked over;

(4) casing inspection logs shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the director waives this requirement due to well construction or other factors which limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years; the director may require that a casing inspection log be run every five years, if he has reason to believe that the integrity of the long string casing of the well may be adversely affected by naturally-occurring or man-made events;

(5) any other test approved by the director in accordance with the procedures in 40 CFR Section 146.8(d) may also be used.

E. Ambient monitoring.

(1) Based on a site-specific assessment of the potential for fluid movement from the well or injection zone, and on the potential value of monitoring wells to detect such movement, the director shall require the owner or operator to develop a monitoring program. At a minimum, the director shall require monitoring of the pressure buildup in the injection zone annually, including at a minimum, a shut down of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve.

(2) When prescribing a monitoring system the director may also require:

(a) continuous monitoring for pressure changes in the first aquifer overlying the confining zone; when such a well is installed, the owner or operator shall, on a quarterly basis, sample the aquifer and analyze for constituents specified by the director;

(b) the use of indirect, geophysical techniques to determine the position of the waste front, the water quality in a formation designated by the director, or to provide other site specific data;

(c) periodic monitoring of the ground water quality in the first aquifer overlying the injection zone;

(d) periodic monitoring of the ground water quality in the lowermost groundwater of the state of New Mexico; and

(e) any additional monitoring necessary to determine whether fluids are moving into or between groundwater of the state of New Mexico.

F. The director may require seismicity monitoring when he has reason to believe that the injection activity may have the capacity to cause seismic disturbances.

[20.6.2.5358 NMAC - N, 8-31-15]

20.6.2.5359 REPORTING REQUIREMENTS: Reporting requirements shall, at a minimum, include:

A. quarterly reports to the director containing:

(1) the maximum injection pressure;

(2) a description of any event that exceeds operating parameters for annulus pressure or injection pressure as specified in the permit;

(3) a description of any event which triggers an alarm or shutdown device required pursuant to Subsection F of 20.6.2.5357 NMAC and the response taken;

(4) the total volume of fluid injected;

(5) any change in the annular fluid volume;

(6) the physical, chemical and other relevant characteristics of injected fluids; and

(7) the results of monitoring prescribed under 20.6.2.5358 NMAC;

B. reporting, within 30 days or with the next quarterly report whichever comes later, the results of:

(1) periodic tests of mechanical integrity;

(2) any other test of the injection well conducted by the permittee if required by the director; and

(3) any well workover.

[20.6.2.5359 NMAC - N, 8-31-15]

20.6.2.5360 INFORMATION TO BE EVALUATED BY THE DIRECTOR: This section sets forth the information which must be evaluated by the director in authorizing Class I hazardous waste injection wells. For a new Class I hazardous waste injection well, the owner or operator shall submit all the information listed below as part of the permit application. For an existing or converted Class I hazardous waste injection well, the owner or operator shall submit all information listed below as part of the permit application except for those items of information which are current, accurate, and available in the existing permit file. For both existing and new Class I hazardous waste injection wells, certain maps, cross-sections, tabulations of wells within the area of review and other data may be included in the application by reference provided they are current and readily available to the director (for example, in the permitting agency's files) and sufficiently identifiable to be retrieved.

A. Prior to the issuance of a permit for an existing Class I hazardous waste injection well to operate or the construction or conversion of a new Class I hazardous waste injection well, the director shall review the following to assure that the requirements of 20.6.2.5000 through 20.6.2.5399 NMAC are met:

(1) information required in 20.6.2.5102 NMAC;

(2) a map showing the injection well for which a permit is sought and the applicable area of review; within the area of review, the map must show the number or name and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features, including residences and roads; the map should also show faults, if known or suspected;

(3) a tabulation of all wells within the area of review which penetrate the proposed injection zone or confining zone; such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging or completion and any additional information the director may require;

(4) the protocol followed to identify, locate and ascertain the condition of abandoned wells within the area of review which penetrate the injection or the confining zones;

(5) maps and cross-sections indicating the general vertical and lateral limits of all groundwater of the state of New Mexico within the area of review, their position relative to the injection formation and the direction of water movement, where known, in each groundwater of the state of New Mexico which may be affected by the proposed injection;

(6) maps and cross-sections detailing the geologic structure of the local area;

(7) maps and cross-sections illustrating the regional geologic setting;

(8) proposed operating data:

(a) average and maximum daily rate and volume of the fluid to be injected; and

(b) average and maximum injection pressure;

(9) proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the injection formation and the confining zone;

(10) proposed stimulation program;

(11) proposed injection procedure;

(12) schematic or other appropriate drawings of the surface and subsurface construction details of the well;

(13) contingency plans to cope with all shut-ins or well failures so as to prevent migration of fluids into any groundwater of the state of New Mexico;

(14) plans (including maps) for meeting monitoring requirements of 20.6.2.5358 NMAC;

(15) for wells within the area of review which penetrate the injection zone or the confining zone but are not properly completed or plugged, the corrective action to be taken under 20.6.2.5354 NMAC;

(16) construction procedures including a cementing and casing program, well materials specifications and their life expectancy, logging procedures, deviation checks, and a drilling, testing and coring program; and

(17) a demonstration pursuant to 20.6.2.5320 NMAC, that the applicant has the resources necessary to close, plug or abandon the well and for post-closure care.

B. Prior to the director's granting approval for the operation of a Class I hazardous waste injection well, the owner or operator shall submit and the director shall review the following information, which shall be included in the completion report:

(1) all available logging and testing program data on the well;

(2) a demonstration of mechanical integrity pursuant to 20.6.2.5358 NMAC;

(3) the anticipated maximum pressure and flow rate at which the permittee will operate;

(4) the results of the injection zone and confining zone testing program as required in Paragraph (9) of Subsection A of 20.6.2.5360 NMAC;

(5) the actual injection procedure;

(6) the compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining zone and with the materials used to construct the well;

(7) the calculated area of review based on data obtained during logging and testing of the well and the formation, and where necessary revisions to the information submitted under Paragraphs (2) and (3) of Subsection A of 20.6.2.5360 NMAC;

(8) the status of corrective action on wells identified in Paragraph (15) of Subsection A of 20.6.2.5360 NMAC; and

(9) evidence that the permittee has obtained an exemption under 40 C.F.R. Part 148, Subpart C for the hazardous wastes permitted for disposal through underground injection.

C. Prior to granting approval for the plugging and abandonment (*i.e.*, closure) of a Class I hazardous waste injection well, the director shall review the information required in Paragraph (4) of Subsection A of 20.6.2.5361 NMAC and Subsection A of 20.6.2.5362 NMAC.

D. Any permit issued for a Class I hazardous waste injection well for disposal on the premises where the waste is generated shall contain a certification by the owner or operator that:

(1) the generator of the hazardous waste has a program to reduce the volume or quantity and toxicity of such waste to the degree determined by the generator to be economically practicable; and

(2) injection of the waste is that practicable method of disposal currently available to the generator which minimizes the present and future threat to human health and the environment.

[20.6.2.5360 NMAC - N, 8-31-15]

20.6.2.5361 CLOSURE:

A. *Closure plan.* The owner or operator of a Class I hazardous waste injection well shall prepare, maintain, and comply with a plan for closure of the well that meets the requirements of Subsection D of this section and is acceptable to the director. The obligation to implement the closure plan survives the termination of a permit or the cessation of injection activities. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.

(1) The owner or operator shall submit the plan as a part of the permit application and, upon approval by the director, such plan shall be a condition of any permit issued.

(2) The owner or operator shall submit any proposed significant revision to the method of closure reflected in the plan for approval by the director no later than the date on which notice of closure is required to be submitted to the director under Subsection B of this section.

(3) The plan shall assure financial responsibility as required in Paragraph (1) of Subsection A of 20.6.2.5342 NMAC.

(4) The plan shall include the following information:

(a) the type and number of plugs to be used;

(b) the placement of each plug including the elevation of the top and bottom of each plug;

(c) the type and grade and quantity of material to be used in plugging;

(d) the method of placement of the plugs;

(e) any proposed test or measure to be made;

(f) the amount, size, and location (by depth) of casing and any other materials to be left in the well;

(g) the method and location where casing is to be parted, if applicable;

(h) the procedure to be used to meet the requirements of Paragraph (5) of Subsection D of this section;

(i) the estimated cost of closure; and

(j) any proposed test or measure to be made.

(5) The director may modify a closure plan following the procedures of 20.6.2.3109 NMAC.

(6) An owner or operator of a Class I hazardous waste injection well who ceases injection temporarily, may keep the well open provided he:

(a) has received authorization from the director; and

(b) has described actions or procedures, satisfactory to the director, that the owner or operator will take to ensure that the well will not endanger groundwater of the state of New Mexico during the period of temporary disuse; these actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the director.

(7) The owner or operator of a well that has ceased operations for more than two years shall notify the director 30 days prior to resuming operation of the well.

B. *Notice of intent to close.* The owner or operator shall notify the director at least 60 days before closure of a well. At the discretion of the director, a shorter notice period may be allowed.

C. *Closure report.* Within 60 days after closure or at the time of the next quarterly report (whichever is less) the owner or operator shall submit a closure report to the director. If the quarterly report is due less than 15 days after completion of closure, then the report shall be submitted within 60 days after closure. The report shall be certified as accurate by the owner or operator and by the person who performed the closure operation (if other than the owner or operator). Such report shall consist of either:

(1) a statement that the well was closed in accordance with the closure plan previously submitted and approved by the director; or

(2) where actual closure differed from the plan previously submitted, a written statement specifying the differences between the previous plan and the actual closure.

D. *Standards for well closure.*

(1) Prior to closing the well, the owner or operator shall observe and record the pressure decay for a time specified by the director. The director shall analyze the pressure decay and the transient pressure observations conducted pursuant to Paragraph (1) of Subsection E of 20.6.2.5358 NMAC and determine whether the injection activity has conformed with predicted values.

(2) Prior to well closure, appropriate mechanical integrity testing shall be conducted to ensure the integrity of that portion of the long string casing and cement that will be left in the ground after closure. Testing methods may include:

(a) pressure tests with liquid or gas;

(b) radioactive tracer surveys;
(c) noise, temperature, pipe evaluation, or cement bond logs; and
(d) any other test required by the director.

(3) Prior to well closure, the well shall be flushed with a buffer fluid.

(4) Upon closure, a Class I hazardous waste well shall be plugged with cement in a manner that will not allow the movement of fluids into or between groundwater of the state of New Mexico.

(5) Placement of the cement plugs shall be accomplished by one of the following:
(a) the balance method;
(b) the dump bailer method;
(c) the two-plug method; or
(d) an alternate method, approved by the director, that will reliably provide a comparable level of protection.

(6) Each plug used shall be appropriately tagged and tested for seal and stability before closure is completed.

(7) The well to be closed shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or by a comparable method prescribed by the director, prior to the placement of the cement plug(s).

[20.6.2.5361 NMAC - N, 8-31-15]

20.6.2.5362 POST-CLOSURE CARE:

A. The owner or operator of a Class I hazardous waste well shall prepare, maintain, and comply with a plan for post-closure care that meets the requirements of Subsection B of this section and is acceptable to the director. The obligation to implement the post-closure plan survives the termination of a permit or the cessation of injection activities. The requirement to maintain an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.

(1) The owner or operator shall submit the plan as a part of the permit application and, upon approval by the director, such plan shall be a condition of any permit issued.

(2) The owner or operator shall submit any proposed significant revision to the plan as appropriate over the life of the well, but no later than the date of the closure report required under Subsection C of 20.6.2.5361 NMAC.

(3) The plan shall assure financial responsibility as required in 20.6.2.5363 NMAC.

(4) The plan shall include the following information:
(a) the pressure in the injection zone before injection began;
(b) the anticipated pressure in the injection zone at the time of closure;
(c) the predicted time until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost groundwater of the state of New Mexico;
(d) predicted position of the waste front at closure;
(e) the status of any cleanups required under 20.6.2.5354 NMAC; and
(f) the estimated cost of proposed post-closure care.

(5) At the request of the owner or operator, or on his own initiative, the director may modify the post-closure plan after submission of the closure report following the procedures in 20.6.2.3109 NMAC.

B. The owner or operator shall:

(1) continue and complete any cleanup action required under 20.6.2.5354 NMAC, if applicable;

(2) continue to conduct any groundwater monitoring required under the permit until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost groundwater of the state of New Mexico; the director may extend the period of post-closure monitoring if he determines that the well may endanger groundwater of the state of New Mexico;

(3) submit a survey plat to the local zoning authority designated by the director; the plat shall indicate the location of the well relative to permanently surveyed benchmarks; a copy of the plat shall be submitted to the director;

(4) provide appropriate notification and information to such state and local authorities as have cognizance over drilling activities to enable such state and local authorities to impose appropriate conditions on subsequent drilling activities that may penetrate the well's confining or injection zone;

(5) retain, for a period of three years following well closure, records reflecting the nature, composition and volume of all injected fluids; the director shall require the owner or operator to deliver the records

to the director at the conclusion of the retention period, and the records shall thereafter be retained at a location designated by the director for that purpose.

C. Each owner of a Class I hazardous waste injection well, and the owner of the surface or subsurface property on or in which a Class I hazardous waste injection well is located, must record a notation on the deed to the facility property or on some other instrument which is normally examined during title search that will in perpetuity provide any potential purchaser of the property the following information:

(1) the fact that land has been used to manage hazardous waste;

(2) the name of the state agency or local authority with which the plat was filed, as well as the address of the director;

(3) the type and volume of waste injected, the injection interval or intervals into which it was injected, and the period over which injection occurred.

[20.6.2.5362 NMAC - N, 8-31-15]

20.6.2.5363 FINANCIAL RESPONSIBILITY FOR POST-CLOSURE CARE: The owner or operator shall demonstrate and maintain financial responsibility for post-closure by using a trust fund, surety bond, letter of credit, financial test, insurance or corporate guarantee that meets the specifications for the mechanisms and instruments revised as appropriate to cover closure and post-closure care in 20.6.2.5320 NMAC. The amount of the funds available shall be no less than the amount identified in Subparagraph (f) of Paragraph (4) of Subsection A of 20.6.2.5362 NMAC. The obligation to maintain financial responsibility for post-closure care survives the termination of a permit or the cessation of injection. The requirement to maintain financial responsibility is enforceable regardless of whether the requirement is a condition of the permit.

[20.6.2.5363 NMAC - N, 8-31-15]

20.6.2.5364 - 20.6.2.5399: [RESERVED]

HISTORY of 20.6.2 NMAC:

Pre-NMAC History:

Material in this Part was derived from that previously filed with the commission of public records - state records center and archives:

WQC 67-2, Regulations Governing Water Pollution Control in New Mexico, filed 12-5-67, effective 1-4-68
WQC 72-1, Water Quality Control Commission Regulations, filed 8-4-72, effective 9-3-72
WQC 77-1, Amended Water Quality Control Commission Regulations, filed 1-18-77, effective 2-18-77
WQC 81-2, Water Quality Control Commission Regulations, filed 6-2-81, effective 7-2-81
WQC 82-1, Water Quality Control Commission Regulations, filed 8-19-82, effective 9-20-82

History of Repealed Material: [Reserved]

Other History:

20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 10-27-95, effective 12-1-95
20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 10-15-96, effective 11-15-96
20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 11-30-00, effective 1-15-01
20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 9-16-01, effective 12-1-01
20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 8-1-02, effective 9-15-02

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 6 WATER QUALITY
PART 6 GROUND WATER PROTECTION - SUPPLEMENTAL PERMITTING REQUIREMENTS FOR DAIRY FACILITIES

20.6.6.1 ISSUING AGENCY: Water Quality Control Commission.
[20.6.6.1 NMAC - N, 01/31/2011]

20.6.6.2 SCOPE: All persons subject to the Water Quality Act, NMSA 1978, Sections 74-6-1 et seq and specifically to dairy facilities and their operations.
[20.6.6.2 NMAC - N, 01/31/2011]

20.6.6.3 STATUTORY AUTHORITY: Standards and regulations are adopted by the commission under the authority of the Water Quality Act, NMSA 1978, Sections 74-6-1 through 74-6-17.
[20.6.6.3 NMAC - N, 01/31/2011]

20.6.6.4 DURATION: Permanent.
[20.6.6.4 NMAC - N, 01/31/2011]

20.6.6.5 EFFECTIVE DATE: 01/31/2011, unless a later date is cited at the end of a section.
[20.6.6.5 NMAC - N, 01/31/2011]

20.6.6.6 OBJECTIVE: The purpose of 20.6.6 NMAC is to supplement the general permitting requirements of 20.6.2.3000 through 20.6.2.3114 NMAC to control discharges specific to dairy facilities and their operations.
[20.6.6.6 NMAC - N, 01/31/2011]

20.6.6.7 DEFINITIONS:

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

B. As used in 20.6.6 NMAC, but not in other sections of 20.6.2 NMAC, a term defined in this part shall have the following meaning.

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

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

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

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

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

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

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

(8) "Dairy rule" means 20.6.6 NMAC, as amended.

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

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

(11) "EPA" means the United States environmental protection agency.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(29) "Wastewater" means water, that has come into contact with water contaminants as a result of being directly or indirectly used in the operations of a dairy facility including, but not limited to, the following: washing, cleaning, or flushing barns or other roof-covered production areas; washing of animals; spray-cooling of animals (except in open lots); and cooling or cleaning of feed mills and equipment. Wastewater does not include overflow from the drinking water system or stormwater unless overflow or stormwater that is collected is comingled with wastewater, or it comes into contact with water contaminants as a result of being directly or indirectly used in dairy facility operations. [20.6.6.7 NMAC - N, 01/31/2011; A, 06/16/2015]

20.6.6.8 REQUIREMENTS FOR DISCHARGING FROM DAIRY FACILITIES:

A. No person shall discharge from a dairy facility without a discharge permit. A person intending to discharge from a dairy facility shall submit an application for a discharge permit pursuant to 20.6.6.10 NMAC and remit fees pursuant to 20.6.6.9 NMAC.

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

C. Unless otherwise noted in 20.6.6 NMAC, the requirements of 20.6.2.3101 through 20.6.2.3114 NMAC apply to a dairy facility.

D. Complying with the requirements of 20.6.6 NMAC does not relieve a dairy facility's owner, operator or permittee from complying with the requirements of other applicable local, state and federal regulations or laws.

[20.6.6.8 NMAC - N, 01/31/2011]

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

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

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

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

[20.6.6.9 NMAC - N, 01/31/2011]

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

A. In lieu of Subsection F of 20.6.2.3106 NMAC, a permittee shall submit an application for renewal of a discharge permit for a dairy facility to the department at least one year before the discharge permit expiration date, unless closure of the facility is approved by the department before that date. At least 180 days before the due date for an application for renewal, a permittee may request a pre-application meeting with the department. The pre-application meeting shall be held in Santa Fe, unless otherwise agreed by the department. Requests shall be made in writing and submitted to the department by certified mail. If a permittee requests a pre-application meeting, the department shall contact the permittee to discuss and schedule a date for the pre-application meeting. The department shall respond to the permittee's request in writing by certified mail to confirm the pre-application meeting date. The pre-application meeting shall occur no less than 60 days before the application due date. If the permittee or his representative fails to participate in the scheduled pre-application meeting, the permittee forfeits the opportunity for a pre-application meeting.

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

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

(1) for a new discharge permit, shall provide the information and supporting technical documentation pursuant to this section and 20.6.6.11 NMAC;

(2) for a renewed or modified discharge permit, shall provide the information and supporting technical documentation pursuant to this section and 20.6.6.12 NMAC; or

(3) for a renewed discharge permit for closure, shall provide the information and supporting technical documentation pursuant to this section and 20.6.6.13 NMAC.

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

E. If an applicant filing an application for a new discharge permit does not certify that the dairy facility complies with the setback requirements of 20.6.6.16 NMAC, as required by Subsection D of 20.6.6.11 NMAC, the

department shall reject the application. The department shall provide notice of the rejection to the applicant by certified mail.

F. Within 60 days of the department's receipt of proof of notice pursuant to Subsection D of 20.6.2.3108 NMAC, the department shall review the application for technical completeness. If proof of notice is not submitted to the department pursuant to Subsection D of 20.6.2.3108 NMAC, the department shall notify the applicant by certified mail of the violation and provide 15 days from the date of postal notice for the applicant to submit the proof pursuant to Subsection D of 20.6.2.3108 NMAC. If proof of notice is not submitted to the department following the issuance of a notice of violation, the department may deny the application.

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

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

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

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

H. An applicant may propose alternate methods and innovative technologies such as new or advanced storage, treatment or disposal methods not directly addressed by this rule or different from those specified in 20.6.6.17, 20 and 21 NMAC. At its discretion, the department may approve an alternate method provided all of the following conditions are met:

(1) A pre-application meeting is held prior to application submittal. The meeting may be held at an appropriate demonstration site to show the suitability/applicability of the proposed method.

(2) A demonstration is made to the department's satisfaction that the proposed alternate method or technology, including its engineering design, equipment, process, operation and maintenance, will not result in an exceedance of the water quality standards of 20.6.2.3103 NMAC.

(3) Plans and specifications are submitted that meet the requirements of Subsections A and B of 20.6.6.17 NMAC.

(4) A plan to monitor ground water that may be affected by the alternate method or technology shall be submitted that is consistent with requirements of 20.6.6.23 NMAC.

I. The department may impose additional conditions on a discharge permit in accordance with Section 74-6-5 NMSA 1978. If the department proposes an additional condition in a discharge permit that is not included in the dairy rule, the department shall include a written explanation of the reason for the additional condition with the copy of the proposed approval sent to the applicant pursuant to Subsection H of 20.6.2.3108 NMAC. Written comments about the additional condition may be submitted to the department during the 30-day comment period provided by Subsection K of 20.6.2.3108 NMAC. A hearing may be requested about the additional condition as provided by 20.6.6.15 NMAC.

J. The secretary shall approve a discharge permit provided that it poses neither a hazard to public health nor undue risk to property, and:

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

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

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

[20.6.6.10 NMAC - N, 01/31/2011; A, 06/16/2015; A, 06/30/2015]

20.6.6.11 APPLICATION REQUIREMENTS FOR NEW DISCHARGE PERMITS:

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

B. Contact information. An application shall include:

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

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

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

(4) mailing address and phone number of any consultants authorized to assist the dairy facility with compliance with the Water Quality Act and 20.6.2 and 20.6.6 NMAC.

C. **Ownership and real property agreements.**

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

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

(b) If any corporate entity, including but not limited to a corporation or a limited liability company, holds an ownership interest in the dairy facility, then the applicant shall also list the name(s), as filed with the New Mexico public regulation commission, of the corporate entity, and the corporate entity's registered agent's name and address.

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

D. **Setbacks.** The applicant shall certify that the setback requirements of 20.6.6.16 NMAC are met. An application shall include a scaled map of the dairy facility layout demonstrating that the proposed layout of the dairy facility meets the setback requirements of 20.6.6.16 NMAC.

E. **Dairy facility information and location.** An application shall include:

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

(2) the township, range and section for the entire dairy facility, which includes the production area and fields within the land application area.

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

G. **Pre-discharge total dissolved solids concentration in ground water.** Pursuant to Paragraph (3) of Subsection C of 20.6.2.3106 NMAC, an application shall include the pre-discharge total dissolved solids concentration from analytical results of ground water obtained from the on-site test boring pursuant to Subsection X of 20.6.6.20 NMAC, if applicable, or from the nearest well within a one-mile radius of the dairy facility. A copy of the laboratory analysis stating the pre-discharge total dissolved solids concentration shall be submitted with the application.

H. **Determination of maximum daily discharge volume.** An application shall include the following information.

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

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

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

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

I. **Wastewater quality.** An application shall include estimated concentrations of wastewater quality for total dissolved solids, chloride, total sulfur, nitrate as nitrogen, and total Kjeldahl nitrogen.

J. **Identification and physical description of the dairy facility.** An application shall include the following information.

(1) A scaled map of the entire dairy facility pursuant to Subsection U of 20.6.6.20 NMAC.

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

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

(4) The identification of proposed sumps and mix tanks, including information for each component regarding its location, purpose, construction material, dimensions and capacity.

(5) A description of the proposed method(s) employed to protect each area from stormwater runoff and run-on, and to minimize leachate.

K. Flow metering. An application shall describe a dairy facility's flow metering system pursuant to Subsections J, K, L, M, N and O of 20.6.6.20 NMAC and Subsections G and H of 20.6.6.21 NMAC, including:

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

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

(3) the identification of flow meter locations.

L. Depth-to-most-shallow ground water and ground water flow direction. An application shall include the following information.

(1) The depth-to-most-shallow ground water pursuant to Subsection X of 20.6.6.20 NMAC.

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

M. Monitoring wells. An application shall include the proposed monitoring well locations pursuant to Subsections A and B of 20.6.6.23 NMAC.

N. Surface soil survey and vadose zone geology. An application shall include:

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

(2) if applicable, the lithologic log obtained from the on-site test boring pursuant to Subsection X of 20.6.6.20 NMAC to identify the geological profile of the vadose zone.

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

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

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

(3) irrigation supply wells; and

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

P. Flood zone map. An application shall include the most recent 100-year flood zone map developed by the federal emergency management administration, FEMA, documenting flood potential for the dairy facility, and a description of any engineered measures used for flood protection.

Q. Engineering and surveying. Pursuant to 20.6.6.17 NMAC an application shall include:

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

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

(3) a grading and drainage report and plan.

R. Land application area. For a dairy facility with a land application area, an application shall include the following information.

(1) A nutrient management plan (NMP) pursuant to Subsections I and J of 20.6.6.21 NMAC.

(2) A written description of the wastewater sampling location(s) pursuant to Subsection C of 20.6.6.25 NMAC.

[20.6.6.11 NMAC - N, 01/31/2011; A, 12/31/2011]

20.6.6.12 APPLICATION REQUIREMENTS FOR DISCHARGE PERMIT RENEWAL OR MODIFICATION:

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

B. Contact information. An application shall include the:

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

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

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

(4) mailing address and phone number of any consultants authorized to assist the dairy facility with compliance with the Water Quality Act and 20.6.2 and 20.6.6 NMAC.

C. **Ownership and real property agreements.**

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

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

(b) If any corporate entity, including but not limited to a corporation or a limited liability company, holds an ownership interest in the dairy facility, then the applicant shall also list the name(s), as filed with the New Mexico public regulation commission, of the corporate entity and the corporate entity's registered agent's name and address.

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

D. **Dairy facility information and location.** An application shall include:

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

(2) the discharge permit identification number as designated on the most recent discharge permit for the dairy facility;

(3) the township, range and section for the entire dairy facility, which includes the production area and fields within the land application area; and

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

E. **Public notice preparation.**

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

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

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

G. **Determination of maximum daily discharge volume.** An application shall include the following information.

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

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

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

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

H. **Identification and physical description of dairy facility.** An application shall include the following information.

(1) A scaled map of the entire dairy facility pursuant to Subsection U of 20.6.6.20 NMAC.

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

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

method of backflow prevention employed, current method of wastewater and stormwater application and current method of irrigation water application.

(4) The identification of sumps and mix tanks, including information for each component regarding its location, purpose, date of original construction, construction material, dimensions and capacity.

(5) The settled solids thickness measurements for each existing wastewater and combination impoundment pursuant to Subsection D of 20.6.6.20 NMAC.

(6) A description of proposed and existing method(s) of solids separation pursuant to Paragraph (5) of Subsection C of 20.6.6.17 NMAC and Subsection F of 20.6.6.20 NMAC.

(7) A description of the method(s) employed to protect each manure, silage and compost storage area from stormwater runoff and run-on, and to minimize leachate.

I. **Flow metering.** An application shall describe a dairy facility's flow metering system pursuant to Subsections J, K, L, M, N and O of 20.6.6.20 NMAC and Subsections G and H of 20.6.6.21 NMAC including:

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

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

(3) the identification of flow meter locations.

J. **Depth-to-most-shallow ground water and ground water flow direction.**

(1) An application for renewal or modification shall provide the depth-to-most-shallow ground water and indicate ground water flow direction beneath the dairy facility on a ground water elevation contour map. The ground water elevation contour map shall be developed based upon the most recent ground water levels obtained with a water level measuring device and survey data from on-site monitoring wells obtained from a survey, pursuant to 20.6.6.23 NMAC.

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

(a) The depth-to-most-shallow ground water pursuant to Subsection X of 20.6.6.20 NMAC.

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

K. **Monitoring wells.** An application shall include:

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

(2) the identification of monitoring well locations, proposed and existing, pursuant to Subsections A and B of 20.6.6.23 NMAC.

L. **Surface soil survey and vadose zone geology.** An application shall include:

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

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

(3) if applicable, where a dairy facility does not have a monitoring well intersecting most-shallow ground water, the application shall include the lithologic log obtained from the on-site test boring pursuant to Subsection X of 20.6.6.20 NMAC to identify the geological profile of the vadose zone.

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

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

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

(3) irrigation supply wells; and

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

N. **Flood zone map.** An application shall include the most recent 100-year flood zone map developed by the federal emergency management administration, FEMA, documenting flood potential for the dairy facility, and a description of any engineered measures used for flood protection.

O. **Engineering and surveying.** An application shall include the following information.

(1) Plans and specifications for new or improved structures and associated liners proposed by the applicant pursuant to 20.6.6.17 NMAC.

(2) Record drawings and final specifications for existing structures and associated liners. For existing impoundments where record drawings and final specifications do not exist, survey data and capacity calculations shall be submitted pursuant to Subsection C of 20.6.6.20 NMAC.

P. **Land application area.** For a dairy facility with a land application area, an application shall include the following information.

(1) Documentation confirming the existence of infrastructure necessary to distribute and apply wastewater and stormwater to the land application area pursuant to Subsection E of 20.6.6.21 NMAC.

(2) A nutrient management plan (NMP) pursuant to Subsections I and J of 20.6.6.21 NMAC.

(3) A written description of the wastewater sampling location(s) pursuant to Subsection C of 20.6.6.25 NMAC.

[20.6.6.12 NMAC - N, 01/31/2011; A, 12/31/2011]

20.6.6.13 APPLICATION REQUIREMENTS FOR A DISCHARGE PERMIT FOR CLOSURE: An application for a discharge permit for closure shall include the information required by Subsections B, C, D, E, F, J, K, L, M and N of 20.6.6.12 NMAC and Paragraphs (1), (2), (3) and (4) of Subsection H of 20.6.6.12 NMAC. For dairy facilities with or previously having a land application area, the application shall also include Paragraph (1) of Subsection P of 20.6.6.12 NMAC, specifically pertaining to the past method(s) of wastewater discharge and stormwater application to the land application area.

[20.6.6.13 NMAC - N, 01/31/2011; A, 12/31/2011]

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

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

B. Instead of the requirement for public notice specified in Paragraph (2) of Subsection B of 20.6.2.3108 NMAC, the applicant shall provide written notice of the discharge and a copy of the map referenced in Subsection O of 20.6.6.11 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. If there are no properties other than properties owned by the discharger within a one-mile distance of the boundary of the property where the dairy facility is located, the applicant shall provide notice to owners of record of the next nearest properties not owned by the discharger.

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

[20.6.6.14 NMAC - N, 01/31/2011]

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

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

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

[20.6.6.15 NMAC - N, 01/31/2011]

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

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

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

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

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

E. **Production area setback requirements.**

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

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

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

(c) greater than 200 feet from any spring identified on a U.S. geological survey (USGS) topographic map and not identified as a supply of water for human consumption;

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

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

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

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

F. **Land application area setback requirements.**

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

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

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

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

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

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

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

[20.6.6.16 NMAC - N, 01/31/2011]

20.6.6.17 ENGINEERING AND SURVEYING REQUIREMENTS FOR ALL DAIRY FACILITIES:

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

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

C. **Engineering plans and specifications requirements.**

(1) **Impoundment plans and specifications.** An applicant or permittee proposing or required to construct a new impoundment or to improve an existing impoundment, including relining of an existing impoundment, shall submit detailed and complete construction plans and specifications and supporting design calculations developed pursuant to this section and 20.6.6.20 NMAC. The applicant or permittee proposing or required to construct an impoundment shall document compliance with the requirements of the dam safety bureau of the state engineer pursuant to Section 72-5-32 NMSA 1978, and rules promulgated under that authority, unless exempt by law from such requirements.

The construction plans and specifications for an improvement(s) to an existing impoundment shall address the management of wastewater or stormwater during preparation and construction of the improvements.

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

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

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

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

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

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

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

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

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

(g) The procedures for seaming synthetic liners.

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

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

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

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

(c) A schedule for implementation through completion of the project.

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

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

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

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

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

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

(a) A scaled map showing:

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

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

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

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

(b) A copy of the relevant federal emergency management administration, FEMA, flood insurance rate map (FIRM) or flood boundary and floodway map with the dairy facility clearly identified along with all flood zones.

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

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

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

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

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

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

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

(7) **Flow metering plans.** An applicant or permittee proposing or required to install a flow meter(s) shall submit documentation to support the selection of the proposed device as appropriate for the expected flow rate along with a description of the location and information on the installation or construction of each device.

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

(b) Such information not proposed by the applicant or permittee but required to achieve compliance with the dairy rule shall be submitted to the department within 90 days of the effective date of the discharge permit.

D. Engineering design requirements.

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

(2) **Impoundment capacities - wastewater or wastewater/stormwater combination.**

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

(i) The wastewater impoundments intended to store wastewater prior to discharging to a land application area shall be designed to contain the maximum daily discharge volume authorized by the discharge permit for a minimum period of 21 days to accommodate periods when land application is not feasible, while preserving two feet of freeboard. This capacity requirement may be satisfied by a single wastewater impoundment or by the collective capacity of multiple impoundments intended to store wastewater.

(ii) The combination wastewater/stormwater impoundments intended to contain both wastewater and stormwater runoff for storage prior to discharging to a land application area shall be designed to contain the sum of the maximum daily discharge volume authorized by the discharge permit for a minimum period of 21 days to accommodate periods when land application is not feasible and the additional volume intended for the containment of stormwater runoff and direct precipitation, while preserving two feet of freeboard. This capacity requirement may be satisfied by a single combination wastewater/stormwater impoundment or by the collective capacity of multiple impoundments intended to store wastewater or wastewater/stormwater.

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

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

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

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

(d) Notwithstanding Subparagraphs (a) and (b) of this paragraph, a wastewater impoundment or system of wastewater impoundments existing as of the effective date of the dairy rule may continue to be operated based upon the design capacity required under the applicable discharge permit as last issued or amended before the effective date of the dairy rule.

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

(4) **Impoundment design and construction - general.** Impoundments required to be lined shall meet the following design and construction requirements.

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

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

(c) The sub-grade of an impoundment shall be compacted to a minimum of 90 percent of standard proctor density. If the existing material is unsuitable for compaction, a minimum depth of 18 inches of suitable material shall be used as sub-grade.

(d) The sub-grade of an impoundment shall provide a firm, unyielding surface with no sharp changes or abrupt breaks in grade.

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

(5) **Impoundment design and construction - liner.** An applicant or permittee proposing or required to construct a new or to improve an existing impoundment liner, shall at a minimum use a synthetic liner or a two foot thick compacted clay liner with a maximum demonstrated hydraulic conductivity of 1×10^{-7} cm/sec and that is designed, constructed, installed and maintained in accordance with the Guide for Industrial Waste Management, Part IV: Protecting Ground Water, Chapter 7: Section B, Designing and Installing Liners, Technical Considerations for New Surface Impoundments, Landfills and Waste Piles (U.S. environmental protection agency), incorporated herein by this reference. Synthetic impoundment liners shall include a liner component that is at least 60 mil HDPE or other materials having equivalent performance characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance and meet the following additional design and construction requirements.

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

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

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

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

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

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

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

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

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

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

(6) **Impoundment liner - wastewater or wastewater/stormwater combination.** An applicant or permittee proposing or required to construct a new or to improve an existing wastewater or combination wastewater/stormwater impoundment, shall, at a minimum, use a liner that meets the requirements of Paragraph (5) of this subsection.

(7) **Impoundment liner - stormwater.** Any applicant or permittee required to improve an existing stormwater impoundment pursuant to Subsection A or B of 20.6.6.27 NMAC shall, at a minimum, use a liner that meets the requirements in Paragraph (5) of this subsection.

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

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

[20.6.6.17 NMAC - N, 01/31/2011; A, 12/31/2011; A, 06/16/2015]

20.6.6.18 VARIANCES:

A. A petition for variance from the dairy rule shall be submitted in accordance with Subsection A of 20.6.2.1210 NMAC.

B. In addition to any other criteria offered by the petitioner, the commission may consider as an unreasonable burden upon the petitioner's activity that the requirements of the dairy rule are unnecessary to prevent ground water pollution due to site-specific conditions.

C. In addition to any other information required under Paragraph (7) of that subsection, the petition shall, if applicable, identify any alternative facility design, alternative measuring device, or other variation from the requirements of the dairy rule and describe why variation from the diary rule is warranted based upon site-specific conditions.

D. Notwithstanding Subsection C of 20.6.2.1210 NMAC, a variance from the requirements of the diary rule may be granted for a period of time in excess of five years through the period of the expected useful life of the feature for which a variance is granted.

E. The department may review a variance every five years in conjunction with the discharge permit renewal to determine whether the variance is achieving its designed purpose and whether the variance has caused an exceedance of the standards of 20.6.2.3103 NMAC. If a five year review demonstrates that the variance cannot meet these criteria, the department may request a hearing before the commission to revoke the variance.

[20.6.6.18 NMAC - N, 12/31/2011]

20.6.6.19 [RESERVED]

20.6.6.20 OPERATIONAL REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Notice of presence of lactating cows and wastewater discharge. A permittee shall provide written notice to the department of the commencement, cessation, or recommencement of wastewater discharge or the placement, removal, or reintroduction of lactating cows as follows.

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

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

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

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

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

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

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

B. Authorized use of new and existing impoundments. Impoundments shall meet the liner, design, and construction requirements of Subsection D of 20.6.6.17 NMAC; except an impoundment in existence on the effective date of the dairy rule that does not meet the requirements of Paragraphs (4) through (9) of Subsection D of 20.6.6.17 NMAC may continue to receive wastewater or stormwater provided the requirements of Paragraphs (1) or (2) of this subsection are met. If the requirements of Paragraph (1) and (2) of this subsection are not met, such an impoundment may continue to receive wastewater or stormwater provided the requirements of Subsection B of 20.6.6.27 NMAC are met.

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

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

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

D. Free-liquid capacity of existing impoundment - determination. An applicant or permittee shall measure the thickness of settled solids in each existing wastewater and combination wastewater/stormwater impoundment during the twelve-month period prior to the submission of an application for a renewed or modified discharge permit and in accordance with one of the following procedures.

(1) Measure settled solids when the impoundment contains water using the following method:

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

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

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

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

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

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

(2) Measure settled solids when the impoundment has been drained of water to its lowest seasonal level using the following method:

(a) Place a visible mark on each of the sidewalls of the pond showing the design depth allowed for sludge accumulation, or establish at least two vertical staff gauges marked to show the design depth allowed for sludge accumulation. The design depth shall be determined based upon the design capacity approved in the most recent discharge permit.

(b) When the pond is drained to its lowest seasonal level, such that the marks showing the depths described above are visible (or would be visible except for sludge accumulation), photograph each of the markings and submit the photographs with the application.

E. Impoundment construction or improvement. Construction of a new impoundment or improvements to an existing impoundment, including relining of an existing impoundment, shall be performed in accordance with the construction plans and specifications and supporting design calculations submitted with the application for a new, renewed or modified discharge permit, or those submitted after issuance of a discharge permit to achieve compliance with the dairy rule. An applicant or permittee shall notify the department at least five working days before starting construction or improvement of an impoundment to allow for an inspection by department personnel. An applicant or permittee shall submit to the department a construction certification report bearing the seal and signature of a licensed New Mexico professional engineer verifying that installation and construction was completed pursuant to Subsection C of 20.6.6.17 NMAC. The construction certification report shall include: record drawings, final specifications, final capacity calculations and the CQA/CQC report.

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

(a) Wastewater impoundment construction shall be completed and the construction certification report shall be submitted to the department before discharging wastewater at the dairy facility.

(b) Combination wastewater/stormwater impoundment construction shall be completed and the construction certification report shall be submitted to the department before placing any livestock at the dairy facility.

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

(a) within one year of the effective date of the discharge permit, if construction of a new impoundment or improvement of an existing impoundment is required to achieve compliance with the dairy rule, or pursuant to the contingency timeframe specified in Subsection B of 20.6.6.27 NMAC when invoked after the effective date of a discharge permit issued pursuant to the dairy rule; and

(b) the construction certification report shall be submitted to the department within 90 days of completion of impoundment construction.

F. Manure solids separator installation. A permittee shall employ manure solids separation. If a solid separator with a potential to contaminate ground water is proposed, such as a pond or settling basin, it shall be lined in accordance with Paragraph (5) of Subsection D of 20.6.6.17 NMAC. A permittee installing a new wastewater storage or disposal system shall, before discharging to the new system, construct a manure solids separator(s) in accordance with the construction plans and specifications submitted with the application for a new, renewed or modified discharge permit, or those submitted after issuance of a discharge permit to achieve compliance with the dairy rule. Before discharging to the new system, the permittee shall submit to the department confirmation of solids separator construction, including separator type(s) and location(s).

G. Grading and drainage report and plan - submittal and implementation. A permittee shall complete a new grading and drainage system, in accordance with the grading and drainage report and plan required by Subsection C of 20.6.6.17 NMAC and submitted with the application for a new discharge permit. A permittee shall submit a post-development drainage report, including record drawings, bearing the seal and signature of a licensed New Mexico professional engineer. The grading and drainage system shall be completed and the post-development drainage report shall be submitted to the department before placing any livestock at the dairy facility.

H. Stormwater conveyance. A permittee shall divert stormwater from the corrals and other applicable areas at the dairy facility (i.e., calf pens, alleys, feed storage and mixing, etc.) in accordance with the grading and drainage plan required by Subsection C of 20.6.6.17 NMAC. Stormwater shall be conveyed in a manner that minimizes ponding and infiltration of stormwater.

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

J. Flow meter installation. A permittee shall employ a flow metering system that uses flow measurement devices (flow meters) to measure the volume of wastewater discharged at the dairy facility. Flow meters shall be installed in accordance with the plans submitted with the application for a new, renewed or modified discharge permit, or those submitted after issuance of a discharge permit to achieve compliance with the dairy rule, pursuant to this section, Subsection C of 20.6.6.17 NMAC, and Subsections G and H of 20.6.6.21 NMAC. Flow meters shall be labeled with the discharge permit number, meter identification nomenclature as specified in a discharge permit, and the month and year of meter installation. All flow meters shall be calibrated in accordance with the manufacturer's requirements prior to installation or reinstallation following repair. The permittee shall maintain copies of the manufacturer's certificate of calibration and the manufacturer's recommended maintenance schedule. Confirmation of installation shall include a description of the device type, manufacturer, meter identification, location, record drawings, and a copy of the manufacturer's certificate of calibration and a copy of the manufacturer's recommended maintenance schedule.

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

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

K. **Flow metering methods.** Flow metering shall be accomplished by the following methods.

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

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

(3) An applicant may propose and the department may accept a proposal to meter flows by metering the water supply. The proposal shall provide specific detail regarding the flow meter to be used and the relationship between the volume of water supplied and wastewater volume.

L. **Flow meter locations.** An applicant or permittee shall identify flow meter locations in the application for a new, renewed or modified discharge permit. All flow meters shall be located pursuant to this section and Subsections G and H of 20.6.6.21 NMAC, and indicated on the scaled map required by Subsection U of this section.

M. **Authorized use of existing flow meters.** An applicant or permittee proposing to use an existing flow meter(s) shall submit documentation demonstrating that the existing flow meter(s) is installed consistent with this section, and Subsections G and H of 20.6.6.21 NMAC, as appropriate. The proposal shall be submitted with an application for a new, renewed and modified discharge permit and shall include the following documentation.

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

(2) A copy of the record drawings or manufacturer plans and technical specifications specific to each existing flow meter, if available.

N. **Flow metering - wastewater to impoundment.** A permittee shall install flow meters to measure the volume of wastewater discharged from all wastewater sources to the wastewater or combination wastewater/stormwater impoundment(s). The flow meter(s) shall be installed on the discharge line(s) from all wastewater sources to the wastewater impoundment(s). Meter installation and confirmation of meter installation shall be performed pursuant to this section. Alternatively, a dairy existing on the effective date of the dairy rule that does not utilize flow meters meeting the requirements of the preceding sentence may install a flow meter(s) on the water supply line(s) that serves all wastewater sources. Readings from flow meter(s) on water supply lines shall be used to estimate wastewater volumes discharged to wastewater or combination wastewater/stormwater impoundment(s) without adjustments or deductions to the meter readings.

O. **Flow meter inspection and maintenance.** A permittee shall visually inspect flow meters on a weekly basis for evidence of malfunction. If a visual inspection indicates a flow meter is not functioning to measure flow, the permittee shall initiate repair or replacement of the meter within seven days of discovery. The repaired or replaced flow meter shall be installed and calibrated pursuant to Subsection J of this section.

(1) For repaired meters, the permittee shall submit a report to the department with the next quarterly monitoring report following the repair that includes a description of the malfunction, a statement verifying the repair, and a copy of the manufacturer's or repairer's certificate of calibration.

(2) For replacement meters, the permittee shall submit a report to the department with the next quarterly monitoring report following the replacement that includes plans for the device pursuant to Subsection C of 20.6.6.17 NMAC, a copy of the manufacturer's certificate of calibration, and a copy of the manufacturer's recommended maintenance schedule.

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

Q. **Pipe and fixture inspection and maintenance.** A permittee shall maintain pipes and fixtures used for the conveyance or distribution of wastewater or stormwater at the dairy facility to prevent the unauthorized release of wastewater or stormwater. The permittee shall visually inspect pipes and fixtures on a weekly basis for evidence of leaks or failure, and shall maintain written records at the dairy facility of all such inspections including repairs to the pipes and

fixtures. Where pipes and fixtures cannot be visually inspected because they are buried, the permittee shall inspect the area directly surrounding the features for evidence of leaks or failure (e.g., saturated surface soil, surfacing wastewater, etc.). If there is evidence an unauthorized discharge has resulted from damaged or faulty pipe(s) or fixture(s), the permittee shall repair or replace the pipe(s) or fixture(s) within 72 hours of discovery. The permittee shall report the unauthorized discharge to the department pursuant to 20.6.2.1203 NMAC.

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

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

T. Leachate management - silage storage. A permittee shall minimize the generation and infiltration of leachate from silage storage areas and prevent ponding within silage storage areas. Leachate generated from the silage storage areas shall be collected and contained on an impervious surface or the stormwater impoundment before disposal.

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

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

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

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

(1) Only mortalities originating at the dairy facility may be disposed of at the dairy facility.
(2) Mortalities shall not be stored or buried within 200 feet (measured as horizontal map distance) from private or public wells, or any watercourse.
(3) Mortalities shall not be stored or buried within 100 feet (measured as horizontal map distance) from the 100-year flood zone of any watercourse, as defined by the most recent federal emergency management administration, FEMA, map.
(4) Stormwater run-on to disposal areas shall be prevented by use of berms or other physical barriers.

(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).

X. **Determination of ground water conditions.** An applicant or permittee for a dairy facility without a monitoring well from which depth-to-most-shallow ground water can be measured in accordance with the procedure required by Paragraph (1) of Subsection F of 20.6.6.23 NMAC shall evaluate ground water conditions by the following methods.

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

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

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

(b) The applicant or permittee shall describe the lithology from the ground surface to the completed borehole depth and document the depth of most-shallow ground water or the absence of ground water within 75 feet of the ground surface. If ground water is encountered within 75 feet of the ground surface, the depth of most-shallow ground water shall be measured immediately upon ceasing drilling of the boring and again 24 hours following ceasing drilling. Lithology shall be characterized pursuant to American society of testing and materials (ASTM) test method D 2487 or D 2488 or characterized using standard visual geologic or soils descriptions that shall include lithology, grain size, color (Munsell soil color charts may be used), texture, sorting, percent gravel and degree of induration. The lithologic log and most-shallow ground water information shall be submitted to the department with the application for a new, renewed or modified discharge permit.

(c) Upon completion of ground water measurements, unless the borehole is completed as a monitoring or production well, the borehole shall be immediately abandoned by emplacing neat cement grout, bentonite based plugging material, or other sealing material approved by the state engineer in accordance with 19.27.4 NMAC in the borehole from the bottom of the borehole to the ground surface. A written record of borehole abandonment shall be submitted to the department with the application for a new, renewed or modified discharge permit and shall describe the type of grout used and the depth interval sealed with grout. If a monitoring well is constructed in the borehole, the monitoring well shall be constructed in accordance with Subsection D of 20.6.6.23 NMAC, and a construction log including well record information specified by 19.27.4 NMAC shall be submitted to the department with the application for a new, renewed or modified discharge permit.

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

[20.6.6.20 NMAC - N, 01/31/2011; A, 12/31/2011; A, 06/16/2015]

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

A. **Impoundment storage capacity management - wastewater and wastewater/stormwater combination.** A permittee shall operate and maintain a wastewater or combination wastewater/stormwater impoundment (s) or a tank for the purpose of storing wastewater prior to discharging to the land application area. A permittee shall manage wastewater or combination wastewater/stormwater impoundments to maintain the capacity and two feet of freeboard required by Subsection D of 20.6.6.17 NMAC.

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

C. **Land application area - fresh irrigation water required.** Wastewater shall only be applied to fields within the land application area receiving fresh irrigation water. Fresh irrigation water shall be used as the primary source to meet the water consumptive needs of the crop to support crop production and nutrient removal. Wastewater and stormwater are intended as sources of crop nutrients and shall not be used as a primary source to meet the water consumptive needs of the crop. An applicant may propose and the department may accept a proposal to apply wastewater

to crops or grazing land without using fresh water for irrigation if the proposal demonstrates to the department's satisfaction that crops or plants to be grazed can be successfully maintained without fresh irrigation water.

D. Wastewater/irrigation water blending. Wastewater may be blended in-line (i.e., fresh irrigation water supply lines) when fresh water irrigation lines are equipped with backflow prevention that is installed, operated, inspected and maintained in accordance with Subsections L and M of this section. Wastewater may also be blended in a mix-tank(s), applied alternately in the same irrigation line which has been physically disconnected from supply wells, or applied in a separate line, as authorized by a discharge permit. Wastewater may be blended with fresh water in a wastewater impoundment prior to land application so long as:

(1) the permittee maintains an accurate written record of the volume of fresh water added to the wastewater and that volume is accounted for in determining the volumes of wastewater applied for purposes of the nutrient management plan;

(2) fresh water is introduced in a safe manner to prevent scouring of the liner;

(3) the impoundment capacity requirements of this rule are met.

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

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

G. Flow metering - wastewater to land application area. A permittee shall install flow meters to measure the volume of wastewater discharged from the wastewater or combination wastewater/stormwater impoundments to the land application area. The flow meter(s) shall be installed on the discharge line(s) from the wastewater impoundment(s) or tank to the distribution system for the land application area. Meter installation and confirmation of meter installation shall be performed pursuant to Subsections J, K and M of 20.6.6.20 NMAC.

H. Flow metering - stormwater to land application area. For a dairy facility transferring stormwater from a stormwater impoundment directly to a distribution system for the land application area, a permittee shall install flow meters to measure the volume of stormwater applied directly to the land application area. The flow meter(s) shall be installed on the transfer line(s) from the stormwater impoundment(s) to the distribution system for the land application area. Meter installation and confirmation of meter installation shall be performed pursuant to Subsections J, K and M of 20.6.6.20 NMAC.

I. Nutrient management plan. Nutrients and other constituents required to be monitored under Subsection C of 20.6.6.25 NMAC and present in wastewater and stormwater shall be applied to irrigated cropland under cultivation in accordance with the requirements of a nutrient management plan (NMP) submitted to the department with the application for a new, renewed, or modified discharge permit. The NMP shall provide for development of a nutrient budget for nitrogen on an annual basis that accounts for the amount of nitrogen from all combined nitrogen sources, including but not limited to wastewater, stormwater, manure solids, composted material, irrigation water and other additional fertilizer(s), along with residual soil nitrogen and nitrogen credits from leguminous crops and that considers estimated and measured nitrogen removal by harvested crops and other losses, considering the monitoring data required to be collected under Section 20.6.6.25 NMAC. The NMP shall describe how planned total nitrogen application rates shall be determined each year based upon realistic yield goals for the planned crops. The information used to set the crop yield goals shall be identified in the NMP. The NMP shall address how nitrogen application rates will be adjusted based upon the results of soil tests required by Subsections K and L of 20.6.6.25 NMAC, consistent with applicable Natural Resource Conservation Service guidance for normal, high and excessive soil nitrogen levels. The NMP shall specify the maximum application rates for wastewater applied through irrigation so as not to exceed the soil intake/infiltration rate. The application of nitrogen to each field within the land application area shall be in accordance with the NMP, and any departures from the NMP due to growing conditions or other factors shall be addressed in the update to the NMP for the following year. Plant material and soil sampling protocols in the NMP shall be, at a minimum, equivalent to the requirements of Subsections I, K and L of 20.6.6.25 NMAC. The NMP shall identify the method(s) of crop removal to be employed. The NMP shall be developed for the term of the discharge permit and updated annually. The NMP shall be developed, signed and dated annually by an individual certified by the American society of agronomy as a certified crop

advisor (CCA) or certified professional agronomist (CPAg) or by an individual certified by the New Mexico office of the U.S. department of agriculture natural resources conservation service as a nutrient management planner. The permittee may elect to submit an NMP meeting the requirements of this subsection that is incorporated into a broader plan, such as a comprehensive nutrient management plan or a nutrient management plan prepared to meet the requirements of a permit issued by EPA, in which case only the portions of such plan required by this subsection and Section 20.6.6.25 NMAC shall be considered for purposes of the dairy rule. For a renewed permit where the NMP was not submitted in an application, the permittee shall submit the initial NMP by May 1 of the first year the permit is in effect, and the permittee shall submit annual updates to the NMP to the department in the monitoring reports due by May 1 of each year.

J. **Crop removal - mechanical or grazing.** A permittee shall remove crops from fields within the land application area by mechanical harvest or grazing. An NMP which proposes grazing for crop removal shall also include, at a minimum, estimated values for the following elements.

(1) The length of the grazing season.

(2) The size and number of animals to be grazed.

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

(4) The calculations to determine stocking rates, total acreage needed and residency period.

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

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

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

K. **Irrigation ditches - inspection and maintenance.** Irrigation ditches used to land apply wastewater or stormwater at a dairy facility shall be concrete-lined and shall be maintained in good repair. The permittee shall visually inspect the ditch system on a monthly basis to ensure proper maintenance. Any damage to a lined ditch shall be repaired within a reasonable time period. A log shall be kept on-site documenting the inspection findings and repairs made, and the log shall be made available to the department upon request.

L. **Backflow prevention.** A permittee shall protect all water wells used within the land application distribution system from contamination by wastewater or stormwater backflow by installing and maintaining backflow prevention methods or devices. Backflow prevention shall be achieved by a total disconnect (physical air gap separation of at least two times the pipe diameter or complete piping separation when wastewater is being pumped) or by the installation of, at a minimum an air/vacuum relief valve and a low pressure drain valve located immediately upstream of a check valve between the discharge head of the well pump and wastewater and stormwater delivery systems.

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

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

M. **Backflow prevention by check valve backflow prevention device - inspection and maintenance.** A permittee shall inspect each check valve device at least monthly when the well is operating. A malfunctioning check valve device shall be repaired or replaced within 30 days of discovery, and use of all wastewater supply lines associated with the check valve device shall cease until repair or replacement has been completed. Copies of the inspection and maintenance records for each check valve device associated with the backflow prevention program for the previous year shall be submitted to the department annually in the monitoring reports due by May 1.

N. **Supply well protection.** With the exception of monitoring wells, all wells located within the land application area of a dairy facility shall have a surface pad constructed in accordance with the recommendations of Subsection G of 19.27.4.29 NMAC and a permanent well cap or cover pursuant to Subsection I of 19.27.4.29 NMAC.
[20.6.6.21 NMAC - N, 01/31/2011; A, 12/31/2011; A, 06/16/2015; A, 06/30/2015]

20.6.6.22 ADDITIONAL OPERATIONAL REQUIREMENTS FOR DAIRY FACILITIES DISCHARGING TO AN EVAPORATIVE WASTEWATER DISPOSAL SYSTEM: Impoundment evaporative capacity - wastewater and wastewater/stormwater combination. A wastewater or combination wastewater/stormwater impoundment shall be operated and maintained for the purpose of disposing of wastewater or both wastewater and stormwater by evaporation. A permittee shall manage wastewater or combination wastewater/stormwater impoundments to maintain the capacity and two feet of freeboard as required by Subsection D of 20.6.6.17 NMAC.
[20.6.6.22 NMAC - N, 01/31/2011]

20.6.6.23 GROUND WATER MONITORING REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. **Monitoring wells - required locations.** A permittee shall install a sufficient number of monitoring wells at appropriate depths and locations to monitor ground water quality upgradient of the dairy facility and hydrologically downgradient of each source of ground water contamination: wastewater, stormwater, and combination wastewater/stormwater impoundments, and fields within the land application area. Monitoring wells shall be located pursuant to this section in a location that is protective of the well and to detect an exceedance(s) or a trend towards exceedance(s) of the ground water standards at the earliest possible occurrence, so that source control or abatement may be implemented.

(1) **Ground water monitoring - installation schedule.**

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

(b) For an existing dairy facility, any new monitoring wells shall be installed within 120 days of the effective date of the discharge permit, provided that the department may grant a one-time extension of 60 days for good cause shown.

(2) **Use of existing monitoring wells.** A monitoring well in existence before the effective date of the dairy rule, properly constructed in accordance with department guidelines applicable when the well was constructed, and operating as approved in a previous discharge permit, shall be approved for ground water monitoring at a dairy facility.

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

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

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

B. **Monitoring wells - location proposals.** An applicant or permittee shall identify monitoring well locations in the application for a new, renewed or modified discharge permit pursuant to Subsection A of this section, and shall include the following information.

(1) The location of each monitoring well relative to the contamination source it is intended to monitor shall be indicated on the scaled map required by Subsection U of 20.6.6.20 NMAC.

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

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

C. **Monitoring wells - identification tags.** A permittee shall identify all monitoring wells required by the dairy rule with a well identification tag. For above-grade wells, the tag shall be affixed to the exterior of the steel well shroud. For wells finished below-grade, the tag shall be placed inside the well vault next to the well riser. The tag shall be printed adhesive or metal:

(1) if metal, made of aluminum;

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

(3) for monitoring wells installed after the effective date of the dairy rule, the tag shall include:

(a) the discharge permit number;

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

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

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

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

(a) the discharge permit number;

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

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

D. **Monitoring wells - construction and completion – new monitoring wells.** A permittee shall construct monitoring wells pursuant to 19.27.4 NMAC and the following requirements.

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

(2) The well driller shall employ drilling methods that allow for accurate determinations of water table locations. All drill bits, drill rods, and down-hole tools shall be thoroughly cleaned immediately before

drilling. The borehole diameter shall allow a minimum annular space of two inches between the outer circumference of the well materials (casing or screen) and the borehole wall to allow for the emplacement of sand and sealant.

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

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

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

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

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

(8) A 20-foot section (maximum) of continuous well screen shall be installed across the water table. Screen shall consist of continuous-slot, machine slotted, or other manufactured schedule 40 (or heavier) PVC or stainless steel. Screens created by cutting slots into solid casing with saws or other tools shall not be used. The screen material selected for use shall be compatible with the anticipated chemistry of the ground water and appropriate for the contaminants of interest at the dairy facility. The screen slot size shall be selected to retain 90 percent of the filter pack.

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

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

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

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

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

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

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

(14) The annular space above the bentonite seal shall be sealed with cement grout or bentonite-based sealing material acceptable to the state engineer in accordance with 19.27.4 NMAC. A tremie pipe shall be used to emplace the annular space seal (flow by gravity or pumping through the pipe) if the total depth of the well is greater than 20 feet from the land surface. Annular space seals shall extend from the top of the bentonite seal to the ground surface (for wells completed above grade) or to a level three to six inches below the top of casing (for wells completed below grade).

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

E. Monitoring wells - office of the state engineer requirements. Should a well permit for a monitoring well be required by the office of the state engineer, the permittee shall obtain the permit prior to well drilling.

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

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

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

(a) Three well volumes of water shall be purged from the well before sample collection.

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

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

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

(5) Samples from the well shall be obtained, prepared, preserved and transported to an analytical laboratory for analysis pursuant to the methods authorized by Subsection B of 20.6.6.24 NMAC.

G. Ground water sampling and reporting - routine. A permittee shall collect ground water samples quarterly from all monitoring wells required by Subsection A of this section and Subsection C of 20.6.6.27 NMAC. Samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, sulfate and total dissolved solids pursuant to Subsection B of 20.6.6.24 NMAC. A permittee shall submit to the department in the quarterly monitoring reports the depth-to-most-shallow ground water, the field parameter measurements, the parameter stabilization log (if applicable), the analytical results (including the laboratory quality assurance and quality control summary report) and a map showing the location and number of each well in relation to the contamination source it is intended to monitor.

H. Ground water sampling - new monitoring wells. A permittee shall collect ground water samples from all newly installed monitoring wells. Samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, sulfate and total dissolved solids pursuant to Subsection B of 20.6.6.24 NMAC.

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

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

(3) For dairy facilities installing a new monitoring well during the term of a discharge permit, during construction of a new impoundment, or as a result of required corrective actions, samples shall be collected from the newly installed monitoring wells within 30 days of well completion, provided the department may grant an extension for good cause shown.

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

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

(2) For an existing dairy facility, monitoring wells not previously surveyed in a manner consistent with the requirements of this subsection and Subsection B of 20.6.6.17 NMAC shall be surveyed within 150 days of the effective date of the discharge permit.

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

(1) Construction and lithologic logs for the new monitoring wells including well record information specified by 19.27.4 NMAC.

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

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

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

K. **Monitoring well survey report - existing monitoring wells.** For a dairy facility required to survey existing monitoring wells pursuant to this section a permittee shall submit the monitoring well survey report to the department within 180 days of the effective date of the discharge permit, provided the department may grant an extension for good cause shown. The report shall contain the depth-to-most-shallow ground water measured in each monitoring well, a surveyed map showing the locations of the monitoring wells, and the direction and gradient of ground water flow at the dairy facility.

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

M. **Proposed location of monitoring wells - dispute resolution.** If the department provides a notice of technical deficiency pursuant to Subsection G of 20.6.6.10 NMAC due to a disagreement with the number or location of monitoring wells proposed in the application, or if the department notifies a permittee to replace a monitoring well pursuant to Subsection C of 20.6.6.27 NMAC, the applicant or permittee may notify the secretary by certified mail, sent within 30 days after the date of postal notice of the department's notice, that the applicant or permittee invokes dispute resolution under this subsection. Upon such notice, the department, as represented by the secretary, deputy secretary, or division director and the applicant or permittee shall meet in person within 30 days and shall attempt in good faith to resolve the dispute.

[20.6.6.23 NMAC - N, 01/31/2011; A, 12/31/2011; A, 06/16/2015]

20.6.6.24 MONITORING REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. **Monitoring reports - schedule of submittal.** A permittee shall submit monitoring reports to the department on a quarterly schedule and shall contain monitoring data and information collected pursuant to the dairy rule. Quarterly monitoring reports shall be submitted according to the following schedule:

(1) January 1 through March 31 (first quarter) - report due by May 1;

(2) April 1 through June 30 (second quarter) - report due by August 1;

(3) July 1 through September 30 (third quarter) - report due by November 1; and

(4) October 1 through December 31 (fourth quarter) - report due by February 1.

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

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

D. Stormwater sampling and reporting. A permittee shall collect stormwater samples on a quarterly basis from each stormwater impoundment unless the stormwater will be transferred to a wastewater impoundment(s) before being sent to the land application area. The samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, total sulfur and total dissolved solids pursuant to this section. The permittee shall include analytical results, or a statement that stormwater runoff did not occur, in the quarterly monitoring reports submitted to the department.

[20.6.6.24 NMAC - N, 01/31/2011; A, 06/16/2015]

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

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

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

C. Wastewater to be land applied - sampling and reporting. A permittee shall collect and analyze wastewater samples on an annual basis for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, total sulfur and total dissolved solids pursuant to Subsection B of 20.6.6.24 NMAC. Representative samples shall be collected from the wastewater impoundments unless an alternative method is approved for good cause, including safety. The representative samples shall consist of eight samples taken from eight different locations evenly distributed throughout the impoundment or using an alternative method approved by the department for good cause. A permittee shall submit the analytical results to the department in the quarterly monitoring reports.

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

E. Irrigation water - sampling, volume applied, and reporting. A permittee shall monitor irrigation wells used to supply fresh water to the fields within the land application area to account for additional potential nitrogen supplied to the land application area in the following manner.

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

(2) An annual sample of irrigation water supplied from each well or a group of physically connected wells shall be collected and analyzed for nitrate as nitrogen and total Kjeldahl nitrogen, pursuant to Subsection B of 20.6.6.24 NMAC. If the results are consistent for the first five years of annual sampling, sampling frequency may be reduced to once every other year.

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

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

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

G. Land application data sheets. A permittee shall complete land application data sheets for each field within the land application area to document the crop grown and amount of total nitrogen applied from wastewater, stormwater, manure solids, composted material, irrigation water and other additional fertilizer(s), and the residual soil nitrogen and nitrogen credits from leguminous crops. The permittee shall submit a land application data sheet or a

statement that land application did not occur to the department in the quarterly monitoring reports. The land application data sheet shall include the following elements.

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

(2) The total nitrogen concentration of wastewater and stormwater obtained from the corresponding quarterly or annual analyses collected pursuant to Subsection C of this section and Subsection D of 20.6.6.24 NMAC.

(3) The total monthly volume, reported in tons per acre, of manure solids applied to each field within the land application area.

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

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

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

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

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

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

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

K. Soil sampling - initial event in a discharge permit term. A permittee shall collect composite soil samples from each field within the land application area for the first soil sampling event during the first year following the effective date of the discharge permit. Composite soil samples shall be collected for all fields regardless of whether the field is cropped, remains fallow, or has received wastewater or stormwater. One surface composite soil sample (first-foot) and two sub-surface composite soil samples (second-foot and third-foot) shall be collected from each field. Composite soil samples shall be collected and analyzed according to the following procedure.

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

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

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

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

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

(6) pH, electrical conductivity, sodium, calcium, magnesium, and sulfate shall be analyzed using a saturated paste extract in accordance with the analytical methodology required by Subsection B of 20.6.6.24 NMAC. Phosphorus shall be analyzed using the Olsen sodium bicarbonate method in accordance with the analytical methodology required by Subsection B of 20.6.6.24 NMAC. Nitrate as nitrogen shall be analyzed by a 2 molar KCl extract in accordance with the analytical methodology required by Subsection B of 20.6.6.24 NMAC. Total Kjeldahl nitrogen, chloride, organic matter, potassium, soil texture, and sodium adsorption ratio shall be analyzed in accordance with the analytical methodology required by Subsection B of 20.6.6.24 NMAC.

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

L. Soil sampling - routine. Beginning in the year following the initial soil sampling required by this section, the permittee shall collect annual soil samples from each field within the land application area that has received or is actively receiving wastewater or stormwater. For those fields that have never before received wastewater, the permittee

shall collect soil samples immediately before initial wastewater application and annually thereafter. Once a field has received wastewater it shall be sampled annually regardless of whether the field is cropped, remains fallow, or has recently received wastewater or stormwater. One surface composite soil sample (first-foot) and two sub-surface composite soil samples (second-foot and third-foot) shall be collected from each field. Composite soil samples shall be collected and analyzed according to the following procedure.

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

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

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

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

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

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

(7) pH, electrical conductivity, sodium, calcium, and magnesium shall be analyzed using a saturated paste extract in accordance with the analytical methodology required by Subsection B of 20.6.6.24 NMAC. Phosphorus shall be analyzed using the Olsen sodium bicarbonate method in accordance with the analytical methodology required by Subsection B of 20.6.6.24 NMAC. Nitrate as nitrogen shall be analyzed by a 2 molar KCl extract in accordance with the analytical methodology required by Subsection B of 20.6.6.24 NMAC. Chloride, organic matter, potassium, and sodium adsorption ratio shall be analyzed in accordance with the analytical methodology required by Subsection B of 20.6.6.24 NMAC.

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

[20.6.6.25 NMAC - N, 01/31/2011; A, 12/31/2011; A, 06/16/2015]

20.6.6.26 ADDITIONAL MONITORING REQUIREMENTS FOR DAIRY FACILITIES DISCHARGING TO AN EVAPORATIVE WASTEWATER DISPOSAL SYSTEM: Wastewater to be evaporated - sampling and reporting. A permittee shall collect a composite wastewater sample on a semi-annual (once every six months) basis from each wastewater or combination wastewater/stormwater impoundment used for disposal by evaporation. Samples shall be analyzed for nitrate as nitrogen, total Kjeldahl nitrogen, chloride, total sulfur and total dissolved solids pursuant to Subsection B of 20.6.6.24 NMAC. A permittee shall submit the analytical results to the department in the monitoring reports due by May 1 and November 1.

[20.6.6.26 NMAC - N, 01/31/2011; A, 06/16/2015]

20.6.6.27 CONTINGENCY REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Exceedance of ground water standards - all monitoring wells. If the constituent concentration in a ground water sample and in the next ground water sample collected from the same monitoring well intended to monitor a contamination source exceeds one or more of the ground water standards of 20.6.2.3103 NMAC and exceeds the concentration of such constituent(s) in a ground water sample collected from the upgradient monitoring well, or if the extent or magnitude of existing ground water contamination is significantly increasing, then the permittee shall take the following actions. For the purpose of this subsection, ground water samples obtained from the source monitoring well and the upgradient monitoring well that are used for comparison of constituent concentrations shall be collected within two days of each other, provided that if there is sufficient ground water quality data to demonstrate that samples from different periods should be compared, the department may allow such a comparison. If ground water quality data for the upgradient monitoring well are not submitted by the permittee, the ground water standards of 20.6.2.3103 NMAC shall be the applicable standard used to determine if the requirements of this subsection must be met. The contingency requirements of Paragraphs (1) and (2) of this subsection shall not apply if corrective action previously has been taken to address ground water contamination and constituent concentrations have stabilized or improved, but this exception shall no longer apply if a constituent concentration increases for two consecutive sampling events and exceeds its standard or the upgradient concentration. Once enacted the contingency requirements of this subsection apply until the permittee has fulfilled the requirements of this subsection and ground water monitoring pursuant to 20.6.6.23 NMAC confirms for a minimum of eight consecutive ground water sampling events that the standards of 20.6.2.3103 NMAC are not exceeded and the total nitrogen concentration in ground water is less than or equal to 10 milligrams per liter or until the department requires an abatement plan pursuant to Paragraph (3) of this subsection.

(1) A corrective action plan shall be submitted within 120 days of the subsequent sample analysis date unless a petition for variance is filed in accordance with Paragraph (2) of this subsection. The corrective action plan shall describe any repairs made to address the cause of the exceedance, and propose source control measures and a schedule for implementation. The implementation schedule shall include a schedule of all proposed corrective

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

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

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

B. Exceedance of ground water standards - impoundment monitoring well. If the constituent concentration in a ground water sample collected from a monitoring well intended to monitor an impoundment(s) exceeds one or more of the ground water standards of 20.6.2.3103 NMAC and exceeds the concentration of such constituent(s) in a ground water sample collected from the upgradient monitoring well for four consecutive quarters, then the department may require the permittee, by written notice, to take one of the following measures. Before notifying the permittee that action is required under this subsection, the department shall take into consideration site-specific conditions including, but not limited to, geology, depth to ground water, threats to public health, and the trends in contamination at the site. For the purpose of this subsection, ground water samples obtained from the impoundment monitoring well and the upgradient monitoring well that are used for comparison of constituent concentrations shall be collected within two days of each other, provided that if there is sufficient ground water quality data to demonstrate that samples from different periods should be compared, the department may allow such a comparison. If ground water quality data for the upgradient monitoring well are not submitted by the permittee, the ground water standard(s) of 20.6.2.3103 NMAC shall be the applicable standard(s) used to determine if the requirements of this subsection must be met. The contingency requirements of Subparagraphs (a) through (c) of Paragraph (1) and Sub-subparagraphs (i) through (iii) of Sub-paragraph (a) of Paragraph (2) of this subsection shall not apply if corrective action previously has been taken to address ground water contamination and constituent concentrations have stabilized or improved, but this exception shall no longer apply if a constituent concentration increases for two consecutive sampling events and exceeds its standard or the upgradient concentration. Once enacted the contingency requirements of this subsection apply until the permittee has fulfilled the requirements of this subsection and ground water monitoring pursuant to 20.6.6.23 NMAC confirms for a minimum of eight consecutive ground water sampling events that the standards of 20.6.2.3103 NMAC are not exceeded and the total nitrogen concentration in ground water is less than or equal to 10 milligrams per liter or until the department requires an abatement plan pursuant to Subparagraph (d) of Paragraph (1) or Sub-subparagraph (iv) of Subparagraph (a) of Paragraph (2) of this subsection.

(1) Clay liner or pre-dairy rule liner not composed of 40/30-mil HDPE (minimum) or equivalent. For impoundments using a clay liner or a liner installed prior to the effective date of the dairy rule and composed of a material that is not, at a minimum, 40-mil unreinforced HDPE, 30-mil reinforced HDPE, (or other material having equivalent characteristics with regard to permeability, resistance to degradation by ultraviolet light, compatibility with the liquids anticipated to be collected in the impoundment, tensile strength, and tear and puncture resistance), the following actions shall be taken.

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

(i) A proposal for reconstruction and relining of an existing impoundment, or construction and lining of a new impoundment utilizing a synthetic liner as specified in Paragraph (5) of Subsection D of 20.6.6.17 NMAC. Reconstruction or new construction shall be completed pursuant to 20.6.6.17 NMAC within one

year of the date of postal notice from the department that action is required under this subsection. If a new impoundment is constructed, the existing impoundment shall be permanently closed pursuant to 20.6.6.30 NMAC.

(ii) Reconstruction or construction plans and specifications for the impoundment shall be completed pursuant to 20.6.6.17 NMAC.

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

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

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

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

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

(i) A corrective action plan shall be submitted within 120 days of the date of postal notice from the department that action is required under this subsection unless a petition for variance is filed in accordance with Sub-subparagraph (iii) of this subparagraph. The corrective action plan shall describe any repairs or changes in practices made to address the cause of the exceedance, and propose source control measures and a schedule for implementation. The implementation schedule shall include a schedule of all proposed corrective action activities and the date that corrective action will be completed. The department shall approve or disapprove the corrective action plan within 60 days of receipt. If the corrective action plan proposes actions to correct deficiencies with the liner, the proposed actions shall include repair or replacement of the existing liner, or construction and lining of a new impoundment. If liner repair is practicable, repairs shall be made pursuant to 20.6.6.17 NMAC or using a material that is equivalent to the existing liner with respect to material thickness and composition. Repairs shall be completed within 240 days of the date of postal notice from the department that action is required under this subsection. If liner repair is not practicable, the corrective action plan shall propose reconstruction and synthetic relining of the impoundment pursuant to 20.6.6.17 NMAC or construction and synthetic lining of a new impoundment pursuant to 20.6.6.17 NMAC within one year of the subsequent sample analysis date. Reconstruction or construction plans and specifications for the impoundment shall be completed pursuant to 20.6.6.17 NMAC and submitted with the corrective action plan. If a new impoundment is constructed the existing impoundment shall be closed pursuant to 20.6.6.30 NMAC.

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

(iii) The permittee may investigate potential sources of contamination that may have caused a standard(s) to be exceeded. If such an investigation indicates that the source of the contamination is not the impoundment intended to be monitored by the well, the permittee may petition within 120 days of the date of postal notice from the department that action is required under this subsection for a variance from the requirements of this

section in accordance with 20.6.2.1210 NMAC. It is the permittee's burden to prove any claim that the source of the contamination is not the impoundment intended to be monitored by the well. If the variance is denied the permittee shall submit a corrective action plan meeting the requirements of Sub-subparagraph (i) of this subparagraph within 60 days of the denial.

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

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

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

(ii) If the results of abatement activities indicate that the replacement liner does not successfully control the source of contamination, the department may modify the discharge permit pursuant to Subsection E of 20.6.2.3109 NMAC and include additional conditions pursuant to Subsection H of 20.6.6.10 NMAC. The additional conditions shall address, but are not limited to, further source control measures which may include, but are not limited to design, installation and construction of a composite liner system consistent with those described in the Guide for Industrial Waste Management, Part IV: Protecting Ground Water, Chapter 7: Section B, Designing and Installing Liners, Technical Considerations for New Surface Impoundments, Landfills and Waste Piles (U.S. environmental protection agency), incorporated herein by this reference. The requirements of 20.6.6.15 NMAC shall apply to hearing requests on the proposed additional discharge permit conditions.

(3) If the department notifies a permittee that action is required under this subsection, the applicant or permittee may notify the secretary by certified mail, sent within 30 days after the date of postal notice of the department's notice, that the applicant or permittee invokes dispute resolution under this paragraph. Upon such notice, the department, as represented by the secretary, deputy secretary, or division director and the applicant or permittee shall meet in person within 30 days and shall attempt in good faith to resolve the dispute.

C. **Monitoring well replacement.** If information available to the department indicates that a monitoring well(s) required by 20.6.6.23 NMAC is not located hydrologically downgradient of the contamination source it is intended to monitor, is not completed pursuant to 20.6.6.23 NMAC or contains insufficient water to monitor ground water quality effectively, a permittee shall install a replacement monitoring well(s). The replacement monitoring well(s) shall be installed within 120 days of the date of postal notice of notification from the department and a survey of the replacement monitoring well(s) shall be performed within 150 days of the date of postal notice of notification from the department, provided the department may grant an extension for good cause shown. The replacement monitoring well(s) shall be located, installed, completed, surveyed and sampled pursuant to 20.6.6.23 NMAC. The permittee shall develop a monitoring well completion report pursuant to Subsection J of 20.6.6.23 NMAC and submit it to the department within 180 days of the date of postal notice of notification from the department, provided the department may grant an extension for good cause shown.

D. **Exceedances of permitted maximum daily discharge volume.** If the maximum daily discharge volume authorized by the discharge permit is exceeded by more than ten percent for any four average daily discharge volumes within any 12-week period, the permittee shall submit within 60 days of the fourth exceedance: a corrective action plan for reducing the discharge volume; or an application for a modified or renewed and modified discharge permit pursuant to 20.6.6.10 NMAC. Within 30 days of postal notice of department approval, the permittee shall initiate implementation of the corrective action plan.

E. **Insufficient impoundment capacity.** If a survey, capacity calculations, or settled solids thickness measurements, indicate an existing impoundment is not capable of meeting the capacity requirements required by Subsection D of 20.6.6.17 NMAC, then within 90 days of the effective date of the discharge permit the permittee shall submit a corrective action plan for department approval. The plan may include, but is not limited to, proposals for constructing an additional impoundment, reducing the discharge volume, removing accumulated solids, changing wastewater or stormwater management practices, or installing an advanced treatment system. The corrective action plan shall include a schedule for implementation through completion of corrective actions. The corrective action plan schedule shall propose completion not to exceed one year from the submittal date of the initial corrective action plan. Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan. Should the corrective action plan include removal of accumulated solids, solids shall be removed from the impoundment in a manner that is protective of the impoundment liner. The plan shall include the method of removal, and locations and methods for storage and disposal of the solids-slurry. If the plan proposes land application of the solids-slurry, the plan must also include the analytical results of total Kjeldahl nitrogen and chloride

obtained from a representative sample of the solids-slurry to be applied. Notwithstanding Paragraph (6) of Subsection D of 20.6.6.17 NMAC, if a corrective action plan required under this subsection calls for construction of a new wastewater impoundment or improvement of an existing wastewater impoundment, and ground water quality standards have not been exceeded in monitoring wells installed to monitor the existing impoundment for the four quarters preceding submission of the corrective action plan, the permittee may propose and the department may approve a liner for the new wastewater impoundment or improvement of the existing impoundment consistent with the liner design approved by the department at the time of the last discharge permit issued by the department before the effective date of the dairy rule.

F. Inability to preserve required freeboard. If a minimum of two feet of freeboard cannot be preserved in the wastewater impoundment, the permittee shall submit a corrective action plan to the department for approval. The corrective action plan shall be submitted within 30 days of the date of the initial exceedance of the freeboard requirement. The plan may include, but is not limited to, proposals for constructing an additional impoundment, reducing the maximum daily discharge volume, changing wastewater management practices, or installing an advanced wastewater treatment system. The corrective action plan shall include actions to be immediately implemented to regain and maintain a minimum of two feet of freeboard until permanent corrective actions have been completed. The corrective action plan shall include a schedule for implementation through completion of corrective actions. The corrective action plan schedule shall propose completion not to exceed one year from the submittal date of the initial corrective action plan. Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan. Notwithstanding Paragraph (6) of Subsection D of 20.6.6.17 NMAC, if a corrective action plan required under this subsection calls for construction of a new wastewater impoundment or improvement of an existing wastewater impoundment, and ground water quality standards have not been exceeded in monitoring wells installed to monitor the existing impoundment for the four quarters preceding submission of the corrective action plan, then the permittee may propose and the department may approve a liner for the new wastewater impoundment or improvement of the existing impoundment consistent with the liner design approved by the department at the time of the last discharge permit issued by the department before the effective date of the dairy rule.

G. Impoundment - structural integrity compromised. Within 24 hours of discovery, a permittee shall report to the department, any damage to the berms or the liner of an impoundment or any condition that exists that may compromise the structural integrity of the impoundment. Within 15 days of the reported discovery, the permittee shall submit to the department a corrective action plan describing any actions taken or proposed to be taken to repair the damage or condition. Within 30 days of receipt, the department shall respond to the proposed corrective action plan. Repairs to the impoundment liner or berms shall be completed pursuant to 20.6.6.17 NMAC. The corrective action plan shall include a schedule for implementation through completion of corrective actions. The corrective action plan schedule shall propose completion not to exceed one year from the submittal date of the initial corrective action plan. The schedule of corrective actions shall be commensurate to the magnitude and scope of the activities to be completed. Within 30 days of the date of postal notice of the department's approval of the corrective action plan, the permittee shall initiate implementation of the plan. Notwithstanding Paragraph (6) of Subsection D of 20.6.6.17 NMAC, if a corrective action plan required under this subsection calls for construction of a new wastewater impoundment or improvement of an existing wastewater impoundment, and ground water quality standards have not been exceeded for the four quarters preceding submission of the corrective action plan, then the permittee may propose and the department may approve a liner for the new wastewater impoundment or improvement of the existing impoundment consistent with the liner design approved by the department at the time of the last discharge permit issued by the department before the effective date of the dairy rule.

H. Unauthorized discharge - reporting and correction. In the event of a spill or release that is not authorized by the discharge permit, the permittee shall notify the department and take corrective actions pursuant to 20.6.2.1203 NMAC. Wastewater or stormwater shall be contained and pumped to a permitted sump, impoundment, or land application area pursuant to the dairy rule. Wastewater or stormwater applied to the land application area shall conform to the requirements of 20.6.6.21 and 20.6.6.25 NMAC. The permittee shall repair or replace failed components within 48 hours from the time of failure or as soon as practicable.

[20.6.6.27 NMAC - N, 01/31/2011; A, 12/31/2011; A, 06/16/2015]

20.6.6.28 [RESERVED]

20.6.6.29 ADDITIONAL CONTINGENCY REQUIREMENTS FOR DAIRY FACILITIES DISCHARGING TO AN EVAPORATIVE WASTEWATER DISPOSAL SYSTEM: Inability to maintain required freeboard. If a combination wastewater/stormwater impoundment used for disposal by evaporation does not have free capacity below the two-foot freeboard level required by Subsection D of 20.6.6.17 NMAC, then within seven days of the date of discovery of insufficient free capacity the permittee shall submit a corrective action plan for department approval. The plan shall include, but is not limited to, a request for temporary permission to discharge to allow immediate removal and disposal of combined wastewater and stormwater; a proposal for long-term corrective actions which may include constructing an additional impoundment; reducing the discharge volume; changing wastewater or stormwater management

practices; or installing an advanced treatment system. The corrective action plan shall include schedule for implementation to complete corrective actions within one year from the submittal date of the initial corrective action plan. Upon department approval, the permittee shall initiate implementation of the corrective action plan.
[20.6.6.29 NMAC - N, 01/31/2011]

20.6.6.30 CLOSURE REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. Permanent closure of dairy facility or impoundments. The following closure actions shall be performed at dairy facilities.

(1) For permanent closure of a dairy facility.

(a) The department shall be notified no later than 30 days after wastewater discharge has permanently ceased at the dairy facility.

(b) Installation of any additional monitoring wells shall be completed pursuant to 20.6.6.23 NMAC.

(c) All wastewater and combination wastewater/stormwater impoundments shall be emptied within six months of permanently ceasing wastewater discharge at the dairy facility; combination wastewater/stormwater impoundments may continue to receive stormwater after removal of the impounded wastewater/stormwater. All stormwater and combination wastewater /stormwater impoundments shall be emptied of stormwater within one year of cessation of wastewater discharge. Wastewater and stormwater removed from impoundments shall be applied to the designated land application area, as authorized by a discharge permit. In the event that land application is not authorized by a discharge permit, a disposal plan shall be submitted for department approval and the plan implemented upon department approval.

(d) Manure solids and compost shall be removed from surface areas at the dairy facility and applied to the designated land application area, as authorized by a discharge permit, or transferred off-site for proper disposal.

(e) Complete removal of manure solids from the wastewater impoundment(s) shall be achieved within two years of permanently ceasing wastewater discharge. Complete removal of manure solids from the stormwater and combination wastewater/stormwater impoundment(s) shall be achieved within two years of cessation of wastewater discharge. Manure solids shall be applied to the designated land application area, as authorized by a discharge permit. In the event that land application is not authorized by a discharge permit, a disposal plan shall be submitted for department approval and the plan implemented upon department approval.

(f) Impoundment liners shall be perforated or removed and the impoundments shall be re-graded with clean fill to blend with surface topography to prevent ponding within two years of permanently ceasing wastewater discharge.

(2) For closure of an impoundment at a facility not undergoing permanent closure (e.g., existing impoundment replaced with new impoundment).

(a) Impoundments shall be emptied of wastewater and stormwater within six months of ceasing receipt of wastewater or stormwater into the impoundments. Wastewater and stormwater removed from impoundments shall be applied to the designated land application area, as authorized by a discharge permit. If land application is not authorized by a discharge permit, a disposal plan shall be submitted for department approval and the plan implemented upon department approval.

(b) Complete removal of manure solids from impoundments shall be achieved within two years of ceasing receipt of wastewater or stormwater into the impoundments. Manure solids shall be applied to the designated land application area, as authorized by a discharge permit. If land application is not authorized by a discharge permit, a disposal plan shall be submitted for department approval and the plan implemented upon department approval.

(c) Liners in impoundments shall be perforated or removed and the impoundments shall be re-graded with clean fill to blend with surface topography to prevent ponding within two years of ceasing receipt of wastewater or stormwater into the impoundments.

B. Post-closure ground water sampling and reporting. Following completion and confirmation by the department of the requirements of Subsection A of this section, ground water monitoring shall continue pursuant to 20.6.6.23 NMAC until a minimum of eight consecutive ground water sampling events confirm that the standards of 20.6.2.3103 NMAC are not exceeded and the total nitrogen concentration in ground water is less than or equal to 10 milligrams per liter. If monitoring results show that one or more of the standards of 20.6.2.3103 NMAC is exceeded or the total nitrogen concentration in ground water is greater than 10 milligrams per liter, the permittee shall implement contingency requirements pursuant to 20.6.6.27 NMAC. Upon notification from the department that post-closure ground water monitoring may cease, the permittee shall abandon all monitoring wells and submit a report to the department pursuant to Subsection C of this section.

C. Monitoring well abandonment. Upon notification from the department, the permittee shall abandon monitoring wells pursuant to 19.27.4 NMAC and the following requirements.

(1) The well casing shall be removed and neat cement grout, bentonite based plugging material, or other sealing material approved by the state engineer in accordance with 19.27.4 NMAC shall be placed from the bottom of the borehole to the ground surface using a tremie pipe.

(2) If the casing cannot be removed, neat cement grout, bentonite based plugging material, or other sealing material approved by the state engineer in accordance with 19.27.4 NMAC shall be emplaced in the well using a tremie pipe from the bottom of the well to the ground surface.

(3) A well abandonment report shall be prepared by the permittee and shall provide information equivalent to the plugging record requirements of 19.27.4 NMAC. The well abandonment report shall be submitted to the department within 60 days of completion of well plugging activities.

[20.6.6.30 NMAC - N, 01/31/2011; A, 06/16/2015]

20.6.6.31 [RESERVED]

20.6.6.32 [RESERVED]

20.6.6.33 RECORD RETENTION REQUIREMENTS FOR ALL DAIRY FACILITIES:

A. A permittee shall retain a written record at the dairy facility of all data and information related to field measurements, sampling, and analysis conducted pursuant to the dairy rule and the discharge permit. The following information shall be recorded and shall be made available to the department upon request.

(1) The dates, exact place and times of sampling or field measurements.

(2) The name and job title of the individuals who performed each sample collection or field measurement.

(3) The date of the analysis of each sample.

(4) The name and address of the laboratory and the name and job title of the person that performed the analysis of each sample.

(5) The analytical technique or method used to analyze each sample or take each field measurement.

(6) The results of each analysis or field measurement, including raw data.

(7) The results of any split, spiked, duplicate or repeat sample.

(8) A description of the quality assurance and quality control procedures used.

B. A permittee shall retain a written record at the dairy facility of any spills, seeps, or leaks of effluent, and of leachate or process fluids not authorized by the discharge permit. Records shall be made available to the department upon request.

C. A permittee shall retain a written record at the dairy facility of the operation, maintenance, and repair of all features/equipment used to treat, store or dispose of wastewater, measure flow rates, monitor water quality, or collect other data. Records shall include repair, replacement or calibration of any monitoring equipment and repair or replacement of any equipment used in the waste or wastewater treatment and disposal system. Records shall be made available to the department upon request.

D. A permittee shall retain records of all monitoring information at the dairy facility, including all calibration and maintenance records, copies of all reports, and the application for the discharge permit. Records shall be retained for a period of at least 10 years from the date of the sample collection, measurement, report or application.

[20.6.6.33 NMAC - N, 01/31/2011]

20.6.6.34 TRANSFER OF DAIRY DISCHARGE PERMITS:

A. Transfer of discharge permits for dairy facilities shall be made pursuant to 20.6.2.3111 NMAC and this section.

B. The transferee(s) shall notify the department, in writing, of the date of transfer of ownership and provide contact information for the new owner(s) pursuant to Subsection B of 20.6.6.11 NMAC and Subsection B of 20.6.6.12 NMAC. Notification shall be submitted to the department of the transfer within 30 days of the ownership transfer date.

[20.6.6.34 NMAC - N, 01/31/2011]

20.6.6.35 CONTINUING EFFECT OF PRIOR ACTIONS DURING TRANSITION:

A. A discharge permit issued pursuant to 20.6.2.3109 NMAC that has not expired on or before December 31, 2011, shall remain in effect and enforceable pursuant to the conditions of the discharge permit and for its term as designated by Section 74-6-5 NMSA 1978. If an effective discharge permit contains a permit condition with a time period for submittal of a renewal application that is different from the time period contained in Subsection A of 20.6.6.10 NMAC that condition will remain in effect for two years following the effective date of the dairy rule.

B. If an application for a new discharge permit or an application for a renewed or modified discharge permit was submitted to the department before December 31, 2011, and the department has not yet proposed a draft discharge permit for the facility, the application shall not be processed by the department. The applicant shall submit to the department an application for a new discharge permit or an application for a renewal, modification, renewal and modification or closure discharge permit pursuant to 20.6.6.10 NMAC and a filing fee and permit fee payment pursuant to 20.6.6.9 NMAC within 180 days of August 1, 2015. Application and permit fees already submitted by the facility shall be credited toward the fees required by 20.6.6.9 NMAC.

C. If a discharge permit for a dairy facility was expired on December 31, 2011, and an application for renewal has not been received by the department, the permittee, owner of record of the dairy facility or the holder of the expired discharge permit:

(1) shall within 90 days of August 1, 2015, submit to the department an application for a discharge permit renewal, renewal and modification or closure pursuant to 20.6.6.10 NMAC and a filing fee and permit fee payment pursuant to 20.6.6.9 NMAC; or

(2) if the dairy facility has not been constructed or operated, the permittee, the owner of record of the dairy facility or the holder of the expired discharge permit may submit a statement to the department instead of an application for renewal certifying that the facility has not been constructed or operated and that no discharges have occurred. Upon the department's verification of the certification, the department shall retire the discharge permit number from use.

D. The department shall take action on permit applications pending before the department as of August 1, 2015, and shall consider applications to modify final permits issued by the department under the dairy rule prior to August 1, 2015, as follows:

(1) If the department received an application for a discharge permit for a dairy facility after December 31, 2011, which is pending as of August 1, 2015, and the department has not issued a draft permit before August 1, 2015, then the department shall process the application in accordance with 20.6.6.10 NMAC and take action in accordance with the dairy rule, including the amendments effective as of August 1, 2015.

(2) If the department has issued a draft permit for a dairy facility, but not a final permit, as of August 1, 2015, then on or before September 30, 2015, the applicant may notify the department in writing to review the draft permit for changes to be consistent with the amendments to the dairy rule.

(a) If the department does not receive a written notice from the applicant to review the draft permit by September 30, 2015, then the department may act on the draft permit in accordance with Subsection J of 20.6.6.10 NMAC, including the issuance of a final permit, after considering all comments made on the draft permit and the record of any public hearing.

(b) If the department receives a written notice to review the draft permit by September 30, 2015, then the department may require the applicant to submit additional information, consistent with 20.6.6.12 NMAC, as necessary to reflect the amendments to the dairy rule effective as of August 1, 2015, and the applicant may supplement its permit application. After considering the additional information, the department shall either act on the application in accordance with Subsection G of 20.6.6.10 NMAC or, if the department determines that no significant changes to the draft permit are warranted, the department may proceed with a permit decision in accordance with Subsection J of 20.6.6.10 NMAC and shall explain in writing the reasons for not changing the draft permit. If a request for permit review is filed, any information submitted by an applicant who requested review of the draft permit shall be included in the administrative record filed by the department under Paragraph (2) of Subsection A of 20.1.3.16 NMAC.

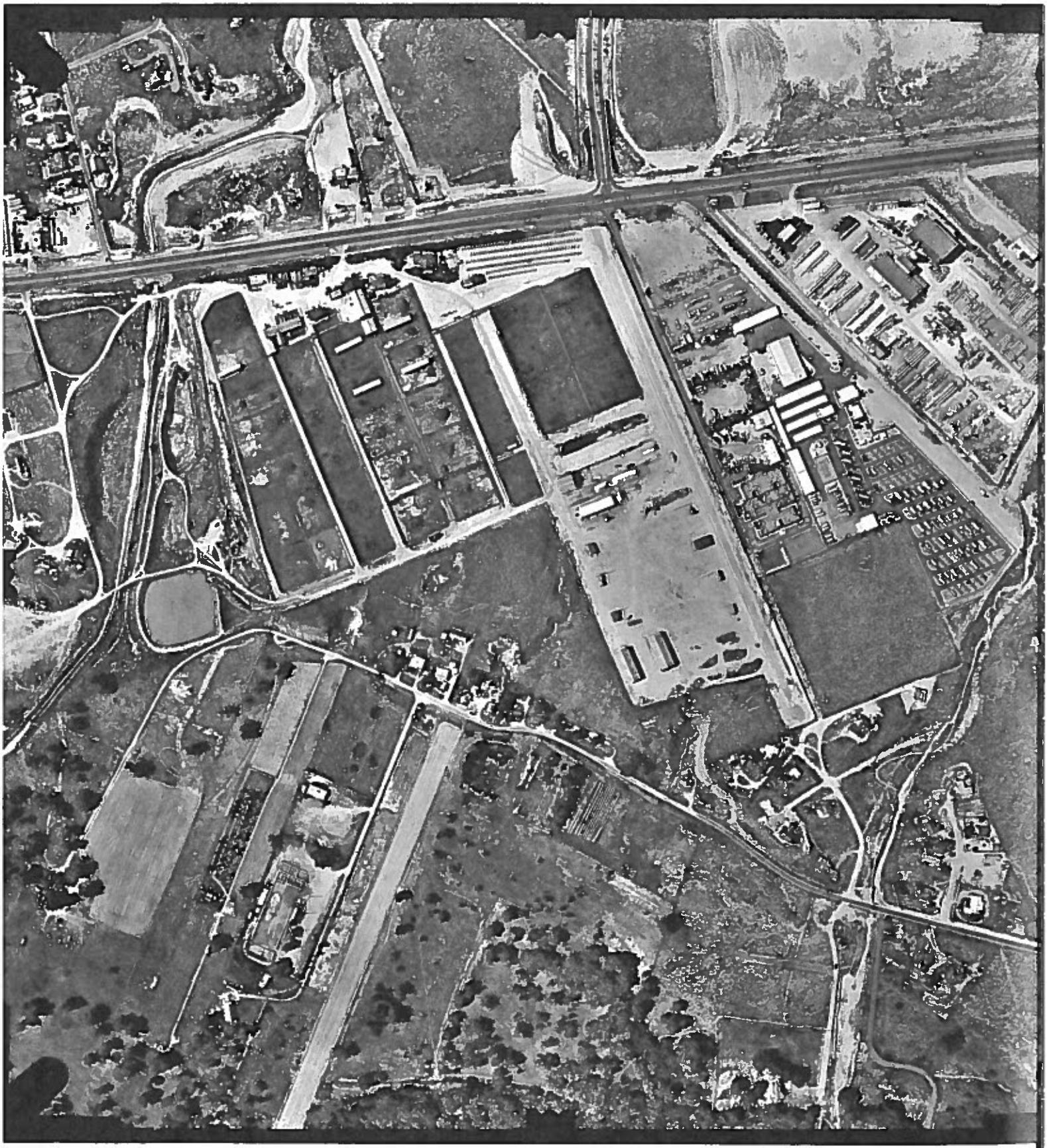
(3) If the department has issued a final permit under the dairy rule before August 1, 2015, the permit holder may submit an application to modify the discharge permit to reflect amendments to the dairy rule pursuant to 20.6.6.10 NMAC along with the applicable fee specified in 20.6.6.9 NMAC.

(4) The department shall prioritize its review and permit actions under this subsection based upon potential impacts to ground water quality.

E. Any dairy facility discharging, capable of recommencing discharging, or that has ceased discharging within the term of its most recent discharge permit shall continue all monitoring and submittal of monitoring reports as prescribed in the most recent discharge permit until the department issues a renewed or renewed and modified discharge permit.

[20.6.6.35 NMAC - N, 01/31/2011; A, 06/16/2015]

HISTORY of 20.6.6 NMAC: [RESERVED]



EA Engineering, Science, & Technology, Inc.
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Phone: (505) 224-9013 Fax (505) 224-9016

October 29, 2012

Mr. Bart Faris
New Mexico Environment Department
Ground Water Quality Bureau
Remediation Oversight Section
5500 San Antonio Dr. NE
Albuquerque, New Mexico 87109

Former Price's Valley Gold North Dairy, Sandoval County, New Mexico

Dear Mr. Faris:

On behalf of VG Farms, Inc., EA Engineering, Science, and Technology, Inc. is submitting this Technical Infeasibility demonstration for Upper Santa Fe aquifer groundwater at the above referenced facility.

Please let us know if you have any questions regarding the information presented in this report.

Sincerely,

Teri McMillan
Project Manager

Jay Snyder
Senior Hydrogeologist

Enclosure

Cc: John Price – via E-mail
Peter V. Domenici, Jr. – via E-mail
File

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TECHNICAL INFEASIBILITY DEMONSTRATION FORMER PRICE'S VALLEY GOLD DAIRY SANDOVAL COUNTY, NEW MEXICO

Prepared for:

VG Farms, Inc.
Albuquerque, New Mexico

Prepared by:

EA Engineering, Science,
and Technology, Inc.
320 Gold Avenue SW, Suite 1210
Albuquerque, New Mexico 87102

October 29, 2012

EA Project No. 1463606.01

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Technical Infeasibility Demonstration
Former Price's Valley Gold North Dairy
Sandoval County, New Mexico

Prepared for:

VG Farms, Inc.
Albuquerque, New Mexico

Prepared by:

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and Technology, Inc.
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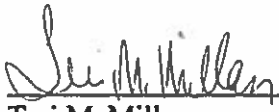
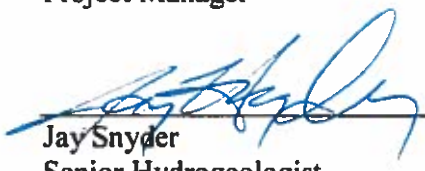
Albuquerque, New Mexico



10/29/12
Date

Teri McMillan
Project Manager



10/29/12
Date

Jay Snyder
Senior Hydrogeologist

October 2012

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and renamed it Price's Valley Gold Dairy. Mr. Price increased the size of the dairy to 1,000 to 1,200 cows and subsequently purchased 183 acres to the south to accommodate the increased discharge from the enlarged facility. Mr. Price closed the dairy in June 1998. The property was cleared of all structures by 2006.

The property has been redeveloped into various lots that contain commercial business, which include Wal-Mart, Firestone Tire, a gasoline station, and a strip mall. In addition, there are several fast food restaurants. Numerous vacant lots are present within the southeastern portion of the property. In order to facilitate the redevelopment, soil pathways were closed via Voluntary Remediation Program (VRP #53061004) with a Certificate of Completion issued November 28, 2006.

1.3 SUMMARY OF ABATEMENT ACTIVITIES

In February 1986, the New Mexico Environmental Improvement Division notified the PVGND that they were required to have a discharge plan. The dairy submitted an application in May 1986, and it was approved in July 1987. The initial samples collected from groundwater monitoring well MW-1, near the Dairy's east lagoon, had existing nitrate concentrations of 43.8 milligram per liter (mg/l) in November 1986, 93.4 mg/l in February 1987 and 61.8 mg/l in December 1987 (average of 66 mg/l).

In June 1997, the New Mexico Environment Department (NMED) was advised that the Dairy was scheduled to be closed. As part of a site investigation conducted in June and August 1997, the NMED provided guidance on the type of Corrective Action Plan it would require under the discharge permit in connection with the closure of the Dairy. Initial work on the Corrective Activation Plan began in August 1997. The Dairy was closed in June 1998. Beginning in October 1997, Glorieta Geoscience, Inc., Faith Engineering, Inc. and MJ Darr Consult conducted numerous investigations and studies and developed at least three corrective action and abatement plans. The most recent corrective action, conducted during the summer of 2008, involved operating a nutrient injection system at the site. The objective of the injection system was to create a treatment wall within the aquifer which would de-nitrify the groundwater as it passed through the wall. In November 2008, METRIC Corporation was retained to conduct an independent evaluation of the historic investigation and remediation efforts at the site.

The PVGND has been fully characterized, and the Stage 1 Abatement Plan completed. The site is currently in Stage 2 Abatement according to NMED records, and is in LTM. The LTM has created a sufficient time-series of groundwater monitoring data to support evaluation of contaminants trends with confidence.

In order to facilitate surface redevelopment, PVGND North Area (86.2 acres) entered the NMED VRP (#53061004) for nitrogen compounds in soil. The application was submitted on November 21, 2005, final eligibility granted June 28, 2006, Certificate of Completion issued November 28, 2006 and Covenants Not to Sue (CNS) issued on January 17, 2008 and April 9, 2008. These actions close out soil pathways and complete soil remedies.

1.0 INTRODUCTION

On behalf of VG Farms, Inc., EA Engineering Science and Technology, Inc. (EA) is submitting this Technical Infeasibility (TI) demonstration in accordance with Title 20, Chapter 6, Part 2 New Mexico Administrative Code (20 NMAC 6.2) Section 4103.E. for the Upper Santa Fe (USF) aquifer groundwater for the Former Price's Valley Gold North Dairy (PVGND). Groundwater impacts exist in the "Valley Fill Aquifer" (VF aquifer) at PVGND as well; however, these impacts and those observed in USF aquifer MW-11R will be addressed as a separate action.

The TI demonstration is in pursuit of establishing Section 4103 "*Standards*" to support Abatement Completion and Termination in accordance with Section 4112. Technical Infeasibility is not defined at 20 NMAC 6.2.7. However, Section 4103.E considers the goals of TI, and this demonstration considers these goals in the context of protection of human health and the environment.

The TI demonstration contained herein will show that:

- Concentrations of contaminants (nitrate, chloride, and total dissolved solids) are below 200 percent applicable standards and are not increasing in time;
- Concentrations are statistically declining and not trending upward;
- The plume is stable (i.e., not expanding);
- Further degradation of groundwater is not expected based on monitoring results;
- All sources of contaminants have been physically removed; and
- Soil pathways have been closed through the Voluntary Remediation Program.

1.1 SCOPE OF TECHNICAL INFEASIBILITY DEMONSTRATION

In order to demonstrate technical infeasibility, EA will:

- Establish background concentrations in accordance with Section 4101.B. for chloride and total dissolved solids (TDS);
- Establish that trends and concentrations for groundwater contaminants above respective Section 3103 Standards (20 NMAC 6.2) are:
    - Stable or declining,
    - Do not exceed 200 percent of either background or Section 3103 standards,
    - Continued abatement will not substantially change the groundwater condition in a favorable manner over what is statistically expected at this point in time, and
    - Unfavorable degradation of water quality in the USF aquifer is not expected; rather, any long-term changes are expected to be favorable.

1.2 SITE DESCRIPTION

The PVGND is located on the east side of New Mexico Highway 528 in Bernalillo, New Mexico (Figure 1). Originally Ridge Dairy, a 200-cow dairy, was operated on the site from 1960 to 1973 and was owned by Stanley and Ron Ridge. In June 1973, Mr. Dudley Price purchased the Dairy

approximate location of the north-south trending "Venada" fault that borders the study area on the west. Section vertical exaggeration is 5x, and primary base elevation is 4,900 ft asl (about 150 ft blw the river floodplain). *Note that southward to eastward dips of Upper Santa Fe Group beds of 2° to 5.5° (Plates 2 to 4) are in the dip range inferred from geologic mapping in the general area of interest (Connell et al. 1995-1998); however, basin-fill dips at the actual* ***PVGND*** *site have never been specifically measured (due to unit burial) and may range from nearly flat to gently westward dipping.*

Additional supporting materials include general explanations (Fig. 1, Tables 1 to 3) of the basic hydrogeologic components (hydrostratigraphic units and lithofacies assemblages) of the basin-fill aquifer system illustrated on the attached schematic cross-sections (Plates 2 to 4). For example: Lithofacies-assemblage (***LFA***) units are the basic building blocks of the Santa Fe Group hydrogeologic framework. Their general attributes are illustrated and defined in Figure 1 and Table1; and their geohydrologic properties are summarized in Table 2. The major hydrostratigraphic units (**HSUs**) are subdivisions of the Upper Santa Fe Group basin fill and Rio Grande Valley fill (Fig. 2, Table 3: **HSU-USF, and HSUs-RG, VA, VAY, VAO,** and **TAd**). *See Hawley and Kernodle (2000) for more detailed discussion of hydrogeologic mapping concepts basin-fill aquifer systems throughout the Rio Grande rift province of New Mexico and Colorado. Figure 2, modified from Figure 6 in the latter report, summarizes Cenozoic chronology and correlates major lithostratigraphic and hydrostratigraphic units of the Rio Grande rift region.*

Overview of Local Hydrogeologic Framework

The ten schematic hydrogeologic cross-sections (Plates 2 to 4) illustrate the general subsurface conditions at the **PVGND** site inferred from our hydrostratigraphic interpretations of 1) previous geologic field studies in the general area of interest, and 2) forty-five lithologic logs of monitoring wells and soil borings in the specific site area (in and adjacent to Sec. 36, T13N, R3E). Of special local interest is the location of a north-south-trending intra-rift-basin fault, here designated the "Venada" fault, located near the western edge of the study area (unnamed fault mapped by Connell (2008) that located approximately at sharp N-S to E-W bends in lower Arroyo Venada-NE¼, NW¼, Sec. 36). Inferred down-to-the-east displacement of this fault ranges from hundreds of feet offset of Pliocene **USF** beds to less than 20 feet offset of middle to upper Pleistocene **HSUs-VAO/TAd** (Connell et. al. 1995-1998; Connell, 2008, 01/2009 personal communication). As also noted in the **Introduction**, the less than 6° southward to eastward dips of **HSU-USF** beds (schematically shown on Plates 2 to 4) are in the general dip range inferred from geologic mapping by Connell and others (1995-1998). Because unit **USF** is buried by valley-fill deposits (**HSUs-VAY. VAO, and TAd**) at all but one small outcrop at the **PVGND** site, basin-fill deformation has not been measured and may range from nearly flat to gently dipping in any direction. This inference is supported by published dip and strike measurements at Upper Santa Fe-Ceja Formation outcrops within two miles of the study area (Connell et. al. 1995-1998).

The primary aquifer systems at the site comprise 1) basin-fill hydrostratigraphic unit (**HSU**) **USF**, which is dominated by lithofacies assemblage (***LFA*** *3*; and 2) valley-fill **HSU-RG**, which is mainly ***LFA a1-2*** (Fig. 1, Tables 1 to 3, Plates 2 to 4). The basin-fill (**USF-*LFA 3***) hydrogeologic component of the regional aquifer system exhibits a

2.0 SITE GEOLOGY AND HYDROGEOLOGY

Numerous site-specific data have been collected from boreholes and monitoring wells for the site to develop the hydrogeologic setting. The site specific geology was in turn integrated into the regional geology and hydrogeology. The Stage 2 Abatement Plan completed by METRIC Corporation (2010) developed the geology and hydrogeology for the site as presented below.

2.1 TOPOGRAPHY

The property is located from approximately 5,150 to 5,050 feet above mean sea level (amsl) with significant land slope toward the southeast (Figure 1). General storm water flow at the former Dairy is from high ground on the northwest downhill toward the low lying areas to the southeast. The Rio Grande is located approximately 4,000 feet east of the Dairy.

2.3 SITE SPECIFIC GEOLOGY

The site specific geology was developed Dr. John W. Hawley, PhD, CPG #2309 with Hawley Geomatters, Albuquerque, NM (Hawley Geomatters 2009). METRIC Corporation retained Hawley Geomatters to develop a geologic model of the dairy site. Dr. Hawley was furnished with the available soil boring and monitoring well logs for the site. He was also furnished with historic reports, historic water level data and historic water quality data.

Dr. Hawley's geologic report presenting his model of the site is presented in Appendix A. The model is presented in the form of ten cross sections. Referring to Sections I-I' and J-J', which are oriented along the geologic dip in the upper Santa Fe beds (USF) and are located along the north bank of Venada Arroyo, five relevant geologic formations are identified. Starting with the oldest, the upper Santa Fe (USF) consists of alternating clay and sand beds and is assumed to dip to the southeast at about 2° to 5°. It is the USF aquifer that is of interest in this TI demonstration. The relationship of overlying units to USF is summarized as follows:

- Overlying the USF in the western part of the cross section is older axial valley fill (VAO).
- Overlying the upper Santa Fe (USF) on the terrace previously occupied by the dairy, is the Los Durans Gravel (TAd). The Los Durans Gravel consists of a clean gravel to cobble layer with its base at about elevation 5057.
- Younger Venada Arroyo Fill (VAY) is inset into the VAO, TAd and USF. The Venada Arroyo Fill consists of sand and gravel derived from the Venada Arroyo watershed and from the Los Durans Gravel.
- Rio Grande Valley fill (RG) overlies the Upper Santa Fe (USF) in the eastern part of the cross section. The Rio Grande Valley Fill consists of gravel, sand, and clay and has a base elevation of about 4990.

2.3 HYDROLOGY

Evaluation of the site geology and historic water level data indicates that there are two distinct aquifers at the site: the USF aquifer and the VF aquifer. Recharge to the older USF aquifer probably occurs along its subcrop beneath the older valley fill (VAO) and Los Durans Gravel (TAd) to the west and north of the site. Groundwater flow in the USF aquifer is to the southeast

as depicted in Figure 2, which represents conditions in June 2010. Hydrographs of the USF aquifer monitoring wells (Figure 3) indicate water levels are stable. Depth to water within the USF aquifer is approximately 60 to 90 feet below ground surface.

The younger VF aquifer consists of the combined Venada Arroyo Fill (VAY) and the Rio Grande Valley fill (RG). The two units are hydraulically connected and exhibited an average water level elevation of about 5040. The VF aquifer is hydraulically separated from USF aquifer by a "red clay" in the upper Santa Fe. The presence of the "red clay" in the USF aquifer explains the approximate 20ft. water level difference between the VF aquifer and the USF aquifer.

Regional data indicates the groundwater flow direction in the VF aquifer is to the south-southwest (generally parallel to the Rio Grande). When the water levels in the VF aquifer rise, groundwater flows to the west in the Arroyo Fill, and when water levels in the VF aquifer fall, ground water flows to the east in the Arroyo Fill. Recharge to the VF aquifer in this area comes primarily from leakage out of the Rio Grande. Recharge to the Venada Arroyo Fill portion of the aquifer (VAY) comes primarily from the VF and to a lesser extent from direct infiltration of stormwater into the bottom of Venada Arroyo. Figure 4 depicts the eastward groundwater flow direction in the VF aquifer in March 2010.

3.0 NATURE OF USF AQUIFER GROUNDWATER CONTAMINATION

Nitrate, chloride and TDS dissolved phase contamination is present in the USF aquifer within the area of the former Dairy. The contamination that is present is a result of past dairy activities associated with the former dairy corrals that were located on the terrace north of Venada Arroyo. Additional contribution to the contamination present may be from the sewage lift stations and associated sewer pipes located southwest and northeast of the Dairy and from individual septic systems associated with the housing areas located west of New Mexico Highway 528 and the Dairy. A summary of the groundwater contamination within the USF aquifer follows.

3.1 SUMMARY OF GROUNDWATER DATA

There are currently six monitoring wells (MW-6R, MW-8R, MW-11R, MW-14R, MW-15R and MW-16RR) completed within the USF aquifer (Figure 2). These wells are located within the former corral areas. There are seven monitoring wells (MW-1A, MW-13RR, MW-18, MW-19R, MW-20, MW-21, and MW-23) completed in the VF aquifer (Figure 4), these wells are all located within the vicinity of the former lagoons. The presence of the "red clay" in the USF aquifer separates the impacts in VF aquifer from the USF aquifer.

Within the wells completed within the USF aquifer, wells MW-6R and MW-8R currently and have generally been below the New Mexico Water Quality Control Commission (NMWQCC) ground water quality standards for nitrate, chloride and TDS. Nitrate concentrations in the remaining wells completed in the USF aquifer are less than two times standards, except for well MW-11R and 2008 and 2009 results from MW-15R.

Only well MW-15R has had TDS concentrations that are more than two times the TDS standard. Chloride concentrations have been above the NMWQCC standard in MW-11R, MW-14R, MW-15R and MW-16RR; however, all concentrations have been less than two times the standard. Wells within the VF aquifer all have nitrate concentrations that exceed the NMWQCC standard, except for wells MW-18 and MW-21. TDS concentrations have consistently been above the NMWQCC standard of 1,000 milligrams per liter (mg/L) in wells MW-1A, MW-19R, MW-20R, and MW-23. In wells MW-19R and MW-23, chloride concentrations have been above the NMWQCC standard of 250 mg/L.

Table 1 summarizes groundwater analytical results for the USF aquifer.

3.2 BACKGROUND CONCENTRATIONS FOR CHLORIDE AND TDS

In a meeting between NMED and PVGND on October 15, 2012, it was established that upgradient well MW-16R/MW-16RR will be considered the background well for the USF aquifer.

The average background concentration for TDS from well MW-16R/RR from March 17, 2008 to March 13, 2012 is 1,740 mg/L. The average chloride concentration from well MW-16RR from the same time period is 289 mg/L.

3.3 NITRATE IMPACTS IN USF AQUIFER

Nitrate contamination is present within the USF aquifer. On March 13, 2012, nitrate was present above the NMWQCC standard of 10 mg/L in wells MW-11R, MW-14R and MW-15R at concentrations of 26 mg/L, 12 mg/L, and 16 mg/L, respectively. The highest concentrations of nitrate have been measured in well MW-11R with a concentration of 41 mg/L in March 2011. Well MW-11R is located upgradient of the former lagoons and downgradient of the lift station.

3.4 CHLORIDE IMPACTS IN USF AQUIFER

In the Upper Santa Fe aquifer chloride contamination is present above the NMWQCC standard of 250 mg/L in monitoring wells MW-14R, MW-15R, and MW-16RR. The March 13, 2012 chloride concentrations in wells MW-14R, MW-15R and MW-16RR were 260 mg/L, 260 mg/L, and 350 mg/L, respectively. Well MW-16RR has had the highest concentrations of chloride with a peak concentration of 410 mg/L in March 2010. Chloride concentrations in monitoring wells do not exceed the established background concentration.

3.5 TDS IMPACTS IN USF AQUIFER

TDS is present above the NMWQCC standard of 1,000 mg/L in wells MW-11R, MW-14R, MW-15R, and MW-16RR with TDS concentrations from March 2012 of 1,030 mg/L, 1,440 mg/L, 2,170 mg/L and 1,880 mg/L, respectively. The highest TDS concentration was measured in well MW-15R in September 2009 at a concentration of 2,310 mg/L. TDS concentrations in monitoring wells do not exceed the established background concentration.

4.0 STATISTICAL EVALUATION OF USF AQUIFER DATA

An evaluation of monitoring well data for USF aquifer wells is presented herein as well as a discussion of plume stability and substitute abatement standards based on the statistical analyses.

4.1 DATA SET AND SUMMARY STATISTICS

Analytical results from March 2008 to March 2012 from the five monitoring wells (MW-6R, MW-8R, MW-14R, MW-15R and MW-16RR) completed within the Upper Santa Fe aquifer were used to complete a statistical analysis. The statistical technical memorandum is presented in Appendix B.

4.2 TREND ANALYSIS

Trend analyses of nitrate, chloride and TDS results from monitoring wells completed in the Upper Santa Fe aquifer were conducted using the Mann-Kendall test. A summary of the trend analysis is provided in Appendix B, which include concentration trend graphs for nitrate, chloride and TDS.

For nitrate, wells MW-6R, MW-8R, and MW-15RS have decreasing trends. Analytical results indicate that monitoring well MW-13R shows a decreasing trend for chloride. A decreasing TDS trend is observed in monitoring wells MW-6R and MW-13R. No wells with contaminant concentrations above Section 3103 levels exhibit a statistically increasing trend. Moreover, wells that are not declining with statistical significance sensibly appear stable to declining, particularly over the past year or two.

4.3 DISCUSSION OF PLUME STABILITY

Where statistically significant, trend analyses demonstrate declining trends for contaminants above Section 3103 standards. In all other cases the Mann-Kendall test was indeterminate. No contaminant concentrations are statistically trending upward. The indeterminate trends for contaminants exceeding Section 3103 standards are sensibly level or declining over the past several years. No downgradient monitoring points indicate increasing trends. Therefore, in both mass and aerial extent, the USF aquifer plume is stable and appears to be declining. Therefore, threat to contamination of unimpacted groundwater peripheral to the plume is minimal.

4.4 BASIS FOR TECHNICAL INFEASIBILITY

The following is the basis for technical infeasibility for abatement of the USF aquifer at the Dairy:

- The nitrate, chloride and TDS groundwater plumes are stable or declining,
- Nitrate, chloride and TDS analytical results that have been collected from March 2008 to March 2012 from the USF aquifer do not exceed 200 percent of either background or NMWQCC standards (Section 3103).
- Soil contamination was addressed through VRP and Certificate of Completion issued;

- Based on the trend analysis, continued abatement will not substantially change the groundwater condition in a favorable manner over what is statistically expected at this point in time, and
- Since the former Dairy has been closed and the site redeveloped for commercial purposes, unfavorable degradation of water quality in the Upper Santa Fe aquifer is not expected, rather, any long-term changes are expected to be favorable.

4.5 SUBSTITUTE ABATEMENT STANDARDS

The following substitute abatement standards are proposed in accordance with Section 4103.E.1.

- For nitrate, 200 percent of Section 3103.A. Standard — 20 mg/L nitrate as N;
- For chloride, 200 percent of background (Section 3.2) — 578 mg/L; and
- For TDS, 200 percent of background (Section 3.2) — 3,480 mg/L.

5.0 SUMMARY AND CONCLUSIONS

The whole of the PVGND record establishes that groundwater impacts to the USF aquifer are stable or declining, and further threat to unimpacted groundwater is negligible. The USF aquifer has been in abatement a sufficient length of time to generate sufficient groundwater data for a robust time series to establish statistics and trends. The USF aquifer is stable to declining and poses minimal threat to contiguous groundwater bodies. The proposed substitute abatement standards – 200 percent Section 3103 Standard for nitrate, and 200 percent background for chloride and TDS – have been achieved, and the site is therefore below the standards as defined by Section 4103.B. The next appropriate action for USF aquifer groundwater is Completion and Termination of Abatement in accordance with 20 NMAC 6.2.4112.

6.0 REFERENCES

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New Mexico Administrative Code 1995. Title 20 – Environmental Protection, Chapter 6 – Water Quality, Part 2 – Ground and Surface Water Protection. December 1.

TABLE

TABLE 1. GROUNDWATER MONITORING DATA SUMMARY
FORMER PRICE'S VALLEY GOLD NORTH DAIRY SITE
UPPER SANTA FE AQUIFER

Well/Freq. (Aquifer)	Date	Water Level Elevation (ft.)	NO_3+NO_2 (mg/L) Std 10	TKN (mg/L)	TDS (mg/L) Std 1000	CL (mg/L) Std 250
6R/Q (USF)	3/18/2008	n/a	10	ND	820	190
	6/26/2008	n/a	8.5	5.6	1600	99
	3/19/2009	5017.37	6.1	1.3	560	46
NMED Split	3/19/2009	5017.37	6.1	0.26	430	43.5
	6/22/2009	5017.42				
	9/18/2009	5017.50	6.9	ND	494	38
	12/15/2009	5017.57				
	3/11/2010	5017.29	5.4	ND	438	38
	6/18/2010	5017.22				
	9/8/2010	5017.45	5.6	ND	408	23
	3/9/2011	5017.85	2.9	ND	488	110
	6/15/2011	5017.09	2.8	ND	515	98
	9/7/2011	5016.74	6.8	ND	480	50
	12/27/2011	5017.83	2.3	ND	476	87
	3/13/2012	5017.44	3	ND	439	61
8R/Q (USF)	3/20/2008	n/a	3.9	ND	390	39
	6/26/2008	n/a	8.6	ND	1100	180
	3/19/2009	5019.11	5.8	ND	360	30
NMED Split	3/19/2009		5.4	0.35	362	23.5
	6/22/2009	5019.15				
	9/21/2009	5019.56	10	ND	464	30
	12/15/2009	5019.94				
	3/10/2010	5019.25	6.3	ND	365	19
	6/18/2010	5019.02				
	9/8/2010	5019.88	4.2	ND	334	14
	3/9/2011	5020.66	4	ND	519	96
	6/15/2011	5018.30	3.3	ND	765	190
	9/7/2011	5017.77	7.5	ND	782	160
	12/26/2011	5021.20	3.6	ND	429	29
	3/12/2012	5020.20	3	ND	384	23
	6/5/2012		3.3	ND	480	54

TABLE 1. GROUNDWATER MONITORING DATA SUMMARY
FORMER PRICE'S VALLEY GOLD NORTH DAIRY SITE
UPPER SANTA FE AQUIFER

Well/Freq. (Aquifer)	Date	Water Level Elevation (ft.)	NO_3+NO_2 (mg/L) Std 10	TKN (mg/L)	TDS (mg/L) Std 1000	CL (mg/L) Std 250
11R/S (USF)	3/20/2008	n/a	19	ND	1000	200
	3/19/2009	5026.94	34	ND	2000	270
NMED Split	3/19/2009		36	0.83	1270	230
	6/22/2009	5026.75				
	9/18/2009	5026.86	35	ND	1210	270
	I2/15/2009	5026.74				
	3/10/2010	5026.91				
	6/18/2010	5027.66				
	9/8/2010	5026.73	38	ND	1180	210
	3/9/2011	5026.65	41	ND	1180	240
	6/15/2011	5026.59	38	ND	1260	240
	9/7/2011	5026.47	33	ND	1180	220
	12/26/2011	5026.32	26	ND	1030	190
	3/13/2012	5026.17	29	ND	1060	190
	6/5/2012		26	ND	1030	180
14R/S (USF)	3/17/2008	n/a	13	ND	1400	260
	3/31/2009	5028.88	13	ND	1300	290
	6/22/2009	5028.81				
	9/16/2009	5028.87	13	ND	1500	310
	2/15/2009	5028.51				
	3/10/2010	5028.88	14	ND	1470	300
	6/18/2010	5028.84				
	9/9/2010	5028.57	13	ND	1560	310
	3/9/2011	5028.39	14	ND	1470	290
	6/15/2011	5028.55	12	ND	1500	270
	9/7/2011	5028.65	13	ND	1530	280
	12/22/2011	5028.61	13	ND	1440	280
	3/13/2012	5028.37	12	ND	1440	260

TABLE 1. GROUNDWATER MONITORING DATA SUMMARY
FORMER PRICE'S VALLEY GOLD NORTH DAIRY SITE
UPPER SANTA FE AQUIFER

Well/Freq. (Aquifer)	Date	Water Level Elevation (ft.)	NO_3+NO_2 (mg/L) Std 10	TKN (mg/L)	TDS (mg/L) Std 1000	CL (mg/L) Std 250
15R/S (USF)	3/17/2008	n/a	23	ND	1600	210
	3/20/2009	5032.34	24	ND	1900	240
NMED Split	3/20/2009		24	0.34	2260	204
	6/22/2009	5032.33				
	9/21/2009	5032.17	19	ND	2310	310
	12/15/2009	5032.30				
	3/10/2010	5032.66	18	ND	2090	370
	6/18/2010	5032.69				
	9/9/2010	5032.50	15	ND	2210	370
	3/9/2011	5032.32	16	ND	2100	330
	6/15/2011	5032.59	14	ND	2120	310
	9/7/2011	5032.76	15	ND	2150	300
	12/22/2011	5032.85	16	ND	2110	280
	3/13/2012	5032.61	16	ND	2170	260
16R/S (USF)	3/17/2008	n/a	5.5	ND	1600	140
	3/20/2009	5044.47	4.2	ND	1100	170
NMED Split	3/20/2009		3.6	0.69	1580	149
	6/22/2009	5044.68				
	9/18/2009	5044.76	3.1	ND	1390	190
16RR/S (USF)	12/15/2009	5043.27				
	3/10/2010	5043.66	11	ND	2030	410
	6/18/2010	5044.91				
	9/8/2010	5044.34	11	ND	2090	360
	3/9/2011	5045.50	9	ND	1900	370
	6/15/2011	5045.81	7.5	ND	1870	340
	9/7/2011	5045.64	9.3	ND	1870	340
	12/22/2011	5045.64	10	ND	1840	360
	3/13/2012	5044.78	8.5	ND	1880	350

NOTES:
ft. = feet
mg/L = milligrams per Liter
ND = no detect
NO3+NO2 = Nitrate + Nitrite
TKN = Total Kjehldahl Nitrogen
TDS = Total dissolved solids
CL = Chlorine

FIGURES

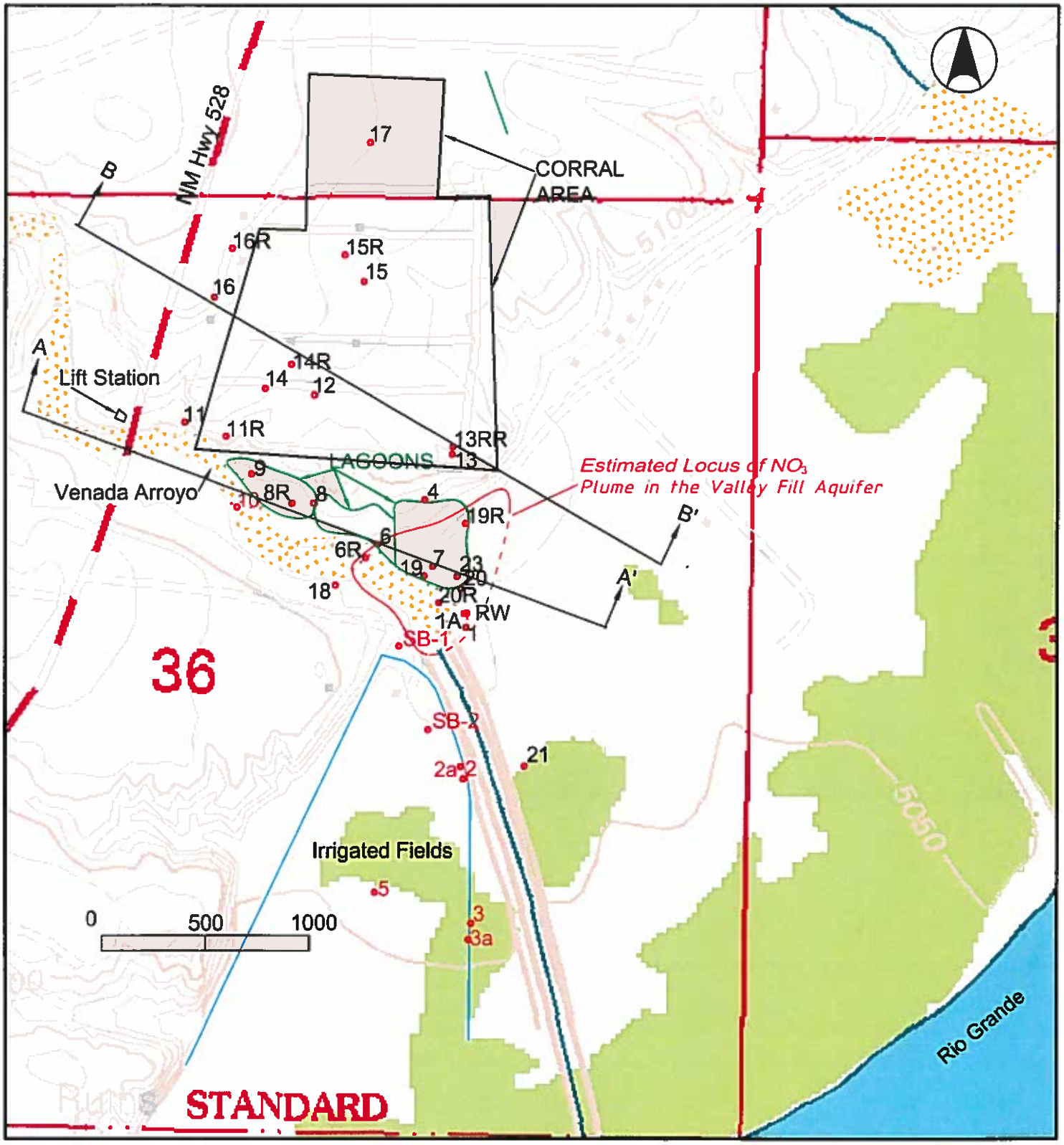
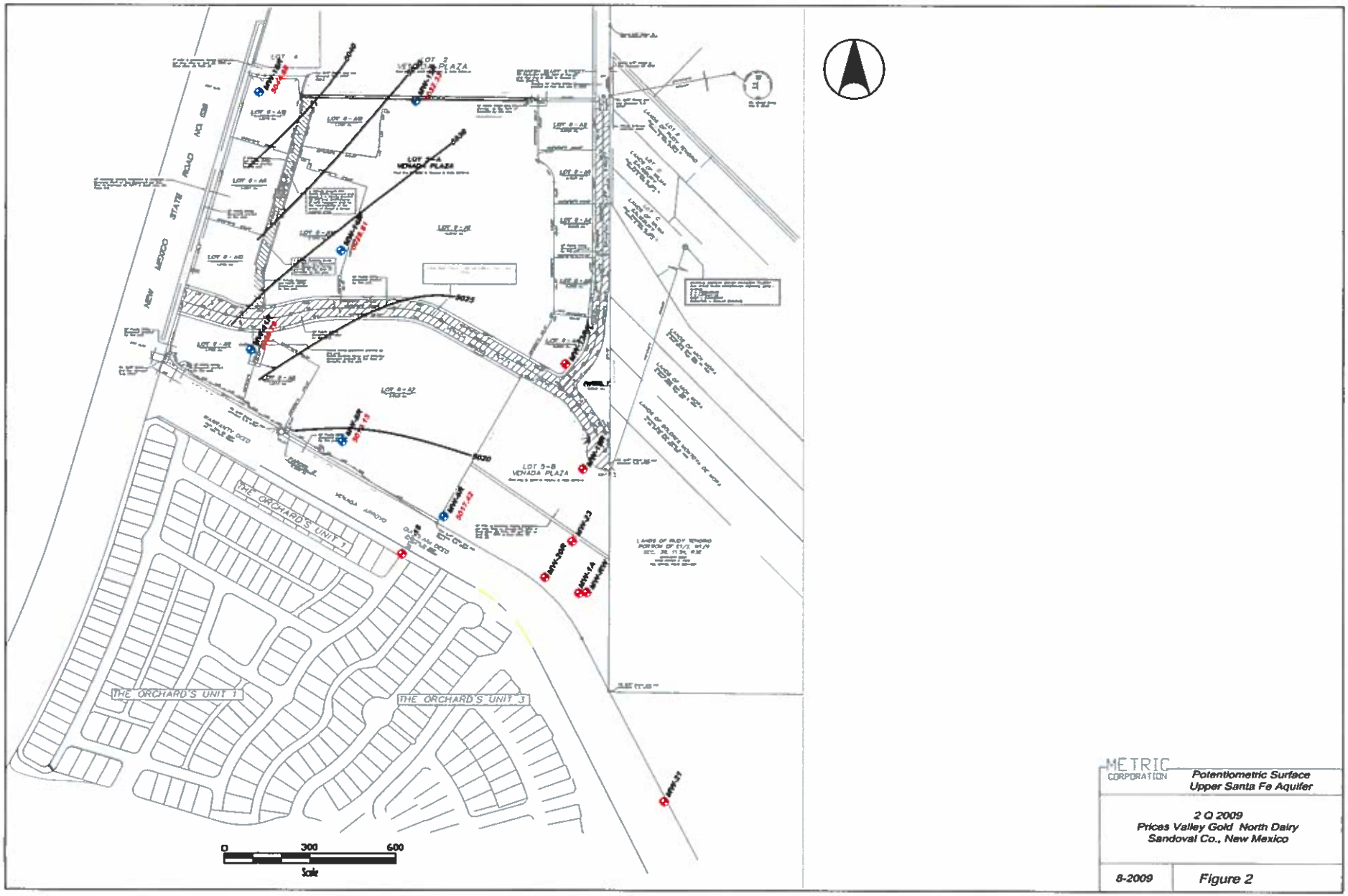


FIGURE 1

Monitor Well and Cross Section Locations

9 March 2010



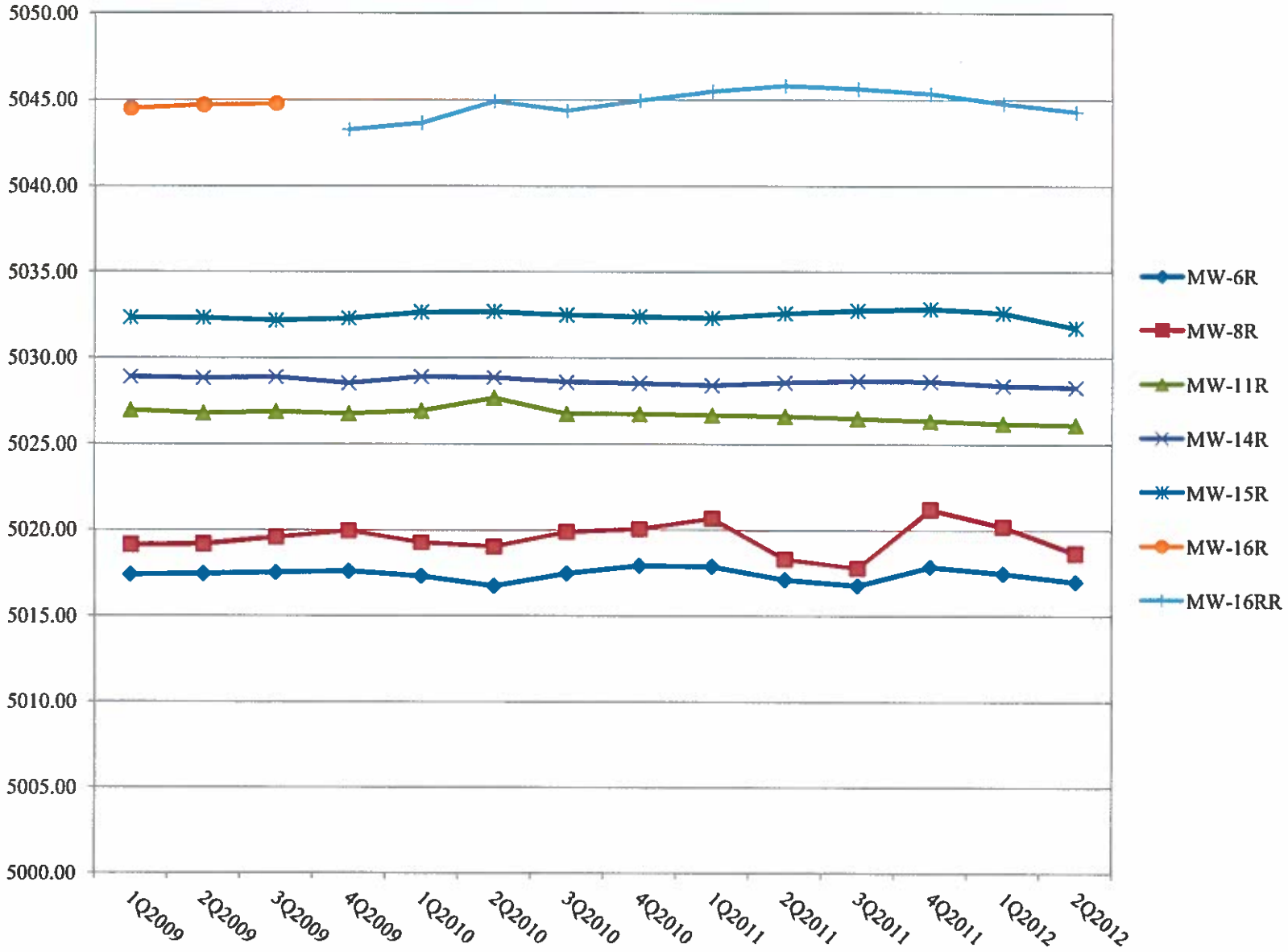
METRIC CORPORATION

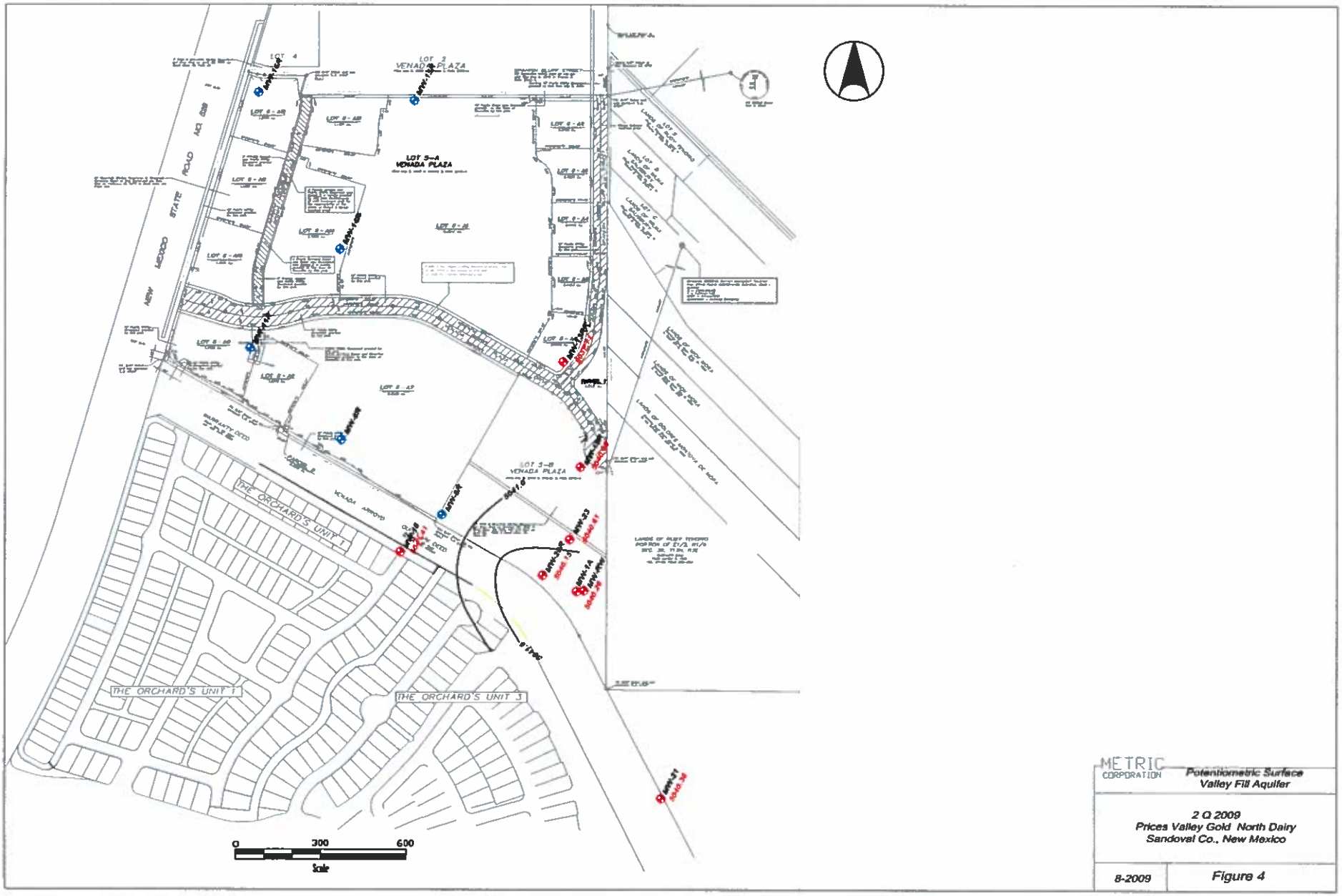
Potentiometric Surface
Upper Santa Fe Aquifer

2 Q 2009
Prices Valley Gold North Dairy
Sandoval Co., New Mexico

8-2009 | *Figure 2*

FIGURE 3. HYDROGRAPHS (SANTA FE AQUIFER)
1Q2009 THRU 1Q2012





METRIC CORPORATION

Potentiometric Surface
Valley Fill Aquifer

2 Q 2009
Prices Valley Gold North Dairy
Sandoval Co., New Mexico

8-2009

Figure 4

APPENDIX A
HAWLEY GEOMATTERS HYDROGEOLOGIC REPORT

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DRAFT REPORT ON THE HYDROGEOLOGIC SETTING OF THE PRICE'S VALLEY GOLD-NORTH DAIRY SITE IN AND NEAR SECTION 36, T13N, R3E, SANDOVAL COUNTY, NEW MEXICO[1]

JANUARY 12, 2009

[1] Prepared in cooperation with Gary A Richardson, P.E., Metric Corporation

Introduction

This report is an independent characterization of the Price's Valley Gold-North Dairy (**PVGND**) site's hydrogeologic setting in and near Section 36, T13N, R3E, Sandoval County, NM (USGS Bernalillo 7.5 minute quadrangle). The primary study area is located at the southwestern edge of the Town of Bernalillo and along the western border of the inner Rio Grande Valley east of NM-528 and south of NM-505. The general area of interest is in the northern part of the Albuquerque Basin of the Rio Grande rift tectonic province, and includes the zone of structural transition between the Santo Domingo and Calabacillas subbasins (Hawley 1978, Keller and Cather 1994, Hansen and Gorbach 1998; Bartolino and Cole 2002; Connell et al. 2005, 2007; Connell 2008). Upper Cenozoic Santa Fe Group basin fill (Ceja Fm) and late Pleistocene to Holocene river-valley fill (Los Padillas Fm) comprise the major aquifer systems of this "alluvial-basin" (Hawley et al. 1995, Kernodle et al. 1995, Hawley and Kernodle 2000, McAda and Barrow 2002). Emphasis here is on hydrogeologic characterization of aquifers and overlying deposits in the unsaturated (vadose) zone in order to develop better geohydrologic-hydrochemical treatment strategies for remediation of any groundwater contamination that may be associated with previous operations at or near the **PVGND** site.

Key references* on the local geologic and hydrogeologic setting and related publications of a more general nature are cited at the end of the report, and include unpublished reports by consultants and State agencies on monitoring-well installation and soil-borings. More-detailed geologic interpretations are provided by the 1:24,000-scale geologic map of the Bernalillo and Placitas quadrangles (Connell et al., 1995-1998), and a new 1:50,000-scale compilation of geologic and hydrogeologic mapping in the entire Albuquerque-Rio Rancho metropolitan area (Connell, 2008).

Report Plate 1 is an index map showing locations of 1) ten schematic cross sections (Plates 2 to 4) that illustrate shallow-subsurface hydrogeologic conditions at the **PVGND** site, and 2) forty-five well- and borehole-control points used in construction of the cross sections. This map is a 1:6,000-scale enlargement of the USGS Bernalillo 7.5 minute topographic quadrangle (10 ft contour interval). Plate 1 also shows the

wide range in permeability. However, estimated horizontal-hydraulic conductivities (K_h) in the Albuquerque groundwater basin are commonly in the "moderate" range (3-30 ft/d, Table 2; Hawley and Kernodle 2000), while model-K_h estimates in the **PVGND** site area are about 4 ft/d (Kernodle et al. 2005, McAda and Barrow 2002). Silty clay to sandy mudstone interbeds in ***LFA 3*** are as much as 20 ft thick, and appear to act as effective confining beds (aquitards and aquicludes) beneath much of the site area. The potentiometric surface (pressure head) in monitoring wells screened in unit **USF** is usually significantly less than local unconfined water-table elevations in **HSU-RG** of the river-valley-floor area (about 5,040 ft asl, Plates 2 to 4).

Geohydrologic/hydraulic properties of Rio Grande valley-fill hydrostratigraphic unit (**HSU-RG**) and the saturated basal part of contiguous tributary alluvium of Arroyo Venada (**HSU-VAY**) contrast markedly with those of **HSU-USF**. Estimated horizontal-hydraulic conductivities (K_h) are commonly in the "high to moderate" range in these valley-fill units (***LFAs a1-2*** and ***b***) throughout the northern Rio Grande Valley region (Hawley and Kernodle 2000-Table 3), with model-K_h estimates of about 40 ft/d in the Bernalillo-**PVGND** site area (Kernodle et al. 1995). As noted above, the potentiometric surface in the upper unconfined aquifer system of the inner Rio Grande Valley (**HSUs RG** and basal **VAY**) is within 10 to 15 feet of the local river-floodplain surface (about 5,050 ft asl), except near major pumping centers. Valley-fill groundwater heads (about 5, 040 ft) are therefore significantly higher than those in the adjacent/subjacent confined basin-fill (**UFS**) aquifer system in most parts of the study area.

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Table 1. Summary of depositional settings and dominant textures of major lithofacies assemblages (***LFAs***) in basin and valley fills of the Rio Grande rift region: Santa Fe Group basin fill (***1-10***), and post-Santa Fe river-valley and basin fill (***a-c***). Modified from Hawley and Kernodle (2000)

Lithofacies Assemblages	Dominant depositional settings and process	Dominant textural classes
1	Basin-floor fluvial plain	Sand and pebble gravel, lenses of silty clay
2	Basin-floor fluvial, locally eolian	Sand; lenses of pebble sand, and silty clay
3	Basin-floor, fluvial-overbank, fluvial-deltaic and playa-lake; eolian	Interbedded sand and silty clay; lenses of pebbly sand
4	Eolian, basin-floor alluvial	Sand and sandstone; lenses of silty sand to clay
5	Distal to medial piedmont-slope; alluvial fan	Gravel, sand, silt, and clay; common loamy (sand-silt-clay)
5a	Distal to medial piedmont-slope, alluvial fan; associated with large watersheds; alluvial-fan distributary-channel primary; sheet-flood and debris-flow secondary	Sand and gravel; lenses of gravelly, loamy sand to sandy loam
5b	Distal to medial piedmont-slope, alluvial fan; associated with small steep watersheds, debris-flow sheet-flood, and distributary-channel	Gravelly, loamy sand to sandy loam; lenses of sand, gravel, and silty clay
6	Proximal to medial piedmont-slope, alluvial-fan	Coarse gravelly, loamy sand and sandy loam; lenses of sand and cobble to boulder gravel
6a	Like 5a	Sand and gravel; lenses of gravelly to non-gravelly, loamy sand to sandy loam
6b	Like 5b	Gravelly, loamy sand to sandy loam; lenses of sand, gravel, and silty clay
7	Like 5	Partly indurated 5
8	Like 6	Partly indurated 6
9	Basin-floor-alluvial flat, playa, lake, and fluvial-lacustrine; distal-piedmont alluvial	Silty clay interbedded with sand, silty sand and clay
10	Like 9, with evaporite processes (paleophreatic)	Partly indurated 9, with gypsiferous and alkali- impregnated zones
a	River-valley, fluvial	Sand, gravel, silt and clay
a1	Basal channel	Pebble to cobble gravel and sand (like 1)
a2	Braided plain, channel	Sand and pebbly sand (like 2)
a3	Overbank, meander- belt oxbow	Silty clay, clay, and sand (like 3)
b	Arroyo channel, and valley-border alluvial-fan	Sand, gravel, silt, and clay (like 5)
c	Basin floor, alluvial flat, cienega, playa, and fluvial-fan to lacustrine plain	Silty clay, clay and sand (like 3,5, and 9)

Table 2. Summary of major sedimentary properties that influence groundwater-production potential of Santa Fe Group river-valley and basin fill (***LFAs 1-10***). Modified from Haase and Lozinsky (1992)

Lithofacies	Ratio of sand plus gravel to silt plus clay[1]	Bedding thickness (meters)	Bedding configuration[2]	Bedding continuity (feet)[3]	Bedding connectivity[4]	Hydraulic conductivity (K)[5]	Groundwater production potential
1	High	>1.5	Elongate to planar	>1000	High	High	High
2	High to moderate	>1.5	Elongate to planar	>1000	High to moderate	High to moderate	High to moderate
3	Moderate	>1.5	Planar	500 to 1000	Moderate to high	Moderate	Moderate
4	Moderate to low*	>1.5	Planar to elongate	100 to 500	Moderate to high	Moderate	Moderate
5	Moderate to high	0.3 to 1.5	Elongate to lobate	100 to 500	Moderate	Moderate(l-h)	Moderate(l-h)
5a	High to moderate	0.3 to 1.5	Elongate to lobate	100 to 500	Moderate	Moderate to high	Moderate to high
5b	Moderate	0.3 to 1.5	Lobate	100 to 500	Moderate to low	Moderate to low	Moderate to low
6	Moderate to low	0.3 to 1.5	Lobate to elongate	100 to 500	Moderate to low	Moderate to low	Low to moderate
6a	Moderate	0.3 to 1.5	Lobate to elongate	100 to 500	Moderate	Moderate to low	Moderate to low
6b	Moderate to low	0.3 to 1.5	Lobate	<100	Low to moderate	Low to moderate	Low
7	Moderate*	0.3 to 1.5	Elongate to lobate	100 to 500	Moderate	Low	Low
8	Moderate to low*	>1.5	Lobate	<100	Low to moderate	Low	Low
9	Low	>5	Planar	>500	Low	Very low	Very low
10	Low*	>5	Planar	>500	Low	Very low	Very low

[1]High >2; moderate 0.5-2; low<0.5

[2]Elongate (length to width ratios >5); planar (length to width ratios 1-5); lobate (asymmetrical or incomplete planar beds).

[3]Measure of the lateral extent of an individual bed of given thickness and configuration.

[4]Estimate of the ease with which groundwater can flow between individual beds within a particular lithofacies. Generally, high sand + gravel/silt + clay ratios, thick beds, and high bedding continuity favor high bedding connectivity. All other parameters being held equal, the greater the bedding connectivity, the greater the groundwater production potential of a sedimentary unit (Hawley and Haase 1992, VI).

[5]10 to 30 m/day; moderate, 1 to 10 m/day; low, <1 m/day; very low, <0.1 m/day

*Significant amounts of cementation of coarse-grained beds (as much as 30%)

TABLE 3. Major Hydrostratigraphic Units of the Valley Gold Dairy Site Area, Sandoval County, New Mexico (See Figures 1 and 2, Tables 1 and 2, and Plates 1 to 3)

Post-Santa Fe Group Hydrostratigraphic Units (HSUs), and Major Lithofacies-Assemblage Components (*LFAs*)

RG—Los Padillas Formation (historic to uppermost Pleistocene, Connell et al. 2007)—Pinkish-gray to grayish-brown sand, sandy pebble to cobble gravel, and silty to sandy clay; contains paleochannel, point-bar, and overbank floodplain deposits that underlie the floor of the inner Rio Grande Valley; gravel dominated by rounded quartzite and volcanic clasts; very weak to no soil development; commonly 60 to 80 ft thick in the study area, and mostly in the zone of saturation. Lithofacies Assemblages (*LFAs*) ***a1-3*** (Fig. 1, Tables 1 and 2). Correlative with **Qrp** of Connell (2008).

VA—Alluvium of arroyo systems tributary to the Rio Grande Valley-undivided **VAY** and **VAO** (Middle Pleistocene to Holocene). Valley-border deposits with local veneers of eolian silty sand; primarily pebbly sand to silty sand and sandy silt; usually less than 20 ft thick in the study area, and entirely in vadose (unsaturated) zone. Lithofacies Assemblage (*LFA*) ***b*** (Fig. 1, Tables 1 and 2).

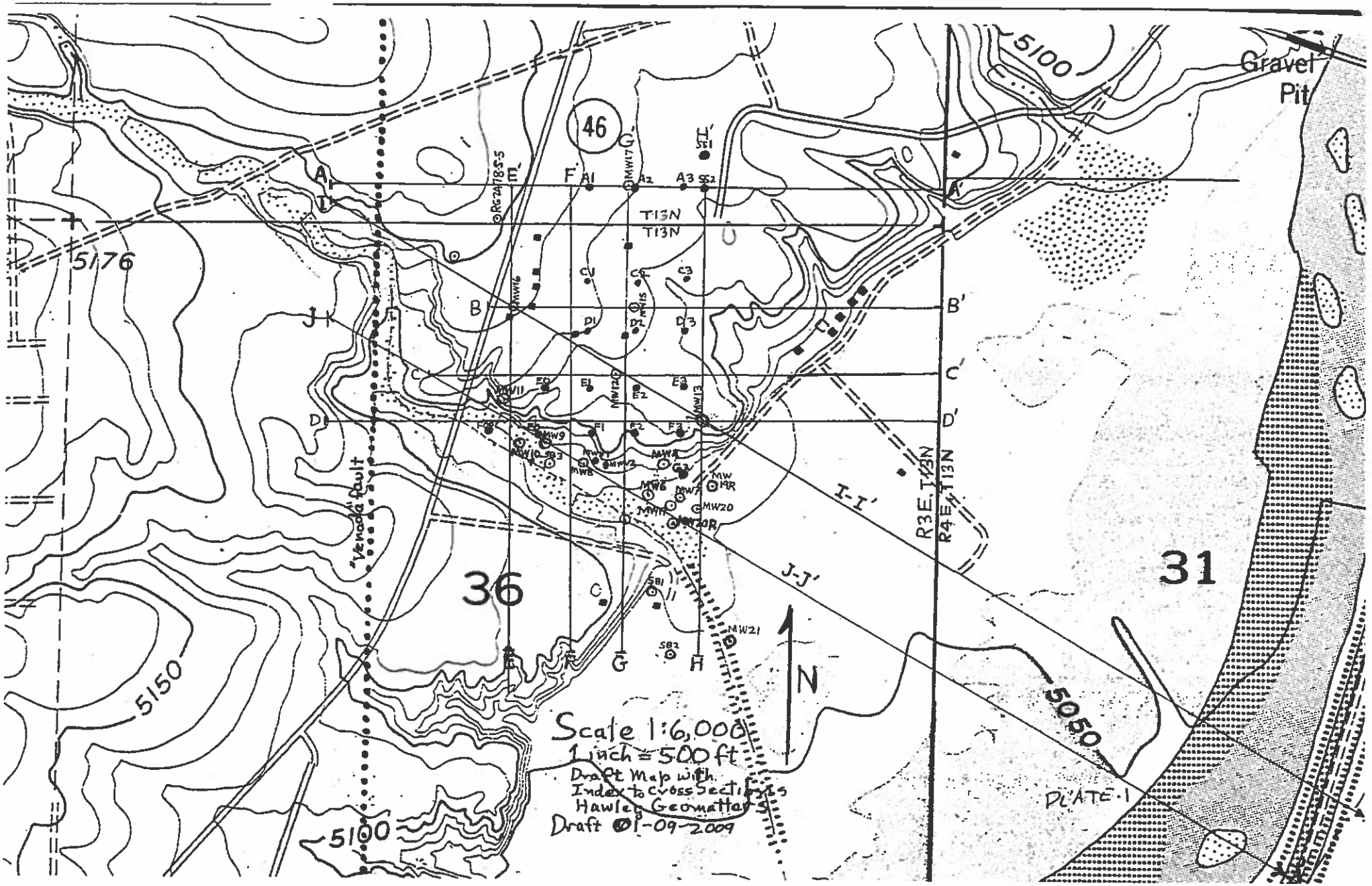
VAY—Younger arroyo-valley alluvium (Holocene to upper Pleistocene)—Pale- to light-brown sand, muddy sand, and pebble to cobble gravel associated with tributary streams graded to the Rio Grande (**HSU-RG**); variable quartzose-feldspathic lithology with gravel dominated by chert, volcanic, and reddish granitic clasts; weakly developed soils with stage I and II carbonate morphology (Gile et al., 1966); depositional surface as much as 10 ft above local-arroyo base level, and less than 70 ft thick in lower reaches of major tributary valleys; mostly in vadose zone, with basal beds partly saturated in valley of Arroyo Venada. Lithofacies Assemblage (*LFA*) ***b*** (Fig. 1, Tables 1 and 2). Correlative with **Qay** of Connell (2008).

VAO— Intermediate valley-border alluvium (upper to middle Pleistocene)—Alluvial deposits associated with geomorphic surfaces (e.g. fans and terraces) bordering the inner Rio Grande Valley and graded to ancestral- river (**HSU-TAd**) base levels. Yellowish-brown to reddish-yellow sand, muddy sand, silty clay, and pebble to cobble gravel; variable quartzose-feldspathic lithology with gravel dominated by chert, volcanic, and reddish granitic clasts; surface commonly veneered with eolian silty sand; moderately developed soils with stage II to weak stage III carbonate morphology (Gile et al., 1966); 25-100 ft above local-arroyo base level, and as much as 100 ft thick, and entirely in the vadose zone. Lithofacies Assemblage (*LFA*) ***b*** (Fig. 1, Tables 1 and 2). Correlative with **Qam** of Connell (2008).

TAd—Los Duranes Formation (middle Pleistocene, Connell et al. 2007)—Pale-brown to light-reddish-brown sand, sandy pebble to cobble gravel, and silty to sandy clay; fluvial-terrace (channel and floodplain) deposits of the ancestral Rio Grande; gravel dominated by rounded quartzite and volcanic clasts; surface commonly veneered with eolian silty sand; moderately developed soils with stage II to weak stage III carbonate morphology (Gile et al., 1966). Terrace surface is 50-70 ft above historic floodplain base level in the study area; deposits are as much as 70 ft thick, with a minimum elevation in the 5,050 to 5,060-ft range thick and entirely in the vadose zone. Lithofacies Assemblages (*LFAs*) ***a1-3*** (Fig. 1, Tables 1 and 2). Unit intertongues with **HSU-VAO** along valley margins, and is correlative with **Qrd** of Connell (2008).

Santa Fe Group Hydrostratigraphic Units (HSUs), and Major Lithofacies-Assemblage Components (*LFAs*)

USF—Upper Santa Fe Gp **HSUs-undivided** intermontane-basin fill (Pliocene): Unit includes intertonguing distal piedmont-slope (**USF3**) and basin-floor (**USF2**) alluvium deposited prior to incision of the present valley systems of the Rio Grande and its major tributaries (e.g. Arroyo Venada). Primarily Lithofacies Assemblage (*LFA*) ***3*** (Fig. 1, Tables 1 and 2) in the study area: Interbedded reddish-brown to yellowish-red silty clay, mudstone, and weakly cemented sandstone and pebbly sandstone derived from pre-Valles caldera Jemez-Nacimiento Mountain area; variable quartzose-feldspathic lithology with gravel dominated by chert, volcanic, and reddish granitic clasts. Correlative with the Santa Ana Mesa Member of the Ceja Formation (**Tcs**) as mapped by Connell (2008) and Connell and others (1995-1998). *Major Santa Fe Group aquifer, with saturated thickness locally exceeding 1000 ft.*


Gravel Pit
5100
5176
5150
5100
5050
46
36
31
T13N
T13N
R3E, T13N
R4E, T13N
Venado fault
A
A'
B
B'
C
C'
D
D'
F
G
H
I-I'
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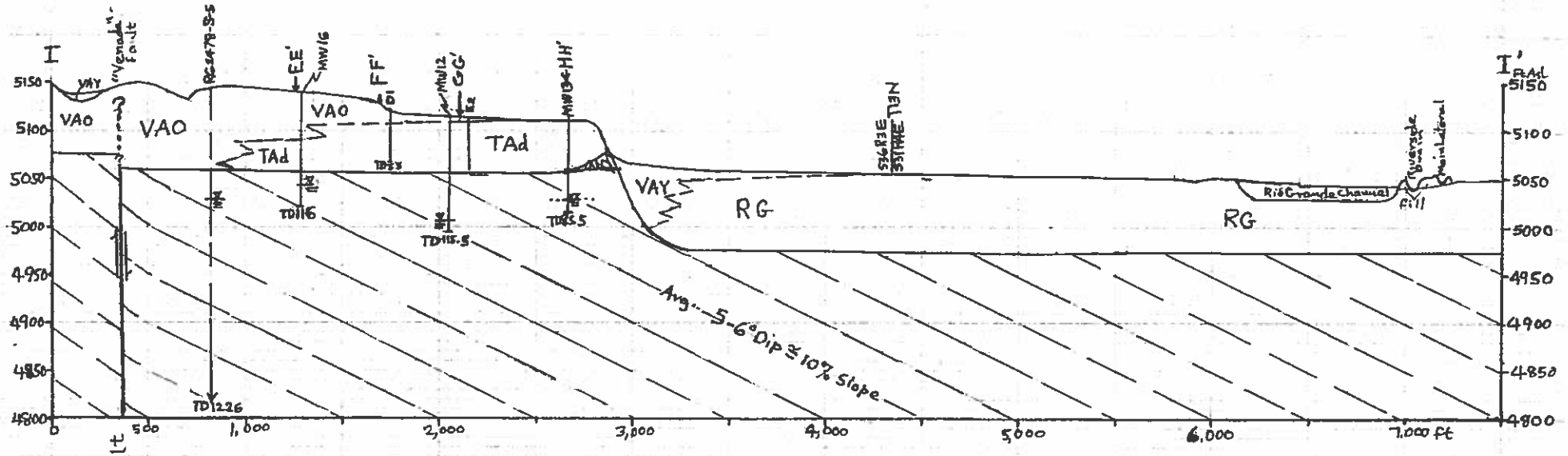
Hawley Geomatters
Draft @ 1-09-2009
PLATE-1



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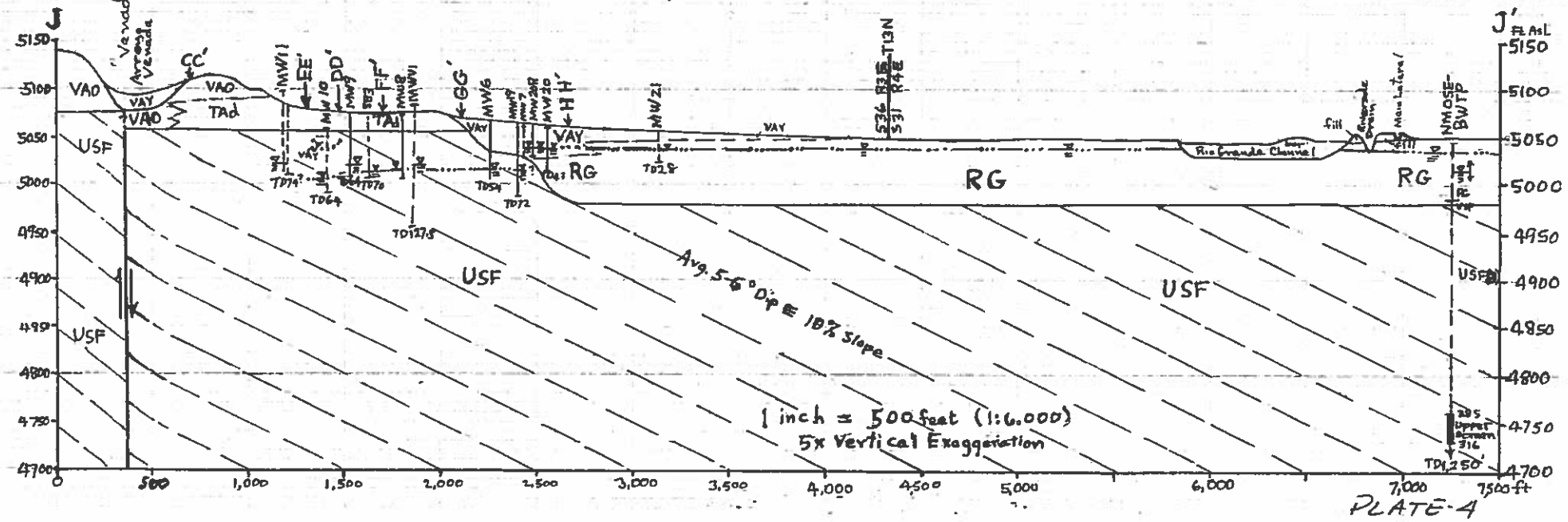
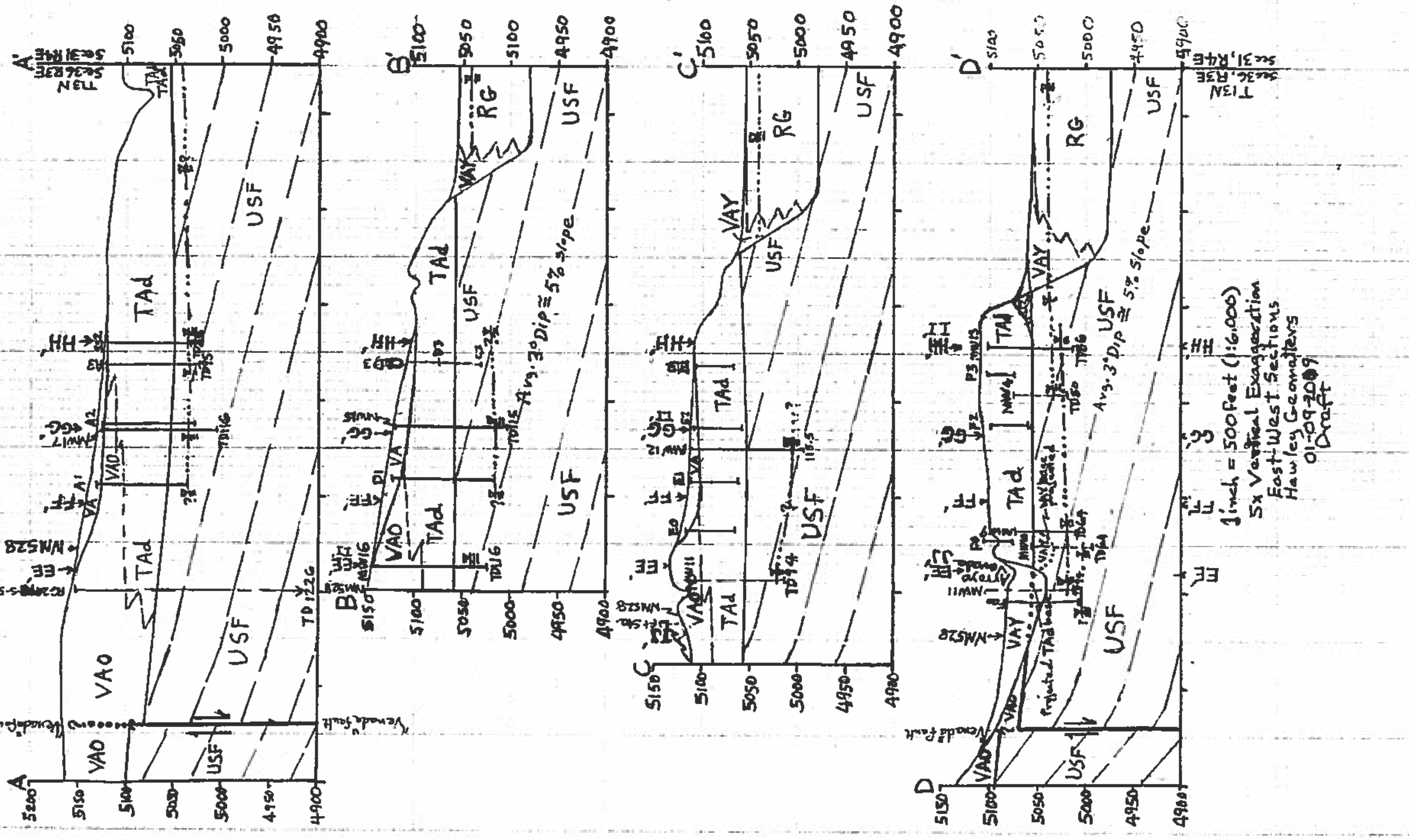
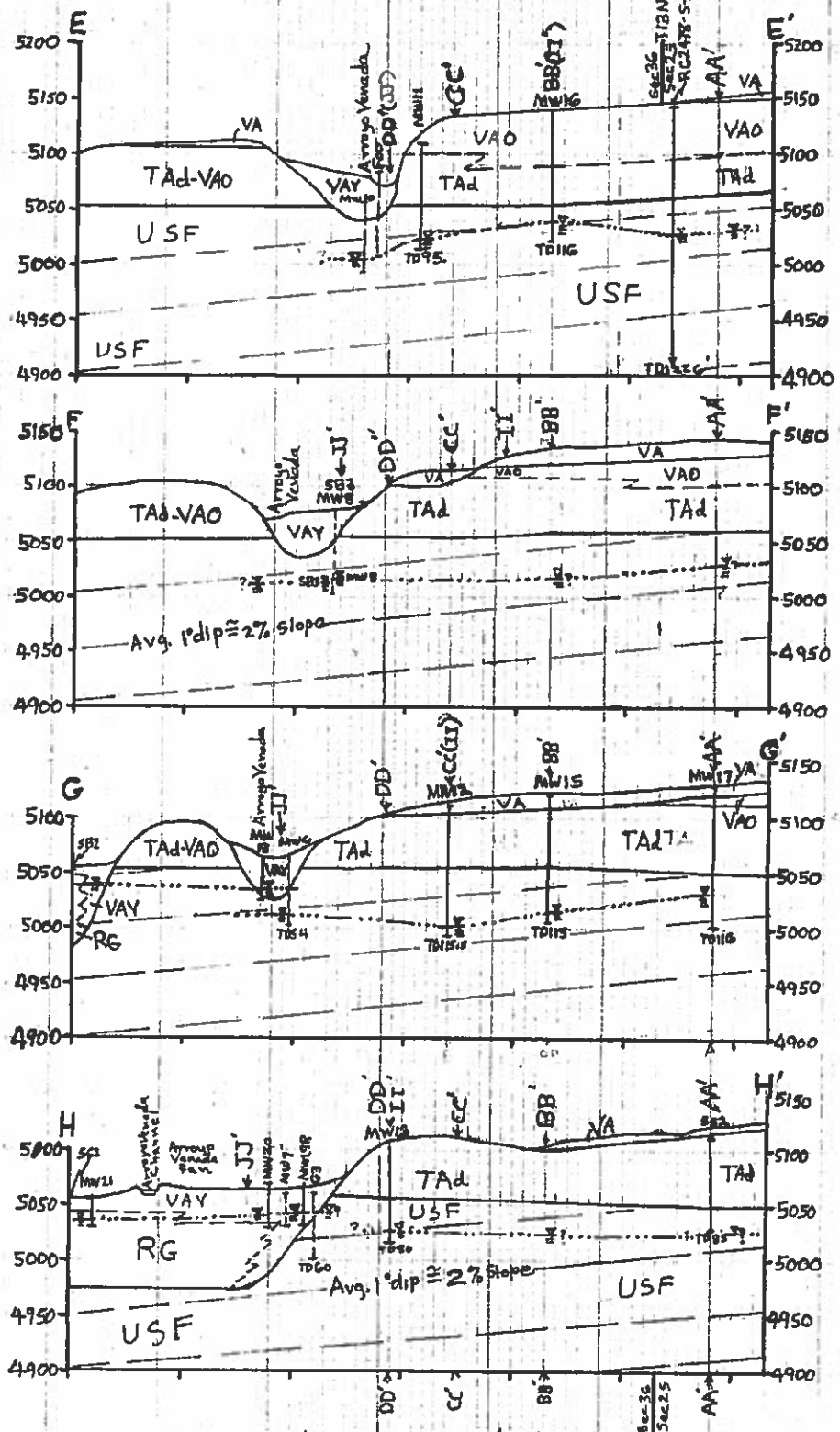


PLATE-4



1 inch = 500 feet (1:6,000)
5x Vertical Exaggeration
East-West Sections
Hawley Geomatters
01-09-2009
Draft
Avg. 3° Dip ≅ 5% slope
A
A'
B
B'
C
C'
D
D'
USF
TAd
VAO
VAY
RG
Venado fault

PLATE-2



1 inch = 500 feet (1:6,000)
5x Vertical Exaggeration
North-South Sections
Hawley Geomatters
01-09-2009
Draft

PLATE-3

APPENDIX B
STATISTICAL ANALYSIS TECHNICAL MEMORANDUM

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26 October 2012

MEMORANDUM

TO: Jay Snyder, Project Manager

FROM: Sanita Corum

SUBJECT: Prices Valley Gold North Dairy Site Statistical Analysis

This technical memorandum provides a summary of the statistical analyses performed on quarterly groundwater data collected from the Price's Valley Gold North Dairy Site from March 2008 to June 2012. The following 3 contaminants were evaluated:

1. Nitrate+Nitrite (NO3+NO2),
2. Total dissolved solids (TDS), and
3. Chloride.

The upgradient conditions (UC) for chloride and total dissolved solids (TDS) were computed as 2-times the mean contaminant concentration of the upgradient well 16R/S (Table 1). Standard summary statistics including the number of samples, frequency of detection (FOD), minimum detected concentration, maximum detected concentration and mean detected concentration are provided in Table 2. The results of the statistical analysis include trend graphs and data tables. The results of the Mann-Kendall trend analysis are provided in Table 3. Trends graphs are presented in Figures 1 through 3.

Summary Statistics

Summary statistics are provided in Table 2 for each of the monitoring wells. NO3+NO2 concentrations ranged from 2.3 mg/L to 41 mg/L. TDS concentrations ranged from 334 mg/L to 2,310 mg/L. Chloride concentrations ranged from 14 mg/L to 370 mg/L. The maximum concentration for each contaminant was measured at well 15R/S.

Mann-Kendall Trend Analysis

A trend analysis was performed for NO3+NO2, TDS and chloride at every monitoring well if:

1. The well had been sampled at least 4 times
2. At least 60 percent of the sample results were above the analytical detection limit.

The Mann-Kendall test for trend (Gilbert 1987) was used to identify contaminants with an increasing or decreasing trend at the 95 percent significance level. Concentrations reported below the detection were treated as zero for computing the yearly median concentration. Exact two-sided probabilities for the null distribution of the Mann-Kendall test were obtained from Hollander and Wolfe (1973). Decreasing trends presented in Table 3 were identified for NO3+NO2 at wells 6R/Q, 8R/Q and 15R/S, TDS (well 6R/Q) and chloride (well 11R/S).

Results of Trend Analysis

Groundwater data were plotted for the upgradient well 16R/S and the downgradient monitoring wells 6R/Q, 8R/Q, 11R/S, 14R/S, and 15R/S for NO3+NO2, TDS and chloride. The data is graphed to show variations in contaminant concentrations over quarterly monitoring events for each monitoring well, and relationship to the applicable screening standard.

NO3+NO2

The NO3+NO2 level for wells 6R/Q, 8R/Q, and 15 R/S exhibit a decreasing trend (see Figure 1). The NO3+NO2 concentrations exceeded the groundwater standard of 10 mg/L in the following wells:

- 11R/S exceeded in 10 of 10 samples,
- 14R/S exceeded in 10 of 10 samples, and
- 15R/S exceeded in 10 of 10 samples.

TDS

Decreasing trends in TDS levels are observed in wells 6R/Q (see Figure 2). The TDS concentrations exceeded the groundwater standard of 1,000 mg/L in the following wells:

- 6R/Q exceeded in 1 of 11 samples,
- 8R/Q exceeded in 1 of 12 samples,
- 11R/S exceeded in 9 of 10 samples,

- 14R/S exceeded in 10 of 10 samples, and
- 15R/S exceeded in 10 of 10 samples.

No TDS concentrations exceeded the upgradient condition of 3,514 mg/L.

Chloride

Decreasing trends in chloride levels are observed in well 11R/S (see Figure 3). The chloride concentrations exceeded the groundwater standard of 250 mg/L in the following wells:

- 11R/Q exceeded on 2 of 10 samples,
- 14R/S exceeded in 10 of 10 samples, and
- 15R/S exceeded in 10 of 10 samples.

No chloride concentrations exceeded the upgradient condition of 600 mg/L.

References

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If you have any questions or require additional information, please do not hesitate to contact me or Mike Powell at 410-584-7000.

cc: J. Snyder (EA)
M. Powell (EA)

Attachments

TABLE 1
UPGRADIENT CONDITION (WELL 16R/S)
PRICES VALLEY GOLD NORTH DAIRY SITE
UPPER SANTA FE AQUIFER

Parameter	Unit	Number of Samples	Frequency of Detects (FOD%)	Minimum Concentration	Maximum Concentration	Mean Concencentration	Groundwater Standard	Upgradient Condition (UC = 2x Mean)
Chloride	mg/L	10	100	140	410	303	250	606
NO3+NO2	mg/L	10	100	3	11	7.9	10.0	—
TDS	mg/L	10	100	1,100	2,090	1,757	1,000	3,514

TABLE 2
SUMMARY OF RESULTS
PRICES VALLEY GOLD NORTH DAIRY SITE
UPPER SANTA FE AQUIFER

Downgradient Well	Parameter	Unit	Groundwater Standard	Upgradient Conidtion (UC)	Number of Samples	Frequency of Detects (FOD%)	Minimum Concentration	Maximum Concentration	Mean Concencentration	No. Exceeding Standard	No. Exceeding UC
6R/Q	Chloride	mg/L	250	606	11	100	23	190	76.4	0	0
6R/Q	NO3+NO2	mg/L	10.0	15.8	11	100	2.3	10	5.5	0	—
6R/Q	TDS	mg/L	1,000	3,514	11	100	408	1,600	611	1	0
8R/Q	Chloride	mg/L	250	606	12	100	14	190	72	0	0
8R/Q	NO3+NO2	mg/L	10.0	15.8	12	100	3	10	5.3	0	—
8R/Q	TDS	mg/L	1,000	3,514	12	100	334	1,100	531	1	0
11R/S	Chloride	mg/L	250	606	10	100	180	270	221	2	0
11R/S	NO3+NO2	mg/L	10.0	15.8	10	100	19	41	31.9	10	—
11R/S	TDS	mg/L	1,000	3,514	10	100	1,000	2,000	1,213	9	0
14R/S	Chloride	mg/L	250	606	10	100	260	310	285	10	0
14R/S	NO3+NO2	mg/L	10.0	15.8	10	100	12	14	13.0	10	—
14R/S	TDS	mg/L	1,000	3,514	10	100	1,300	1,560	1,461	10	0
15R/S	Chloride	mg/L	250	606	10	100	210	370	298	10	0
15R/S	NO3+NO2	mg/L	10.0	15.8	10	100	14	24	17.6	10	—
15R/S	TDS	mg/L	1,000	3,514	10	100	1,600	2,310	2,076	10	0

TABLE 3
RESULTS OF MANN-KENDALL TREND ANALYSIS
PRICES VALLEY GOLD NORTH DAIRY SITE
UPPER SANTA FE AQUIFER

Well	Parameter	N	FOD	Number of Quarters	Sufficient Data?	S	P < S	Trend?
16R/S	Chloride	10	100%	10	Yes	15	0.216	
16R/S	NO3+NO2	10	100%	10	Yes	10	0.432	
16R/S	TDS	10	100%	10	Yes	8	0.542	
6R/Q	Chloride	11	100%	11	Yes	-8	0.595	
6R/Q	NO3+NO2	11	100%	11	Yes	-35	0.006	Decreasing
6R/Q	TDS	11	100%	11	Yes	-29	0.026	Decreasing
8R/Q	Chloride	12	100%	12	Yes	-5	0.789	
8R/Q	NO3+NO2	12	100%	12	Yes	-31	0.038	Decreasing
8R/Q	TDS	12	100%	12	Yes	6	0.738	
11R/S	Chloride	10	100%	10	Yes	-24	0.037	Decreasing
11R/S	NO3+NO2	10	100%	10	Yes	-7	0.6	
11R/S	TDS	10	100%	10	Yes	-15	0.216	
14R/S	Chloride	10	100%	10	Yes	-13	0.292	
14R/S	NO3+NO2	10	100%	10	Yes	-10	0.432	
14R/S	TDS	10	100%	10	Yes	6	0.664	
15R/S	Chloride	10	100%	10	Yes	-3	0.862	
15R/S	NO3+NO2	10	100%	10	Yes	-23	0.046	Decreasing
15R/S	TDS	10	100%	10	Yes	17	0.156	

Figure 3. Trend Graph (Chloride)
Price's Valley Gold North Dairy Site

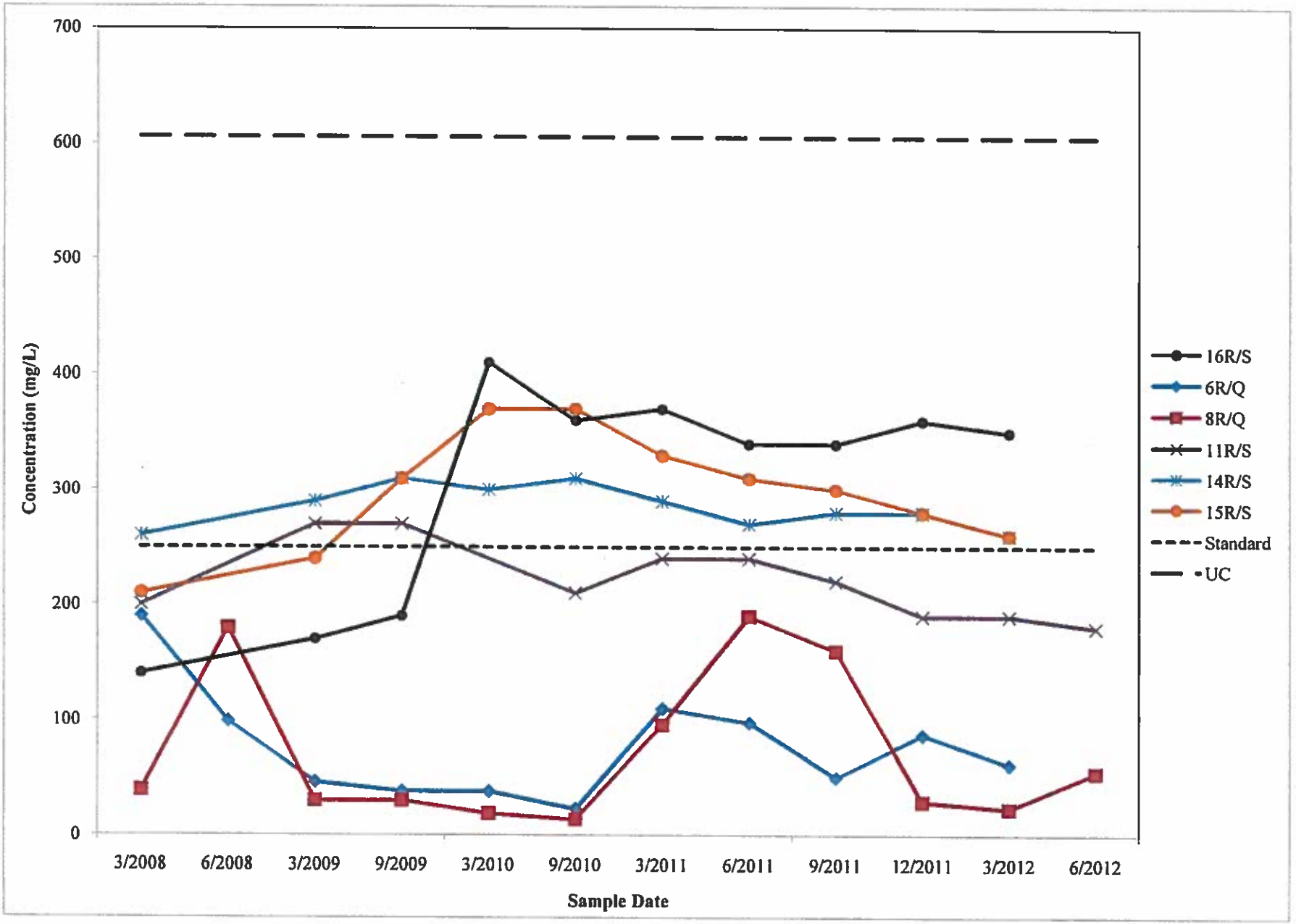


Figure 1. Trend Graph (NO3+NO2)
Price's Valley Gold North Dairy Site

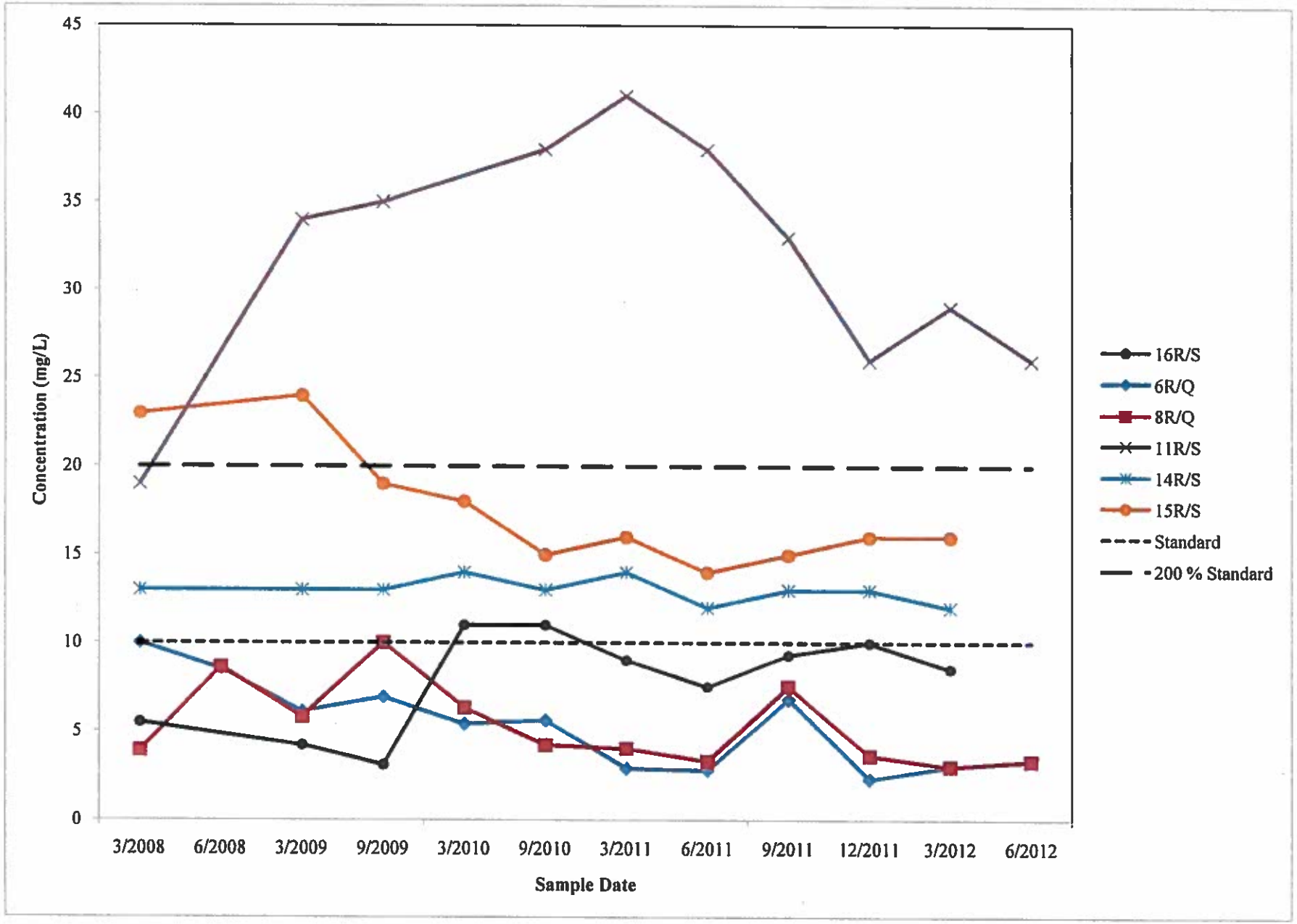
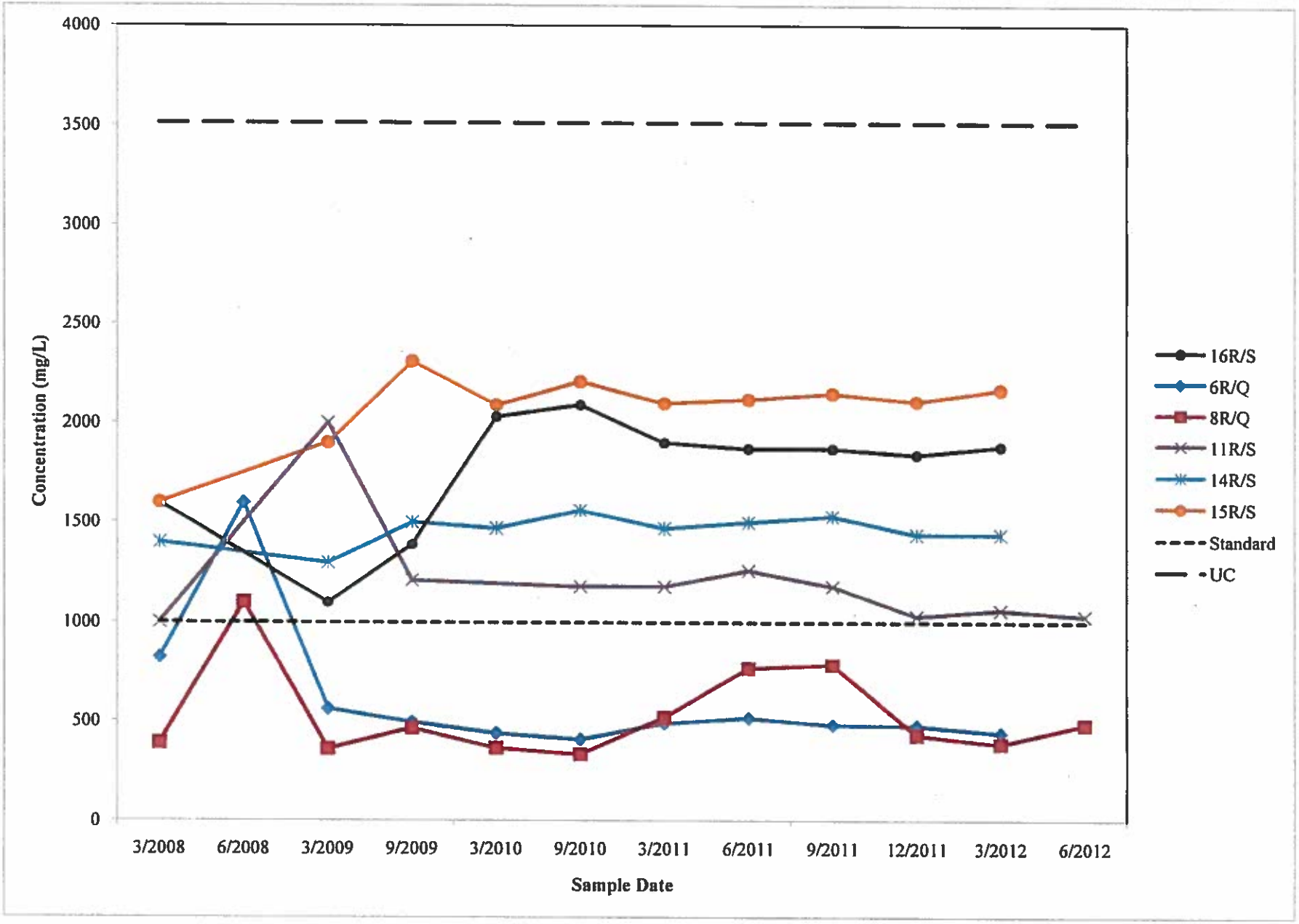


Figure 2. Trend Graph (TDS)
Price's Valley Gold North Dairy Site



NEW MEXICO
ENVIRONMENT DEPARTMENT

Office of the Secretary
1190 St. Francis Drive, P.O. Box 5469
Santa Fe, New Mexico 87502
Phone (505) 827-2855
www.nmenv.state.nm.us

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

DAVE MARTIN
Secretary
BUTCH TONGATE
Deputy Secretary

January 31, 2013

Mr. John Price
emailprice@q.com
Price's Valley Gold North Dairy
P.O. Box 850
Bernalillo, New Mexico 87004

RE: Abatement Plan Technical Infeasibility Demonstration Approval, Upper Santa Fe Aquifer, Price's Valley Gold North Dairy, Bernalillo, New Mexico - Errata

Dear Mr. Price:

The New Mexico Environment Department (NMED) approved a Technical Infeasibility (TI) demonstration report on January 18, 2013 for the Upper Santa Fe Aquifer (USF) portion of the former Price's Valley Gold North Dairy. NMED received comments on January 24, 2013 from your consultant, EA Engineering, Science & Technology Inc. that identified several errors in the TI approval letter. NMED hereby lists the paragraphs in error and their corrections.

The TI approval dated January 18, 2013, under Section 2, Paragraph 2 of the Attachment states:

Current ground water quality in the USF ranges from 3.3 to 16 mg/l for nitrate as nitrogen (excluding MW-11R), 54 to 350 mg/l for chloride, and 49 to 2,170 mg/l TDS. Maximum concentrations in the USF for nitrate as nitrogen was 110 mg/l in MW-8 in a sample collected in July 2003; for chloride was 400 mg/l in MW-12 in a sample collected in June 2003, and 2,310 mg/l in MW-15R/S in a sample collected in September 2009.

This paragraph is corrected to include the following addition:

Current ground water quality in the USF ranges from 3.3 to 16 mg/l for nitrate as nitrogen (excluding MW-11R), 54 to 350 mg/l for chloride, and 49 to 2,170 mg/l TDS. Maximum concentrations in the USF for nitrate as nitrogen was 110 mg/l in MW-8 in a sample collected in July 2003; for chloride was 400 mg/l in MW-12 in a sample collected in June 2003, and <u>for TDS</u> 2,310 mg/l in MW-15R/S in a sample collected in September 2009.

The TI approval dated January 18, 2013, under Section 4, Paragraph 2 of the Attachment states:

Background as defined by WQCC Regulation 20.6.2.7.E NMAC, states in part, "for purposes of ground water abatement plans only ... water contaminants which the responsible persons establishes are occurring from a source other than the responsible person's facility." The dairy has established that ground water analytical data from monitoring well MW-16R and its replacement MW-16RR are the background concentrations for the site. The background concentration for chloride and TDS are established as 2030 mg/l and 370 mg/l respectively, based on the 95th percentile.

This paragraph is corrected to include the following additions:

Background as defined by WQCC Regulation 20.6.2.7.E NMAC, states in part, "for purposes of ground water abatement plans only ... water contaminants which the responsible persons establishes are occurring from a source other than the responsible person's facility." The dairy has established that ground water analytical data from monitoring well MW-16R and its replacement MW-16RR are the background concentrations for the site. The background concentration for chloride and TDS are established as 370 mg/l and 2,030 mg/l respectively, based on the 95th percentile. The chloride concentrations in monitoring wells within the USF are equal to or less than the background concentrations in the USF based on the 95th percentile. Therefore, pursuant to the WQCC Regulations 20.6.2.7 E. and 20.6.2.4101.B NMAC. abatement of chloride is considered complete.

Pursuant to the New Mexico Water Quality Control Commission (WQCC) Regulations 20.6.2.4103.E NMAC, the TI demonstration corrections are hereby made and approved.

If you have any questions, please contact Jerry Schoeppner, Chief, Ground Water Quality Bureau, at (505) 827-2919, or Dale Doremus, Program Manager, at (505) 827-2754. Thank you for your cooperation in this matter.

Sincerely,

Dave Martin

Dave Martin, Secretary
New Mexico Environment Department

Cc: Pete Domenici, Jr., 320 Gold Ave., SW, Suite 1000, Albq., NM 87102
Jay Snyder, EA, 320 Gold Ave., SW, Suite 1210, Albq., NM 87102
Jennifer Hower, NMED, OGC
Jerry Schoeppner, NMED, GWQB
Dale Doremus, NMED, GWQB
Bart Faris, GWQB, NMED, Dist. 1
ROS Reading File

EA Engineering, Science, & Technology, Inc.
320 Gold Avenue SW, Suite 1210
Albuquerque, New Mexico 87102
Phone: (505) 224-9013 Fax (505) 224-9016

March 27, 2013

Mr. Bart Faris
New Mexico Environment Department
Ground Water Quality Bureau
Remediation Oversight Section
5500 San Antonio Dr. NE
Albuquerque, New Mexico 87109

RE: ABATEMENT COMPLETION REPORT (20.6.2.4112 NMAC)
FORMER PRICE'S VALLEY GOLD DAIRY
BERNALILLO, NEW MEXICO

VIA E-MAIL AND HARD COPY

Dear Mr. Faris:

On behalf of D&G Price Limited Partnership, a NM limited partnership, ("D&GP") as responsible party/former owner of land ("Dairy") in the Town of Bernalillo, Sandoval County, New Mexico, (successor in ownership to VG Farms, Inc., fka Price's Valley Gold Dairy, Inc.), EA Engineering Science and Technology, Inc. ("EA") is submitting this Abatement Completion Report for the Upper Santa Fe Group Aquifer ("USF") groundwater as defined in the Technical Infeasibility Demonstration (EA 2012) for the above-referenced site. The basis for requesting a determination of completion of abatement is that compliance with the standards and requirements set forth in Section 20.6.2.4103 New Mexico Administrative Code ("NMAC") has now been achieved.

Groundwater at the site is encountered in two defined statum: USF and Valley Fill (VF). This completion report covers the entire Abatement Plan Area (APA), which is one and the same as "*Stage 1 Abatement Plan Area*" (S1AP Area) and "*VRP Plat and Legal Description*" (see Attachment A), and as defined by the original bounds of Discharge Plan DP-437. The bounds of impacted USF and VF aquifer groundwater above standards that remains in abatement is defined herein. At all other areas within the bounds of DP-437 abatement will be terminated. All parcels of land within the domain of the original DP-437 are platted and readily definable; therefore, this completion report will make use of this platting to define areas that remain in abatement, and those where abatement is terminated.

Area of Completion of Abatement Defined

The area to be released under this Abatement Completion Report should include the entire original APA, or Stage 1 Abatement Plan Area ("S1AP Area") as defined in the Stage 1

Abatement Plan (including all areas described and defined in Discharge Plan DP-437) for the USF aquifer groundwater (lots 3, 4 and 5 of original dairy plat as shown on Figure 1). The S1AP Area was defined in such Plan, at page 1, "Section 1.1 Site Description" by reference to the "Section, Township and Range" of the S1AP Area and stated that the "...area occupies 94.13 acres." (See attachment A for further detail on the legal description of the S1AP Area as it existed at the time of commencement of the S1AP and as such legal description has been modified/evolved in the process of development of the land, up to the present time. See attachment B for a current legal description of the S1AP Area for use in preparation of a recordable notice of granting completion of abatement hereunder.)

Basis For Granting Completion of Abatement.

The basis for granting completion of abatement, as requested herein, is achievement of standards as defined in 20.6.3.4106 NMAC including both (a) the numerical standards provided in 20.6.2.3103 NMAC in many areas of the original DP-437 area and S1AP Area, and (b) Substitute Abatement Standards obtained via Technical Infeasibility Demonstration, approval dated January 18, 2013 ("NMED 2013a"), as modified by letter dated January 31, 2013 ("NMED 2013b") errata, for the area defined by Lots 5-A1 through 5-A8, Lots 5-A10 through 5-A14, and Lot 5B (See attachment A). The area of Substitute Abatement Standards excludes MW-11R (or MW-11RR) in Lot 5-A9 as per NMED 2013a (the January 18, 2013 approval letter). See Attachment A for plat maps defining the area of Substitute Abatement Standards.
Two areas remain in abatement under this completion report because groundwater standards have not yet been met: (1) USF groundwater near MW-11R, platted as lot 5-A9 (Figure 2), and (2) VF groundwater within its historical impacted domain in Lot 5-B, Lot 5-A6, Parcel 1 and portions of Venada Plaza Drive between and contiguous to these lots (Figure 3). The extent of VF groundwater impact relative to the lots shown in Figure 3 is provided in Figure 4.

Summary of Technical Infeasibility Demonstration

Pursuant to Title 20, Chapter 6, Part 2, Section 4103 of the New Mexico Administrative Code ("20.6.2.4103 NMAC"), on October 29, 2012 (with addendums submitted on December 7, 2012 and December 13, 2012), EA submitted a Technical Infeasibility (TI) Demonstration ("EA 2012") to establish Section 4103 *"Standards"* to support Abatement Completion and Termination in accordance with 20.6.2.4112.A. NMAC.

On January 18, 2013, the New Mexico Environment Department ("NMED") Ground Water Quality Bureau ("GWQB") approved the TI Demonstration and the substitute abatement standards for nitrate as nitrogen and total dissolved solids ("TDS") (NMED 2013a). Nitrate as nitrogen was approved at 200 percent of the standard of 10 milligrams per liter (mg/L) as listed in 20.6.2.3103.A NMAC, while TDS was approved at 200 percent of background as defined by 20.6.2.7.E NMAC in accordance with 20.6.2.4103.B NMAC.

On January 31, 2013, NMED issued an errata (NMED 2013b) to NMED 2013a (the January 18, 2013 NMED GWQB approval letter). Chloride was stated to be found at concentrations in monitoring wells within the USF aquifer equal to or less than background concentrations based

on the 95th percentile; and as a result, abatement of chloride is should be determined to be complete in accordance with 20.6.2.7.E and 20.6.2.4101.B NMAC (NMED, 2013b).

Within the approval letter, NMED GWQB stated "The next step toward completion in the abatement process…is to submit an abatement completion report in accordance with Water Quality Control Commission ("WQCC") 20.6.2.4112.A NMAC that documents compliance with the standards and requirements of WQCC 20.6.2.4103" (NMED 2013a). The information in this provides D&GP's submission to complete the abatement process.

Scope of Demonstration of Compliance with Standards

Specifically, EA on behalf of D&GP has:

- Established background concentrations in accordance with Section 4101.B. for TDS;
- Utilized quarterly groundwater data collected from Dairy wells over the period of March 2008 to June 2012 (exceeding 8 quarters per 20.6.2.4103.E) to establish the following:
    - Trends for groundwater contaminants are stable or declining, and
    - Concentrations for groundwater contaminants do not exceed 200 percent of either background or Section 3103 standards;
    - That continued abatement efforts will not substantially change the groundwater condition in a favorable manner other than what is statistically expected at this time, and
    - Unfavorable degradation of water quality in the USF aquifer is not expected, rather, any long-term changes are expected to be favorable.

The NMED GWQB has previously approved the basis for technical infeasibility for abatement of the USF aquifer at the Dairy (NMED, 2013a). That approval states:

- The nitrate, chloride and TDS groundwater plumes are stable or declining,
- Nitrate, chloride and TDS analytical results that have been collected from March 2008 to March 2012 from the USF aquifer do not exceed 200 percent of either background or NMWQCC standards (Section 3103).
- Based on the trend analysis, continued abatement will not substantially change the groundwater condition in a favorable manner over what is statistically expected at this point in time, and
- Since the former Dairy has been closed and the site redeveloped for commercial purposes, unfavorable degradation of water quality in the Upper Santa Fe aquifer is not expected, rather, any long-term changes are expected to be favorable.

Summary and Conclusions

A Technical Infeasibility Demonstration (EA 2012) has been submitted by EA on behalf of D&GP and approved by NMED GWQB. As such, EA acting on behalf of D&GP has met the applicable standards and requirements set forth in 20.6.2.4103 NMAC regarding abatement at the Dairy. EA therefore requests, in accordance with 20.6.2.4112.B NMAC, that NMED

approve this Abatement Completion Report, notify D&GP and EA in writing that the abatement plan is terminated and provide D&GP a recordable Notice of Abatement Completion for the Stage 1 Abatement Plan Area by reference to the legal description of the S1AP Area in Attachment B.

In summary, this action completes abatement with the exception of two areas that remain in abatement because groundwater standards have not yet been achieved:

- Lot 5-A9 (MW-11R) for impacts related to USF groundwater;
- Lot 5-B, Lot 5-A6, Parcel 1, and contiguous portions of Venada Plaza Drive for impacts to VF groundwater.

For these two areas, D&GP will submit a work plan upon completion of settlement agreement that addresses the remaining abatement activities.

D&GP will submit a work plan to plug and abandon USF aquifer monitoring wells (as defined in Technical Infeasibility Demonstration (EA 2012) and approval (NMED 2013a) upon receipt by D&GP of official written approval from NMED of this Abatement Completion Report. Plugging and abandoning such monitoring wells will be promptly commenced by D&GP and continued to completion without interruption and will constitute the final abatement activity by D&GP for USF aquifer within the bounds of the Technical Infeasibility Demonstration as to the S1AP Area . No other plans or actions regarding maintenance or continued monitoring are proposed.

References

EA Engineering Science and Technology, Inc. (EA) 2012. *Technical Infeasibility Demonstration, Former Price's Valley Gold Dairy, Sandoval County, New Mexico*. Prepared for D&GP and VG Farms, Inc., Albuquerque, New Mexico. October 29.

New Mexico Environment Department (NMED). 2013a. *Abatement Plan Technical Infeasibility Demonstration Approval, Upper Santa Fe Aquifer, Price's Valley Gold Dairy, Bernalillo, New Mexico*. January 18.

NMED. 2013b. *Abatement Plan Technical Infeasibility Demonstration Approval, Upper Santa Fe Aquifer, Price's Valley Gold Dairy, Bernalillo, New Mexico - Errata*. January 31.

Please do not hesitate to contact the writer if you need additional information or have any questions. We would like to complete this action in as timely a manner as possible. I can be reached at 505-400-7125 on cell phone, or 505-224-9013 at the office.

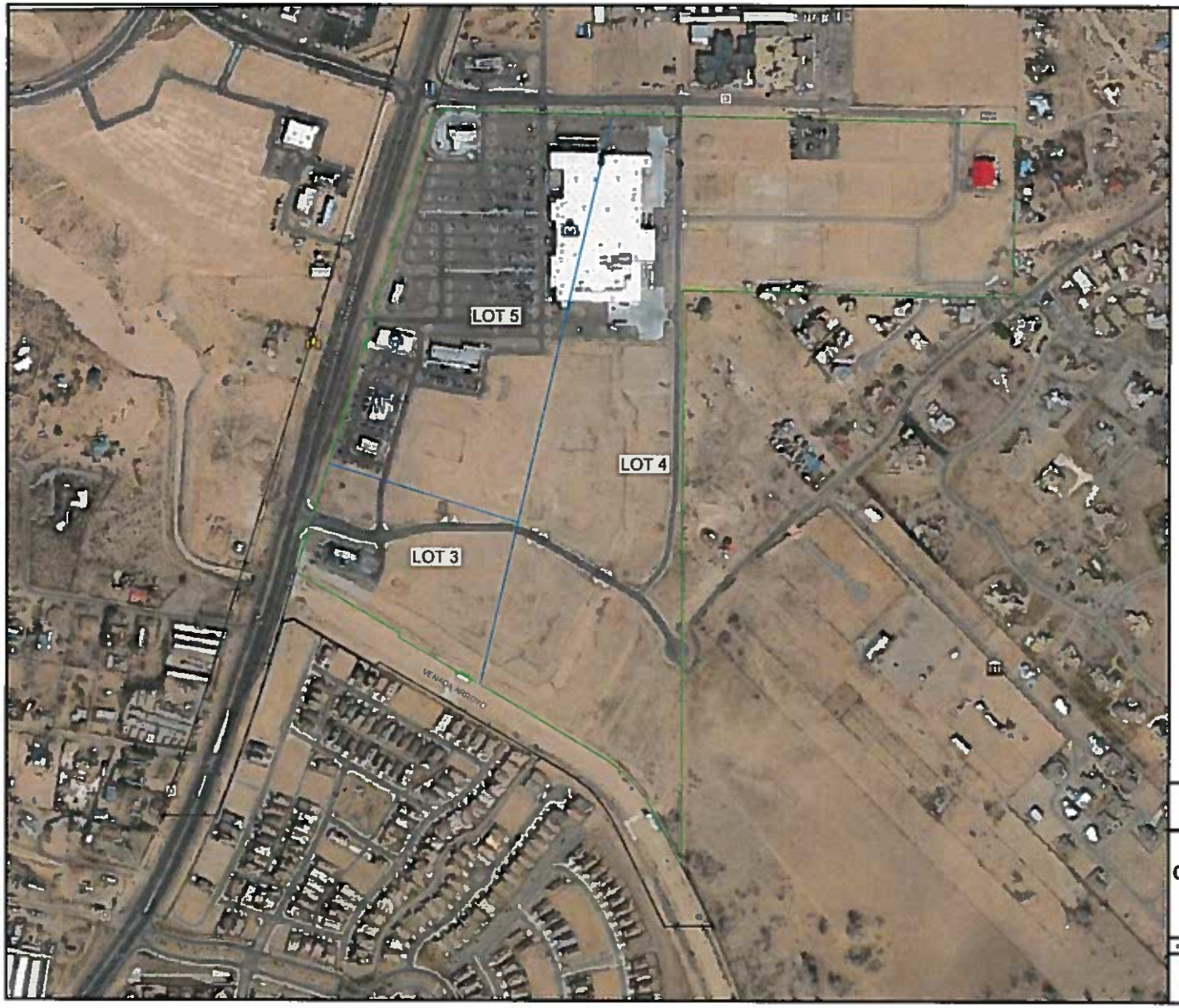
Sincerely,

Jay T. Snyder, P.G., C.Hg.
Project Manager

Attachments

Cc: John Price
Dudley Price
Pete Domenici, Jr.
Patrick Hurley

FIGURES



LEGEND:

SITE BOUNDARY

EXISTING LOT LINES

N

400 200 0 400

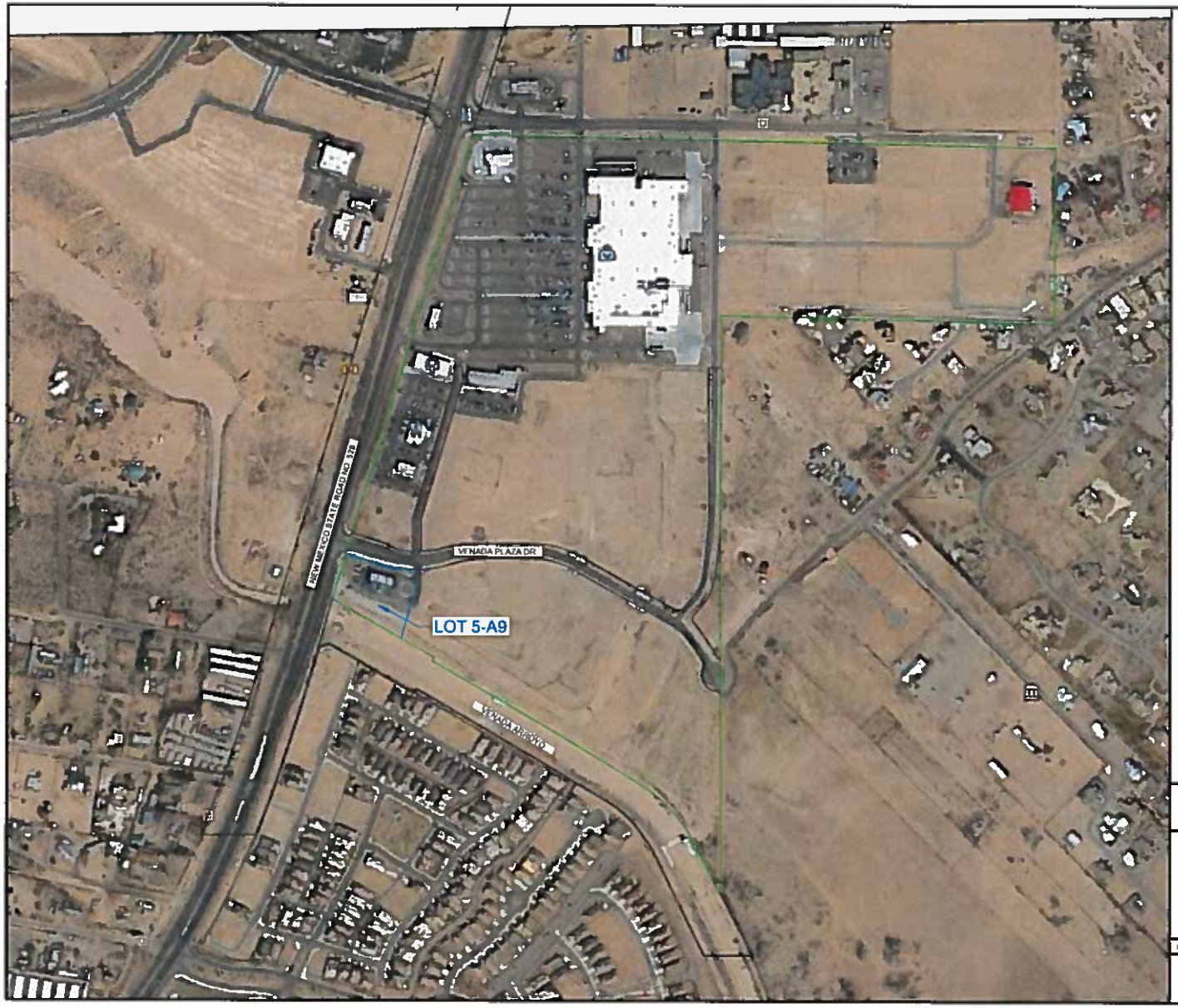
SCALE IN FEET

PR ICE'S DAIRY

FIGURE 1.
ORIGINAL PLATTING DP-437 AND STAGE 1 ABATEMENT PLAN AREA

PROJECT # 1453890 | PROJECT PHASE 01 | PROJECT MANAGER JB

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.



LEGEND:

SITE BOUNDARY

REPLATTING BOUNDARY

NOTES:

Replatted lots shown relative to original DP-437 Plat.

N

100 50 0 100

SCALE IN FEET

PR ICE'S DAIRY

FIGURE 2.
UPPER SANTA FE AQUIFER
SUBJECT TO ABATEMENT

PROJECT # | PROJECT PHASE | PROJECT MANAGER

320 Gold Avenue SW Suite 1210
Albuquerque NM 87102
Phone (505) 224 6013
Fax (505) 224 6016

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

LEGEND:

SITE BOUNDARY

REPLATTING BOUNDARY

NOTES:

Replatted lots shown relative to original DP-437 Plat.

100 50 0 100

SCALE IN FEET

PR ICE'S DAIRY

FIGURE 3.
VALLEY FILL AQUIFER
SUBJECT TO ABATEMENT

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

LEGEND:

- SITE BOUNDARY
- REPLATTING BOUNDARY
- ESTIMATED NO^3 PLUME
- VALLEY FILL MONITORING WELLS

NOTES:

Replatted lots shown relative to original DP-437 Plat.

NO_3 plume and monitoring well locations shown from Amended Stage 2 Abatement Plan by Metric Corporation dated October, 2010.

200 100 0 200

SCALE IN FEET

PR ICE'S DAIRY

FIGURE 4.
ESTIMATED LOCATION OF NO_3 PLUME IN THE VALLEY FILL AQUIFER

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

ATTACHMENTS

Stage I Abatement Plan Investigation at the Former Price's Bernalillo Dairy

By
Faith Engineering, Inc.
5701 Piedra Dr. NW
Albuquerque, NM 87114

Prepared for
VG Farms, Inc.
2 Sandia Heights Dr. NE
Albuquerque, NM 87110

and the
Ground Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Dr,
Santa Fe, NM 87502

October 27, 2006

List of Figures

Appendices

1.0 Introduction and Purpose

This report provides the results of a Stage I Abatement Plan (AP) Investigation to determine the geologic, chemical and physical properties of the soils lying below the former Price's Dairy located west of Bernalillo, NM (see Figure 1). Previous investigations have been directed toward establishing the distribution and history of residual ground water contamination at the site and downgradient areas.

The recently submitted results of the Final VRP Completion Report for the former dairy have indicated that there are remaining contaminants of concern [COCs – nitrate (NO3), chloride (Cl) and Total Kjehldahl Nitrogen (TKN)] which were detected above background concentrations within the upper two feet of the surface soils in the former dairy corral areas.

The purpose of this investigation is to determine the likelihood of the above described COCs to migrate and infiltrate through the soils (vadose zone) overlying the ground water at the site.

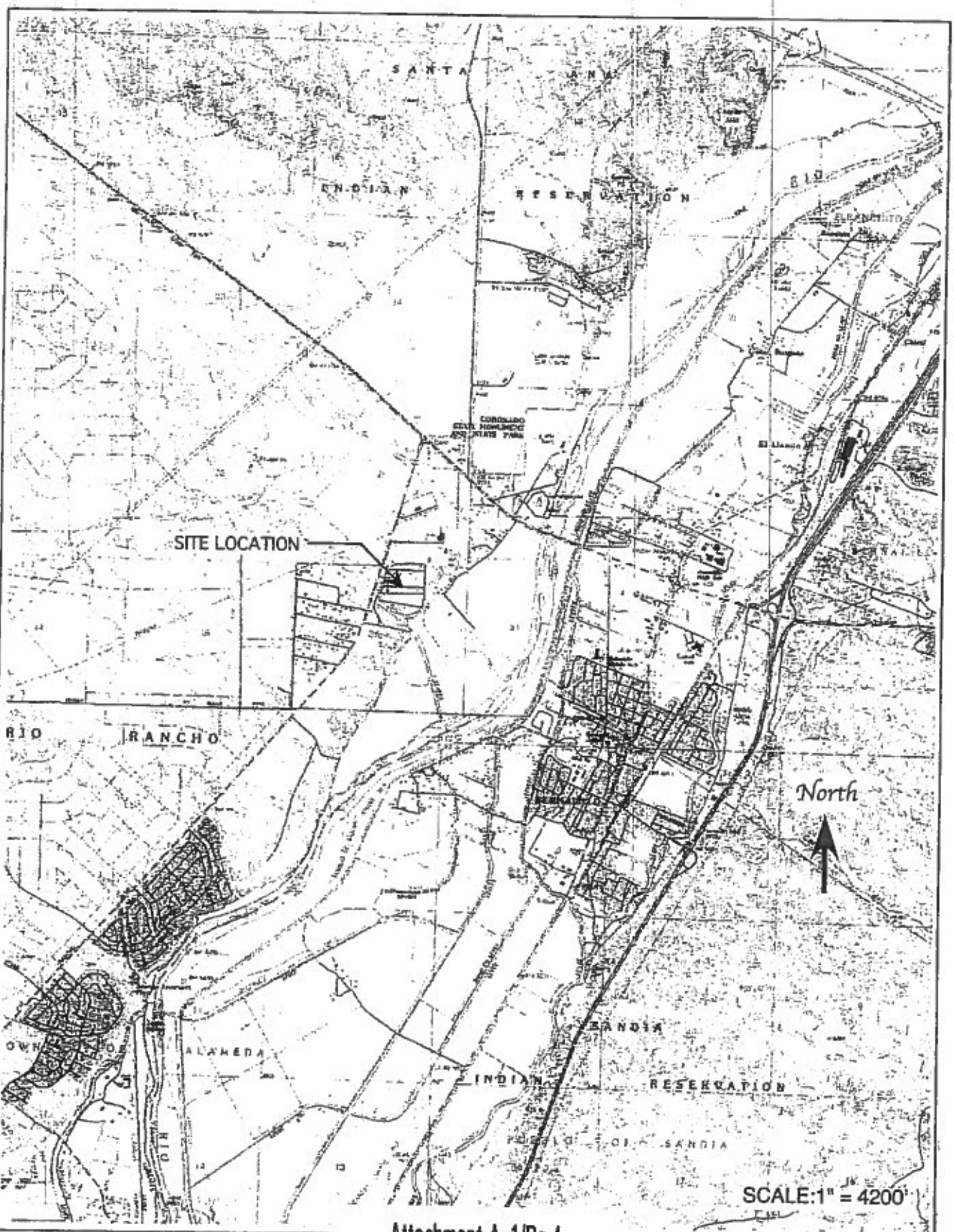
1.1 Site Description

The proposed site lies in the southern portions of Sections 25 and 36 T 13 N, R 3 E (Latitude 35° 19' 9.8" N, Longitude 106° 34' 27.1" W). The Stage I AP investigation area occupies 94.13 acres.

The site lies west of and above the Rio Grande floodplain on an escarpment draining to the east and south to the adjacent Venada Arroyo, which flows southeast to its confluence with the Rio Grande approximately one mile from the site.

The site has had all buildings, corrals, barns and former residences (except one remaining residence for site caretaker) razed and demolished. Foundation footings were ground to a fine to medium aggregate and used for shallow ground cover in the former barn and office area. A small area in the extreme NE portion of the

Attachment A-1/Pg.3



Attachment A-1/Pg.4

SUBJECT: Site Location Map			
FILE: 99-06-1180	DATE: October, 2006	BY: SEF	Figure 1

[illegible] Engineering, Inc.
5701 Piedra Dr. NW
Albuquerque, New Mexico 87114
(505) 898-0130 • FAX (505) 898-1132
e-mail • [illegible]@[illegible].net

LOTS 1 THRU 5

LANDS OF PRICE'S DAIRY

(BEING A REPLAT OF TRACTS A THRU D; L THRU N AND GEORGE W. THATCHER HOMESITE, LANDS OF GEORGE W. THATCHER AND A PORTION OF THE S1/2, S1/2, SE 1/4, SECTION 24, TOWNSHIP 13 NORTH RANGE 3 EAST, N.M.P.M.)

SITUATE WITHIN SECTIONS 25 AND 26, TOWNSHIP 13 NORTH, RANGE 3 EAST NEW MEXICO PRINCIPAL MERIDIAN

TOWN OF BERNALILLO
SANDOVAL COUNTY, NEW MEXICO

JANUARY, 1998

VICINITY MAP

GENERAL NOTES

DISCLOSURE STATEMENT

PUBLIC UTILITY EASEMENTS

LEGAL DESCRIPTION

TREASURERS CERTIFICATION

FREE CONSENT AND DEDICATION

ACKNOWLEDGEMENT

COUNTY CLERKS CERTIFICATION

TOWN OF BERNALILLO PLANNING AND ZONING COMMISSION

TOWN OF BERNALILLO PUBLIC WORKS DEPARTMENT

APPROVALS

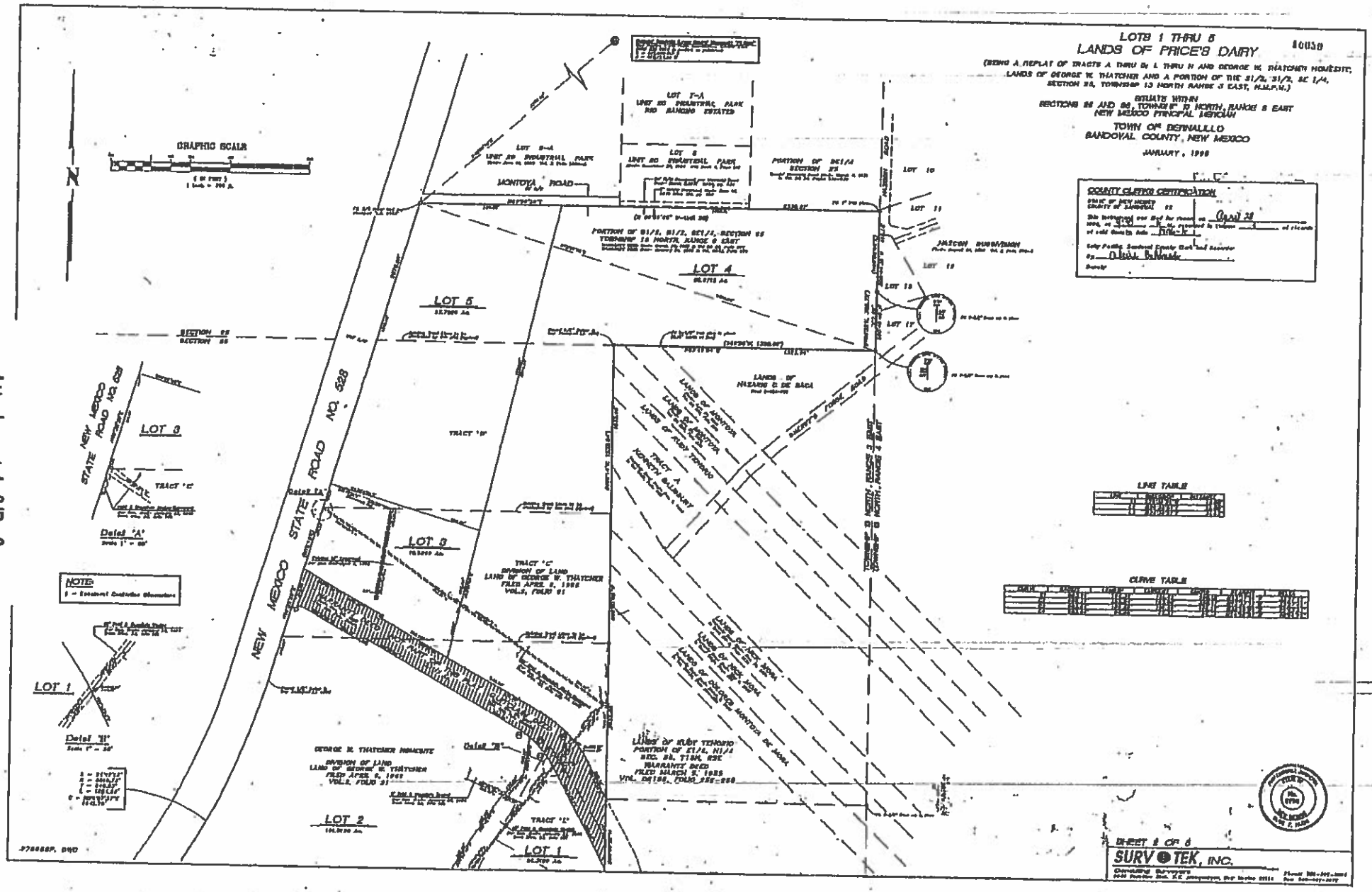
SURVEYORS CERTIFICATION

SHEET 1 OF 6

SURV-TEK, INC.

Consulting Surveyors

Attachment A-2/Pg.1



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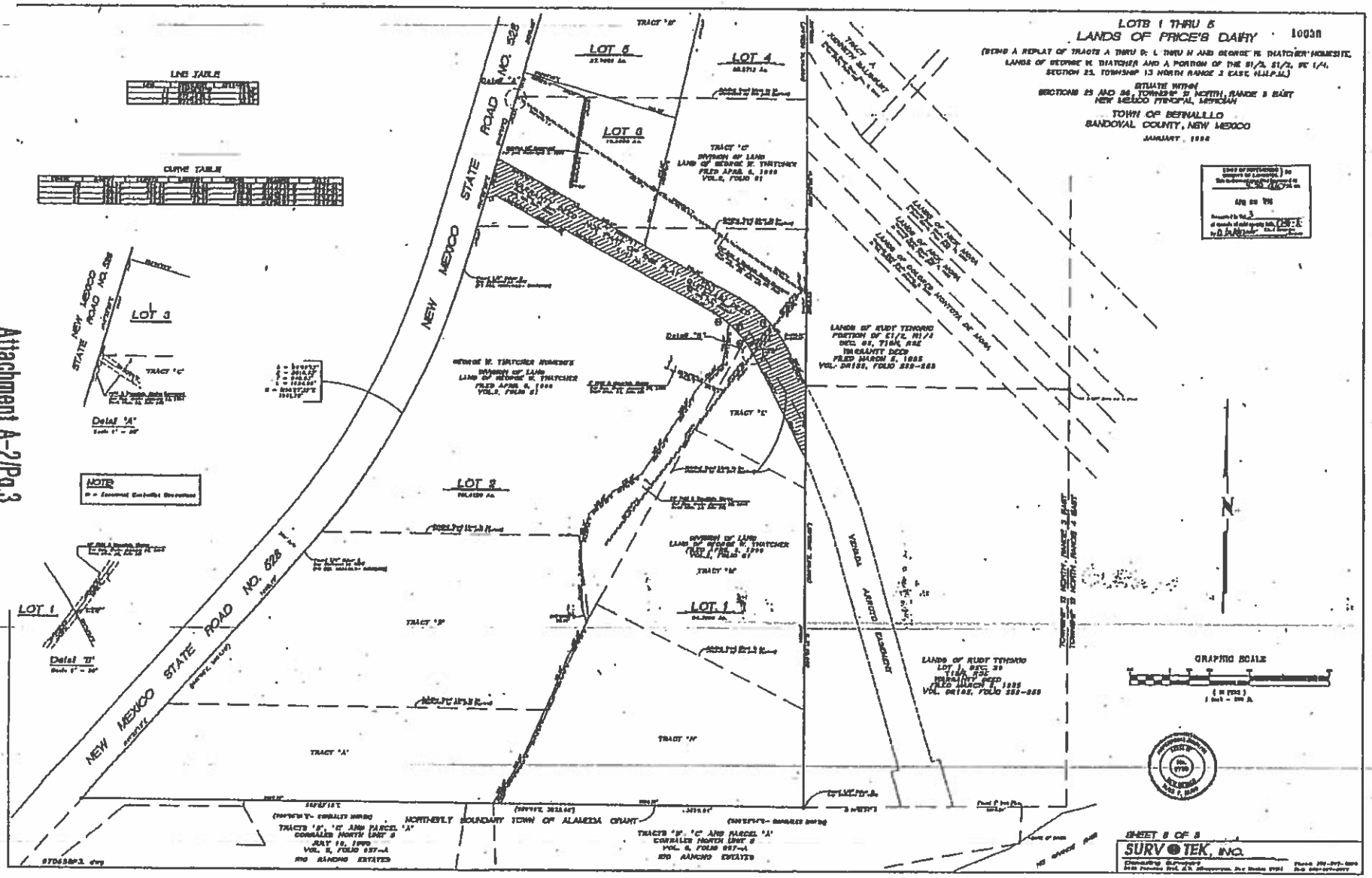


Attachment A-2/Pg.3

FEI | Faith Engineering, Inc.
5701 Piedra Dr. NW
Albuquerque, New Mexico 87114
(505) 898-6140 • FAX (505) 898-1132
e-mail • faithinc@flash.net

July 7, 2006

via email and US Mail

Ms. Dawn Bascomb – Project Manager
Voluntary Remediation Program
Ground Water Quality Bureau
New Mexico Environment Department
5500 San Antonio Dr NE
Albuquerque, NM 87109

RE: Amended VRP Plat and Legal Description
Price's Valley Gold, North Dairy
Hwy. 528, Bernalillo, Sandoval County, NM
FEI Project No. 99-06-1180

Dear Ms. Bascomb,

On behalf of VG Farms, Inc., please find included with this letter a proposed amendment of Exhibit A of the November, 2005 VRP Application which provides a plat and legal description of the proposed VRP area. The VRP area now encompasses the entire parcel of VG Farms, Inc.'s land north of Venada Arroyo consisting of approximately 94.13 acres. The attached sheets are a half size (11" X 17") reproduction of the three original 24" X 36" drawings. If you require the full size drawings, please let me know, and I will provide them.

We appreciate your cooperation in this matter and look forward to working with you in the implementation of the proposed VRP project. The remaining items that you requested in your email correspondence of 6/22/06 for the Final Soil Sampling Work Plan will be provided next week. Please do not hesitate to call me should you have any questions.

Respectfully submitted,
FAITH ENGINEERING, INC.

Stuart E. Faith

Stuart E. Faith, President
NM Professional Engineer No. 6396

cc: Mr. Dudley Price, w/attachments
Ms. Chris Bynum, w/ attachments
Mr. Bart Faris, w/ attachments
Mr. John Price, w/ attachments
Mr. Ron Bohannan, w/ attachments
Ms. Tessa Davidson, w/ attachments
Mr. Patrick Hurley, w/ attachments

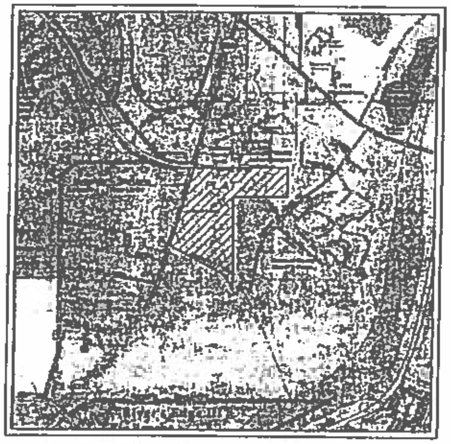
LOTS 1 THRU 7

VENADA PLAZA

(BEING A REPLAT OF LOTS 3, 4 AND 5, LANDS OF PRICE'S DAIRY)

SITUATE WITHIN
SECTIONS 25 AND 36, TOWNSHIP 13 NORTH, RANGE 5 EAST
NEW MEXICO PRINCIPAL MERIDIAN
TOWN OF BERNALILLO
SANDOVAL COUNTY, NEW MEXICO

FEBRUARY, 2006



VICINITY MAP

GENERAL NOTES

PURPOSE OF PLAT

TREASURERS CERTIFICATION

Sandoval County Treasurer

PUBLIC UTILITY EASEMENTS

DISCLAIMER

PNM GAS AND ELECTRIC SERVICES EASEMENT RELEASE APPROVAL

Notary Public

COMCAST CORPORATION EASEMENT RELEASE APPROVAL

COMCAST CORPORATION

STATE OF NEW MEXICO
COUNTY OF BERNALILLO

Notary Public

COUNTY CLERKS CERTIFICATION

STATE OF NEW MEXICO
COUNTY OF SANDOVAL

Deputy

LEGAL DESCRIPTION

FREE CONSENT AND DEDICATION

ACKNOWLEDGEMENT

STATE OF NEW MEXICO
COUNTY OF SANDOVAL

Notary Public

TOWN OF BERNALILLO PLANNING AND ZONING COMMISSION

TOWN OF BERNALILLO PUBLIC WORKS DEPARTMENT

APPROVALS

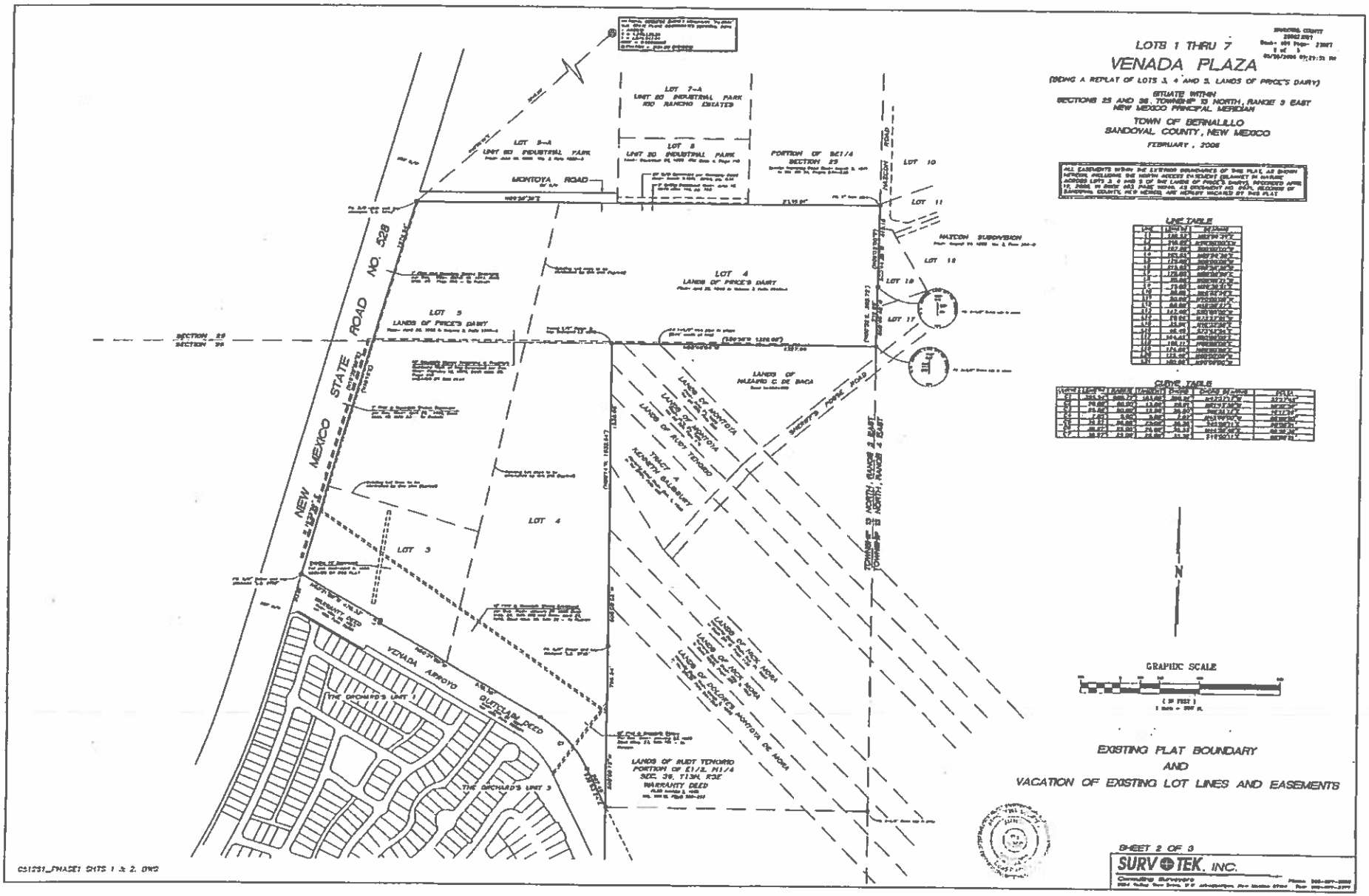
SURVEYORS CERTIFICATION

SHEET 1 OF 3

SURV-TEK, INC.

Consulting Surveyors

051021_PHASE1 SHTS 1 & 2. DWG



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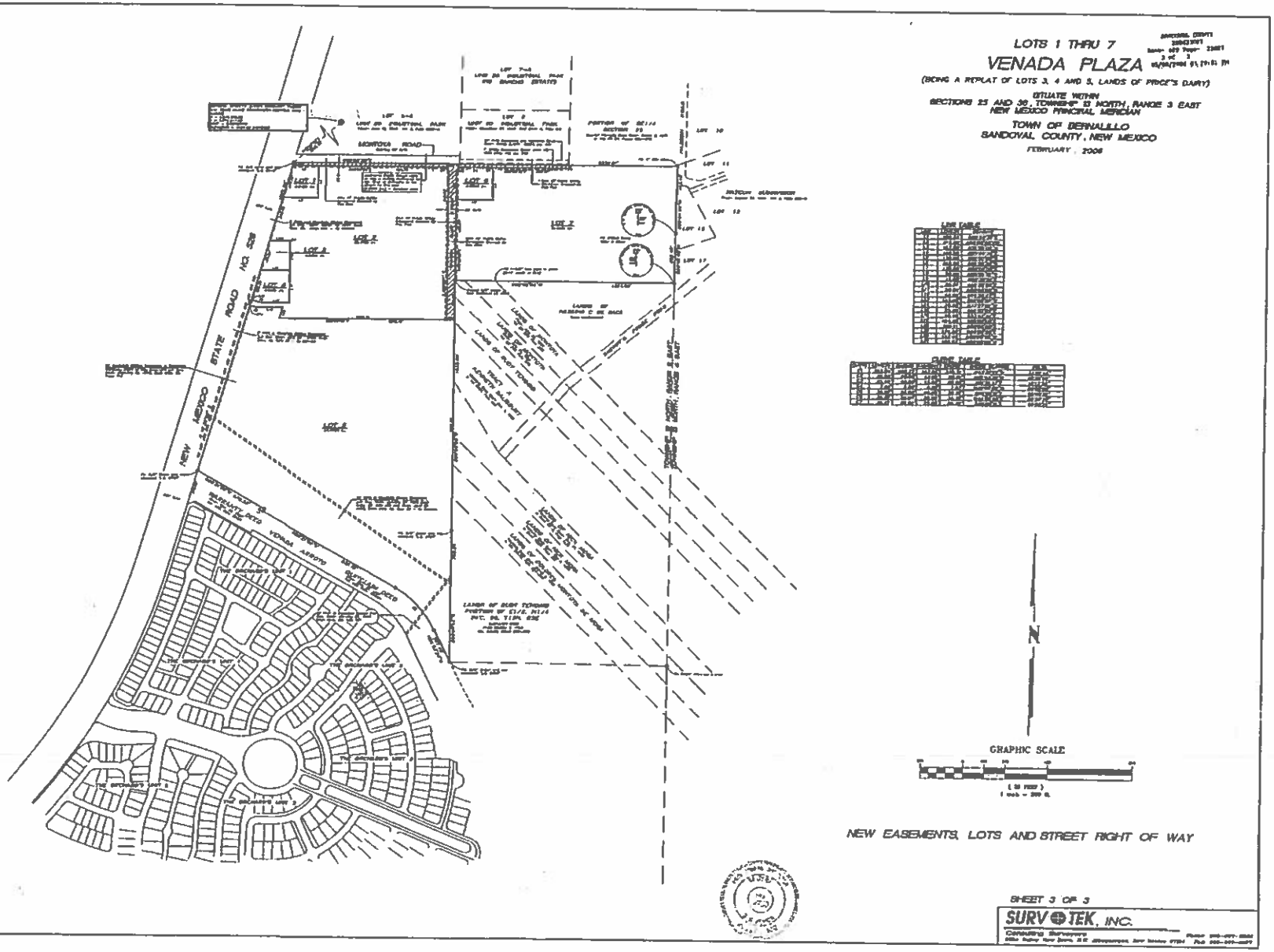

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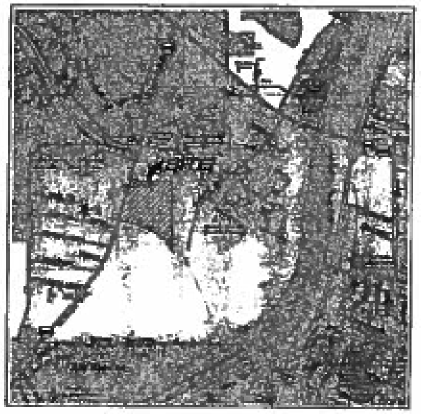


VICINITY MAP

LOTS 5-A AND 5-B
VENADA PLAZA

(BEING A REPLAT OF LOT 5, VENADA PLAZA)

SITUATE WITHIN
SECTION 36, TOWNSHIP 13 NORTH, RANGE 3 EAST
NEW MEXICO PRINCIPAL MERIDIAN
TOWN OF BERNALILLO
SANDOVAL COUNTY, NEW MEXICO
DECEMBER, 2007

TREASURER'S CERTIFICATION

1-3-08
Sandoval County Treasurer

COUNTY CLERK'S CERTIFICATION

STATE OF NEW MEXICO
COUNTY OF SANDOVAL ss

LEGAL DESCRIPTION

TOWN OF BERNALILLO PLANNING & ZONING DEPARTMENT

GENERAL NOTES

FREE CONSENT AND DEDICATION

SURVEYORS CERTIFICATION

ACKNOWLEDGEMENT

STATE OF NEW MEXICO
COUNTY OF ______ ss

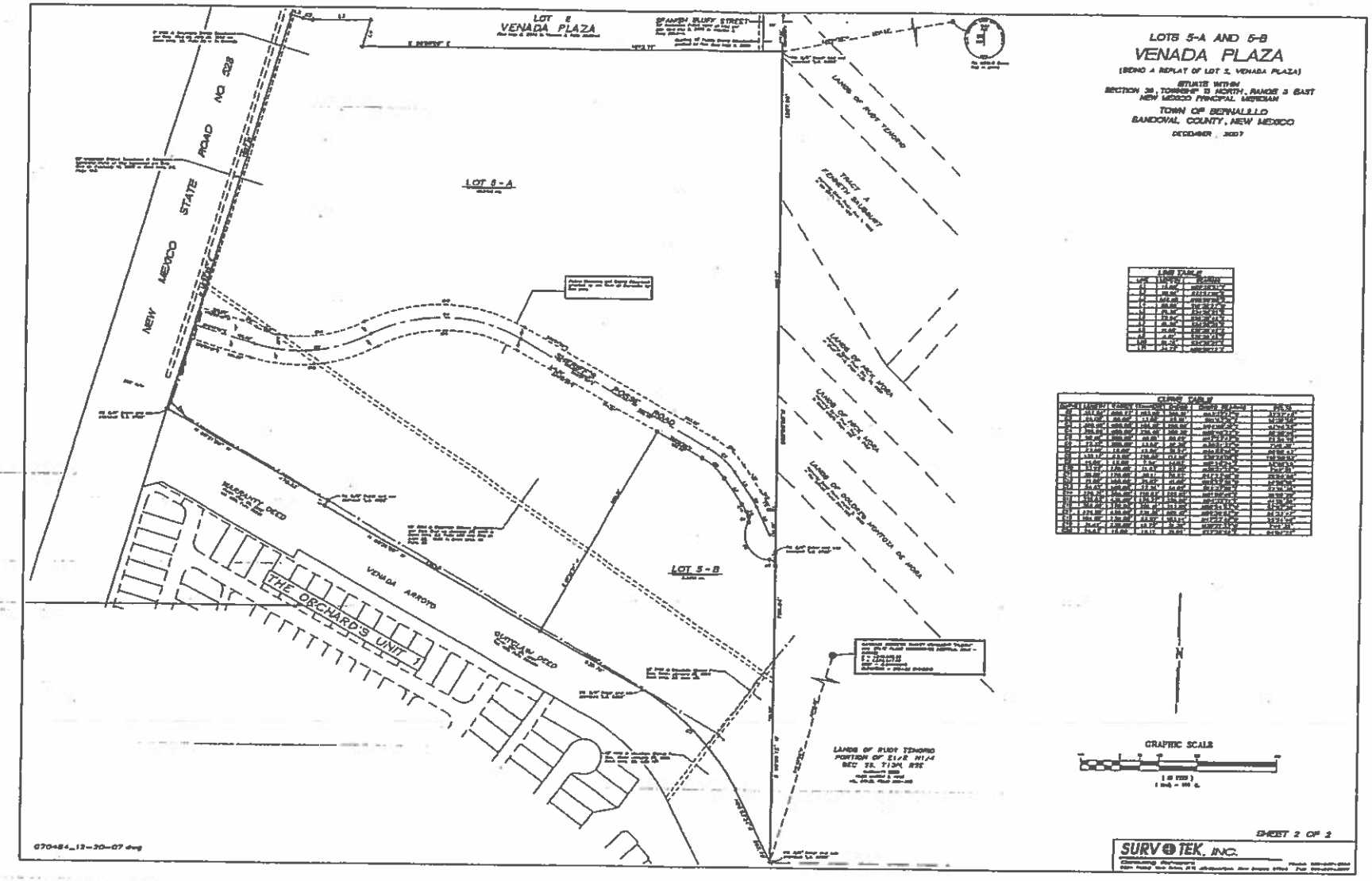
PURPOSE OF PLAT

SHEET 1 OF 2

SURV⊕TEK, INC.
Consulting Surveyors

073484_12-20-7.dwg

Attachment A-4/Pg.1



Attachment A-4/Pg.2

Attachment A–5/Pg.1

LOTS 5-A1 THRU 5-A14 AND PARCELS 1 THRU 3

VENADA PLAZA

(BEING A REPLAT OF LOT 5-A, VENADA PLAZA)

SITUATE WITHIN
SECTION 36, TOWNSHIP 13 NORTH, RANGE 3 EAST
NEW MEXICO PRINCIPAL MERIDIAN
TOWN OF BERNALILLO
SANDOVAL COUNTY, NEW MEXICO
SEPTEMBER, 2008

SANDOVAL COUNTY
2008037564
Book 813 Page 37304
1 of 4
12/30/2008 11:17:01 AM

VICINITY MAP

GENERAL NOTES

1. Bearings are grid based upon the New Mexico State Plane Coordinate System, Central Zone (NAD 83) and referred to grid on the Portland Quadrangle Survey control monument "FLORA".
2. Distances are ground.
3. Distances shown along curved lines are arc lengths.
4. All corners are a 1/2" rebar and cap stamped "NMPS 11,570" unless otherwise indicated hereon.
5. Record bearings and distances, where they differ from those established by this survey are shown in parenthesis ( ).
6. Number of Existing Lots: 1
7. Number of New lots created: 14
8. Number of new parcels created: 3
9. Total Subdivision Acreage: 45.2400 Ac.

PURPOSE OF PLAT

The Purpose of this plat is to:

a. Create the lots and parcels as shown hereon.
b. Dedicate the public street right of ways as shown hereon to the Town of Bernalillo in fee simple.
c. Grant the new Public Utility Easements as shown hereon.
d. Grant the new Private Access Easements as shown hereon.
e. Vacate the existing Public Roadway and Utility Easement as shown hereon.
f. Vacate the existing Utility Easements as shown hereon.
g. The ownership of Parcels 1 and 2 will be retained by SPE Venada Plaza, LLC.
h. Grant the Public Water Line Easements as shown hereon.
i. Grant the Public Sanitary Sewer Easement as shown hereon.
j. Dedicate Parcel 3 as shown hereon, to SSCAFCA, in fee simple.

TREASURERS CERTIFICATION

I, Lynn Perry Chaney Treasurer of Sandoval County New Mexico, do hereby certify that all taxes and fees have been paid for the property shown hereon.

Sandoval County Treasurer — 12-31-08

PUBLIC UTILITY EASEMENTS

PUBLIC UTILITY EASEMENTS shown on this plat are granted for the common and joint use of:

A. PNM Electric Services, for installation, maintenance, and service of underground electrical lines, transformers, and other equipment and related facilities reasonably necessary to provide electrical service.

B. Mid Rio Services for installation, maintenance and service of natural gas lines, valves and other equipment and facilities reasonably necessary to provide natural gas.

C. Qwest Corporation, for the installation, maintenance, and service of both lines, cables, and other related equipment and facilities reasonably necessary to provide communications services, including but not limited to ground terminals and cabinets.

D. Comcast Cable, for the installation, maintenance, and service of cable lines, cables, and other related equipment and facilities reasonably necessary to provide communications services, including but not limited to ground terminals and cabinets.

Including, the right to build, rebuild, reconstruct, reconstruct, inspect, relocate, change, remove, modify, renew, operate and maintain facilities for the purposes described above, together with the right to trim and cut trees, underbrush, obstructions and other vegetation, including overhanging trees, which may endanger the safe and proper operation of such facilities, with the right and privilege to lay and maintain wires, cables, or conduits (underground or subsurface), and pads, together with the right to install, keep and maintain pedestals and other equipment on said easements, over, under and on the property described hereon. Property owners shall be solely responsible for protecting any facilities located in Easements (Building Blocks by permanent or movable structures, or any structures subject to or over easements shown on this plat.

Grantee may require improvements/landscaping, as installed, shall extend two feet (2') in front of trenches/underground risers and two feet (2') on each side.

DISCLAIMER

In approving this plat, PNM Electric Services and Mid Rio Services did not conduct a Title Search of the properties shown hereon. Consequently, PNM does not waive any existing easements or easement rights to which it may be entitled.

COMCAST CORPORATION EASEMENT RELEASE ACTION:

Comcast Corporation does hereby release, waive, extinguish and discharge its right, title and interest in the easements granted by prior plat, record or document(s) shown to be vacated on this plat.

COMCAST CORPORATION

By: Johnnie Barton

STATE OF NEW MEXICO
COUNTY OF SANDOVAL ss

The foregoing instrument was acknowledged before me this 14th day of October, 2008, by Johnnie Barton, of Comcast Corporation, on behalf of said corporation.

Kiki D. Krueger — March 4, 2010
Notary Public — My commission expires

PNM GAS AND ELECTRIC SERVICES EASEMENT RELEASE ACTION:

PNM Gas and Electric Services does hereby release, waive, extinguish and discharge its right, title and interest in the easements granted by prior plat, record or document(s) shown to be vacated on this plat.

PNM GAS AND ELECTRIC SERVICES

By: Joe Harmon

STATE OF NEW MEXICO
COUNTY OF SANDOVAL ss

The foregoing instrument was acknowledged before me this 16 day of October, 2008, by Joe Harmon, of PNM Gas and Electric Services, a New Mexico Corporation, on behalf of said corporation.

Kiki D. Krueger — March 4, 2010
Notary Public — My commission expires

COUNTY CLERKS CERTIFICATION

STATE OF NEW MEXICO
COUNTY OF SANDOVAL ss

This instrument was filed for record on December 31, 2008 at 8:11 AM, recorded in Volume C, Folio 0004 records of said County.

Witness my hand and seal of office
Sandoval County Clerk, Mary Louise Archuleta
By: Deputy

LEGAL DESCRIPTION

That certain parcel of land situate in Section 36, Township 13 North, Range 3 East, New Mexico Principal Meridian, County of Sandoval, State of New Mexico and being comprised of all of Lot numbered Five — A (5-A) Venada Plaza, as the same are shown and designated on the plat entitled "LOTS 5-A1 AND 5-A2, VENADA PLAZA (BEING A REPLAT OF LOT 5, VENADA PLAZA) SITUATE WITHIN SECTION 36, TOWNSHIP 13 NORTH, RANGE 3 EAST, NEW MEXICO PRINCIPAL MERIDIAN, TOWN OF BERNALILLO, SANDOVAL COUNTY, NEW MEXICO", filed in the office of the County Clerk of Sandoval County, New Mexico on January 8, 2008 in Volume C, Folio 0027-A.

Said parcel contains 45.2400 acres, more or less.

FREE CONSENT AND DEDICATION

SURVEYED and REPLATTED and now comprising "LOTS 5-A1 THRU 5-A14 AND PARCELS 1 THRU 3, VENADA PLAZA (BEING A REPLAT OF LOT 5-A, VENADA PLAZA) SITUATE WITHIN SECTION 36, TOWNSHIP 13 NORTH, RANGE 3 EAST, NEW MEXICO PRINCIPAL MERIDIAN, TOWN OF BERNALILLO, SANDOVAL COUNTY, NEW MEXICO", with the true consent of and in accordance with the wishes and desires of the undersigned owners and proprietors thereof, and do hereby dedicate to the public, forever the public streets shown hereon to the Town of Bernalillo in fee simple, and grant the easements as shown hereon, to the public and private entities as shown hereon. Said consent and dedication(s) being expressly limited to the plat thereof, as shown hereon, to include all the burdens and obligations as hereby imposed by or on the Grantee and its hereby certain duties they are so authorized to use.

SPE Venada Plaza, LLC, a New Mexico Limited Liability Company

By: Ben F. Spencer, Manager

ACKNOWLEDGEMENT

STATE OF NEW MEXICO
COUNTY OF Bernalillo ss

This instrument was acknowledged before me on this 15th day of September, 2008, by Ben F. Spencer, Manager, SPE Venada Plaza, a New Mexico Limited Liability Company.

Notary Public: Kiki D. Krueger
My commission expires: March 4, 2010

DEDICATIONS

A. The ownership of Parcels 1 and 2 will be retained by SPE Venada Plaza, LLC in fee simple.

B. The Public Street right of ways as shown hereon are hereby dedicated the Town of Bernalillo in fee simple.

C. A Private Access Easement for the benefit of Lot 5-A1 thru Lots 5-A14 thru 5-A16 and Parcel 2, as shown hereon, is hereby granted by this plat. The maintenance of said private easement shall be the responsibility of the Owner(s) of Parcel 2.

D. Parcel 3 as shown hereon, is Public Sanitary Sewer and Water Easement, is hereby granted to the Town of Bernalillo by this plat.

The named utilities as shown and acknowledged on Sheet 1, shall have the right to grant and/or relocate as the Grantors hereinafter named may from time to time designate and locate utility easements.

E. A Ten Foot (10') Public Utility Easement along the front of all Lots and Parcels abutting the Dedicated Public Street right of way as shown hereon, is hereby granted by this plat to the utility companies named herein.

F. The 20' Public Water Line Easement over Lot 5-A2, as shown hereon, is hereby granted to the Town of Bernalillo.

G. Parcel 3 as shown hereon shall be dedicated in fee simple to the Southern Sandoval County Arroyo Flood Control Authority.

H. A Forty-Five Foot (45') Public Utility Easement over Lots 5-A2, 5-A3 and 5-A4, as shown hereon, is hereby granted to the named utilities as shown and acknowledged on Sheet 1.

I. A Forty-Five Foot (45') Public Sanitary Sewer and Water Easement over Lots 5-A2, 5-A3 and 5-A4, as shown hereon, is hereby granted to the Town of Bernalillo by this plat.

TOWN OF BERNALILLO PLANNING AND ZONING COMMISSION

Approved this 11 day of November, 2008

Chair: Debbie Kilfoy

TOWN OF BERNALILLO PUBLIC WORKS DEPARTMENT

Approved this 20TH day of December, 2008

Town Public Works Director: Stan J. Tate, Administrator

APPROVALS

Town Administrator — 10/16/08
Town Planning Services — 10/16/08
Public Utility Director — 11/6/08
Comcast Corporation — 10-16-08
Qwest Corporation

SURVEYORS CERTIFICATION

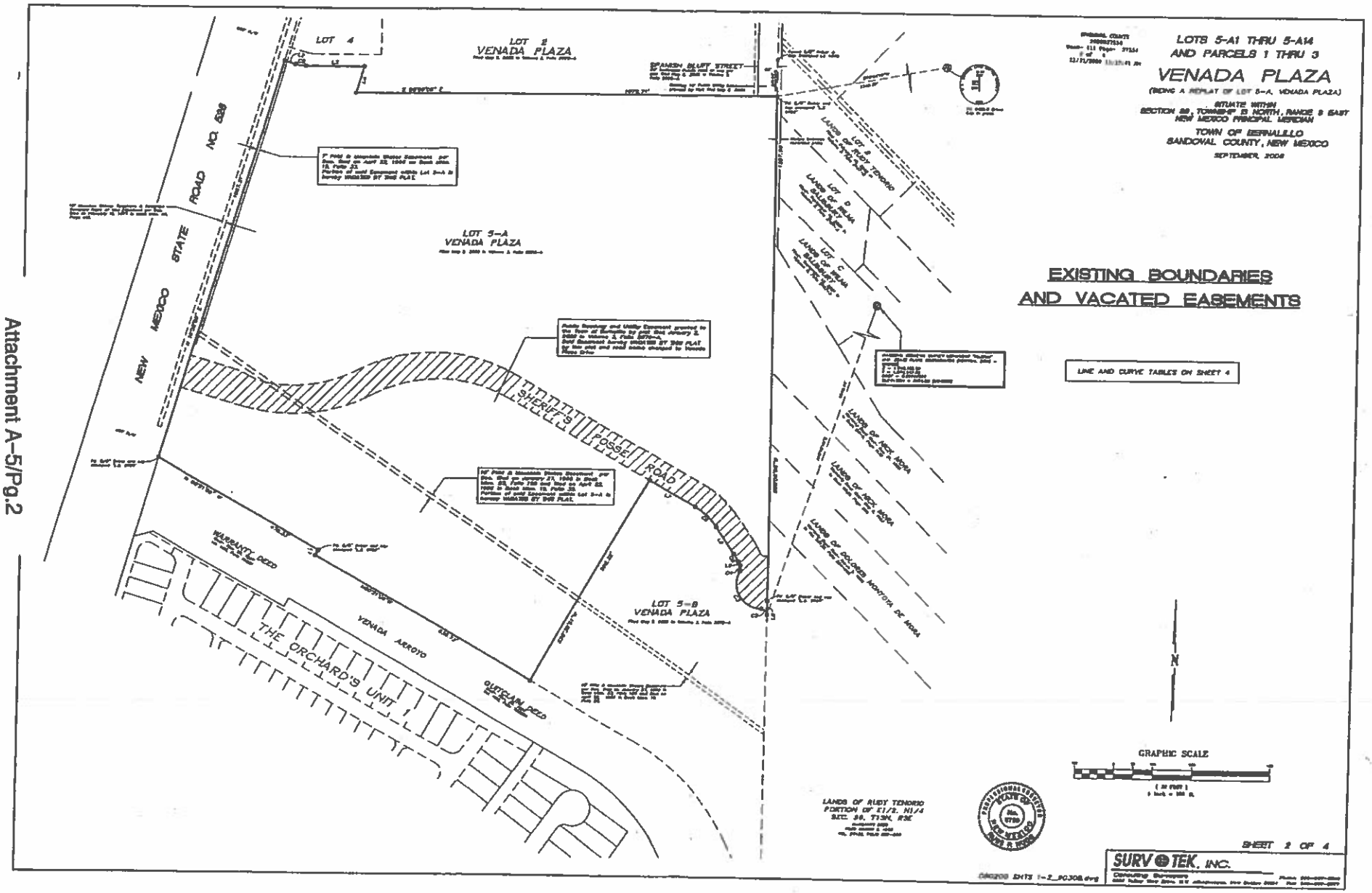
I, Rand P. Hoge, New Mexico Professional Surveyor Number 9706, hereby certify that this plat of survey was prepared from field notes of an actual ground survey performed by me or under my supervision; that it shows all corners of record readily available to a land surveyor and meets bonds to be set by owners, utility companies or other parties responsible as required; that it shows the Minimum Standards for Land Surveys in New Mexico as adopted by the New Mexico State Board of Registration for Professional Engineers and Professional Surveyors; that it shows the monuments found and the boundary agreements; that it shows the dimensions of all lots and parcels; and that it is true and correct to the best of my knowledge and belief.

Rand P. Hoge, NMPS No. 9706
September 12, 2008

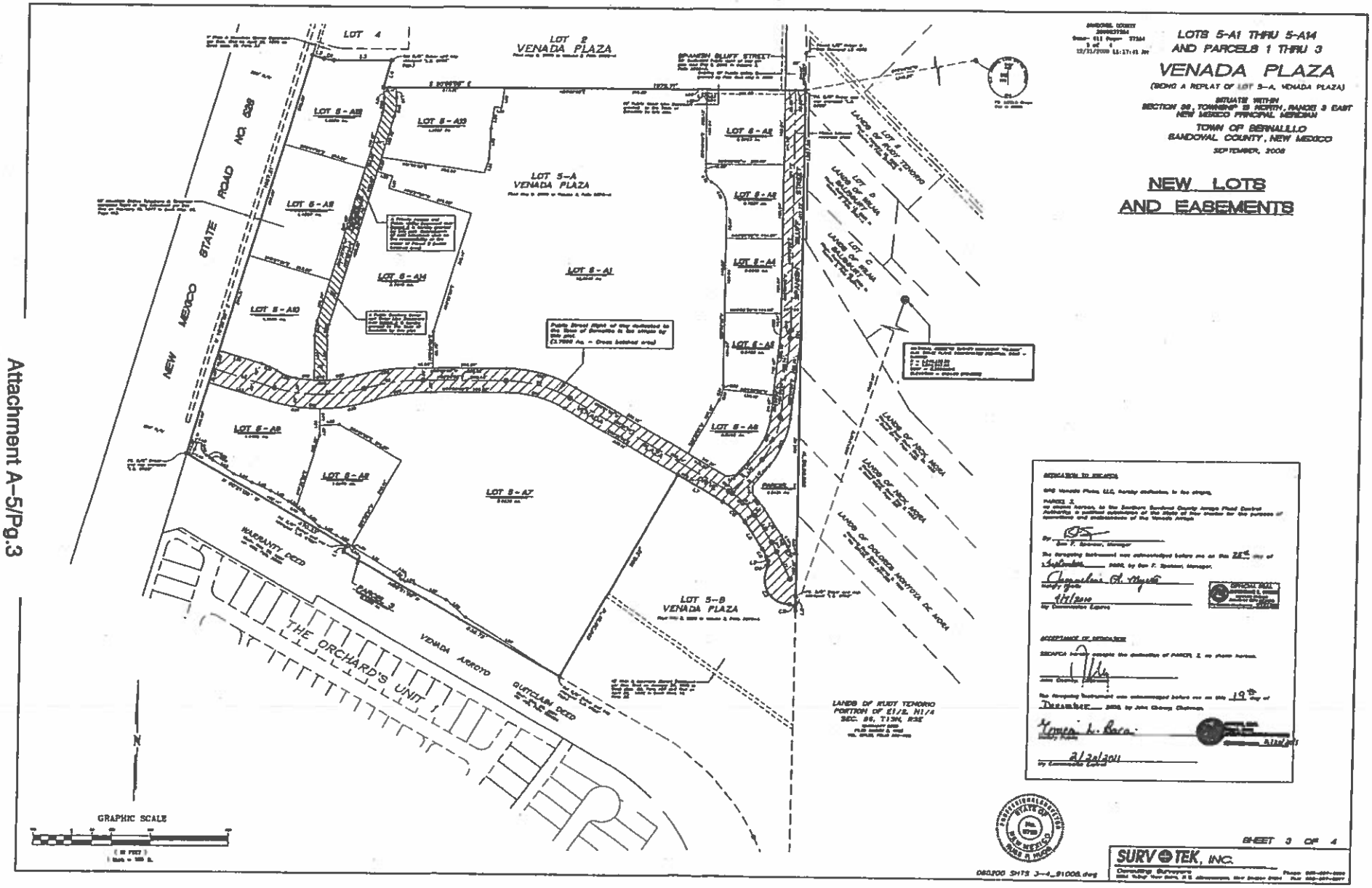
SHEET 1 OF 4

SURVTEK, INC.
Consulting Surveyors
2424 Yucca View Drive, S.E. Albuquerque, New Mexico 87106 Phone: 505-831-3880 Fax: 505-831-3879

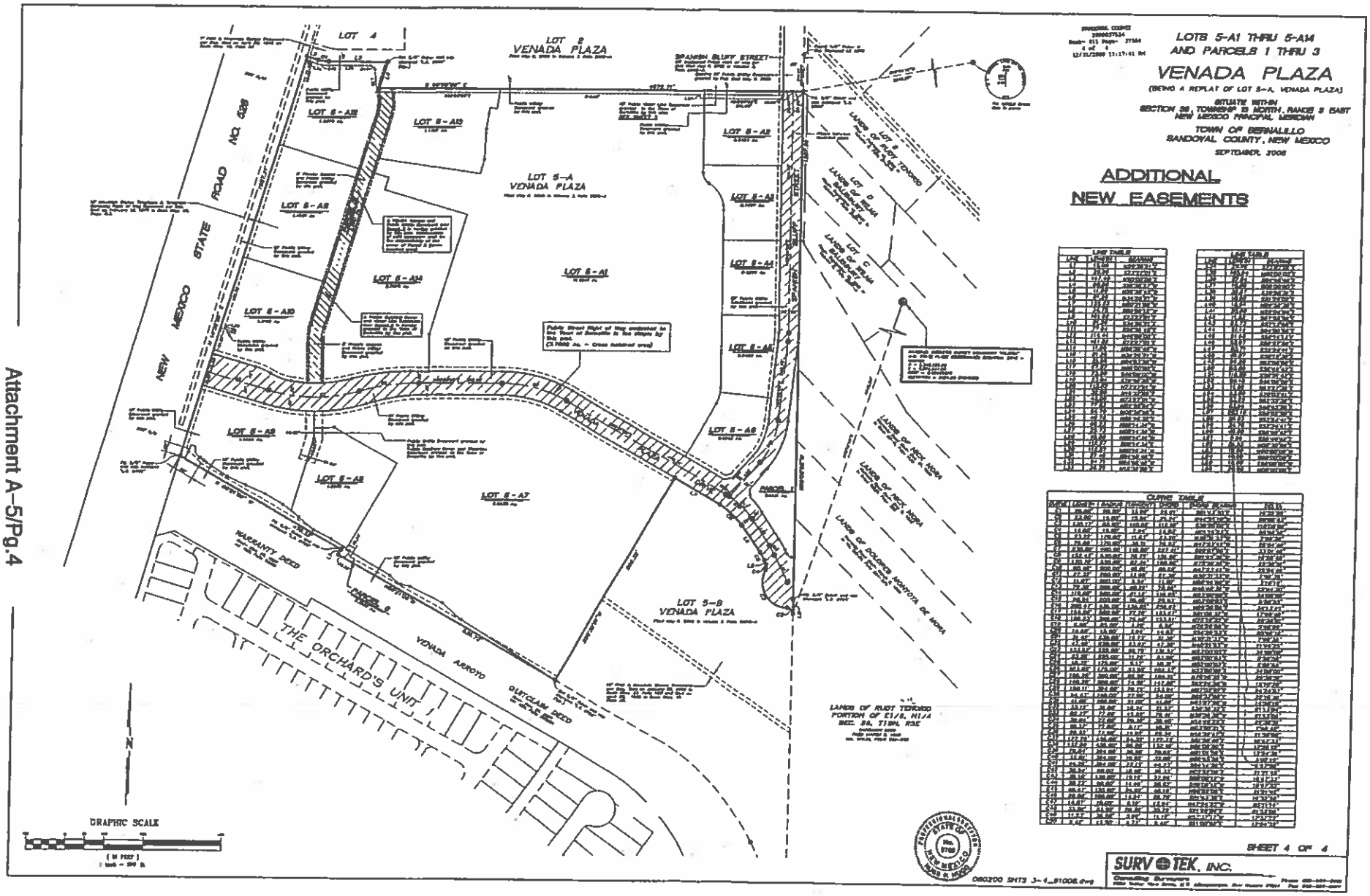
080200 SHTS 1-2_803CB.dwg



Attachment A-5/Pg.2



Attachment A-5/Pg.3



Attachment A-5/Pg.4

VICINITY MAP

LOTS 1 THRU 19
VENADA PLAZA COMMERCIAL CENTER

(BEING A REPLAT OF LOTS 6 AND 7, VENADA PLAZA)

SITUATE WITHIN
SECTIONS 25, TOWNSHIP 13 NORTH, RANGE 3 EAST
NEW MEXICO PRINCIPAL MERIDIAN

TOWN OF BERNALILLO
SANDOVAL COUNTY, NEW MEXICO

AUGUST, 2007

COUNTY CLERKS CERTIFICATION

STATE OF NEW MEXICO
COUNTY OF SANDOVAL ss

This instrument was filed for record on August 21 ... recorded in Volume 3 Folio [illegible]

By [signature]

Deputy

GENERAL NOTES

[illegible]

PURPOSE OF PLAT

[illegible]

TREASURERS CERTIFICATION

[illegible]

Sandoval County Treasurer

PUBLIC UTILITY EASEMENTS

[illegible]

DISCLAIMER

[illegible]

LEGAL DESCRIPTION

[illegible]

FREE CONSENT AND DEDICATION

[illegible]

OWNERS

LOT 7, VENADA PLAZA

[signature]

LOT 6, VENADA PLAZA

[signature]

ACKNOWLEDGEMENT

STATE OF NEW MEXICO

COUNTY OF BERNALILLO ss

This instrument was acknowledged before me on this 4th day of October 2007 ...

[signature]

12/18/10

My commission expires

ACKNOWLEDGEMENT

STATE OF NEW MEXICO

COUNTY OF BERNALILLO ss

This instrument was acknowledged before me on this 4th day of OCTOBER 2007 ...

[signature]

TOWN OF BERNALILLO PLANNING AND ZONING COMMISSION

Approved this 16 day of August 2007

[signature]

(for approvals Preliminary Plat granted by P&Z Commission of their regular meeting of Dec. 4, 2007)

~~TOWN OF BERNALILLO PUBLIC WORKS DEPARTMENT~~

→ no Public Works Director at this time

N/A per ... [illegible]

APPROVALS

[signature] 7/26/07

[signature] 7/31/07

[signature] 8/5/08

[signature] 7.29.08

SURVEYORS CERTIFICATION

[illegible]

[signature]

LINE TABLE		
LINE	LENGTH	BEARING
L1	[illegible]	[illegible]
L2	[illegible]	[illegible]

CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	CHORD	CHORD BEARING	DELTA
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C2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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C10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

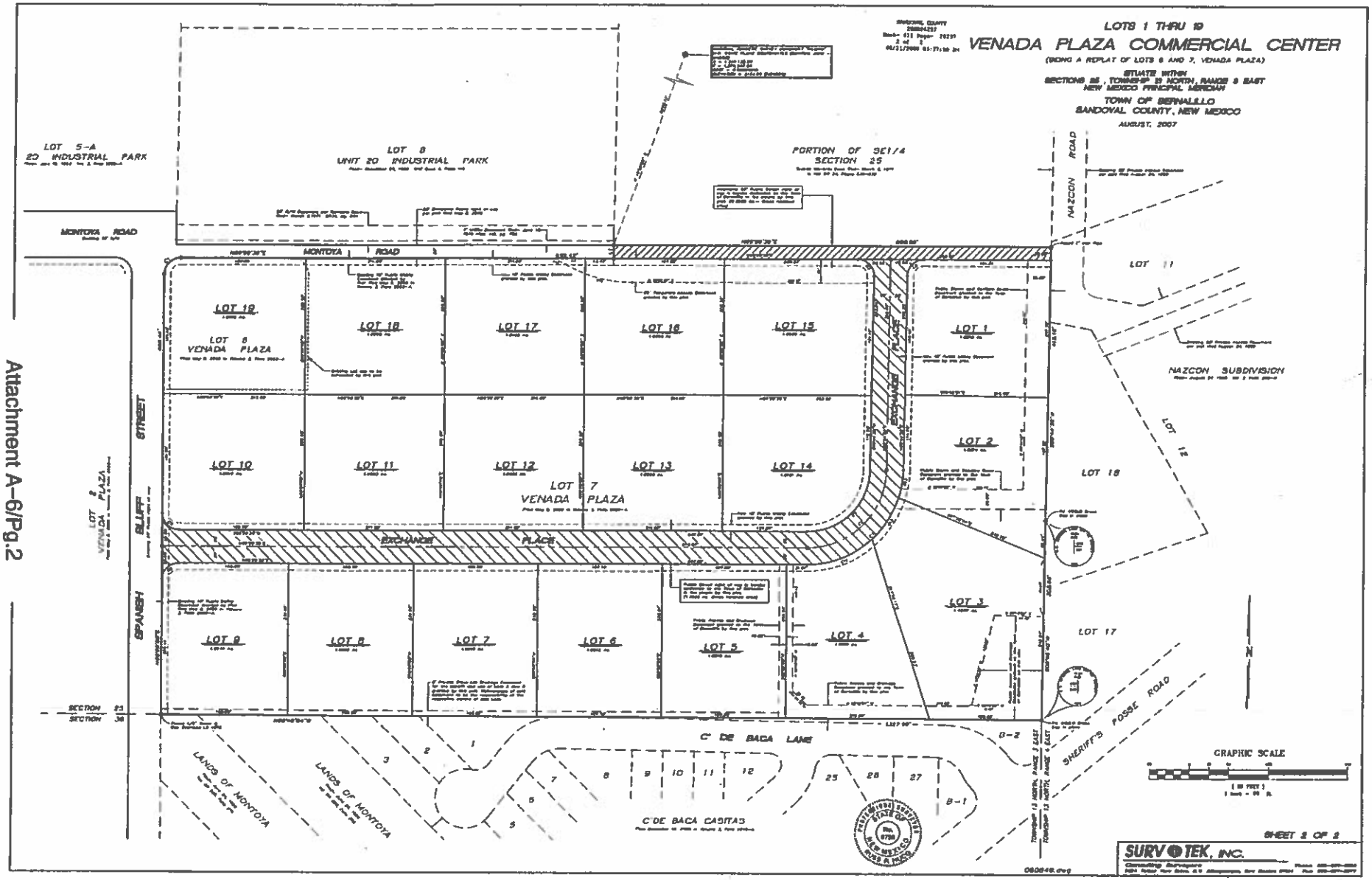
SHEET 1 OF 2

SURV-TEK, INC.

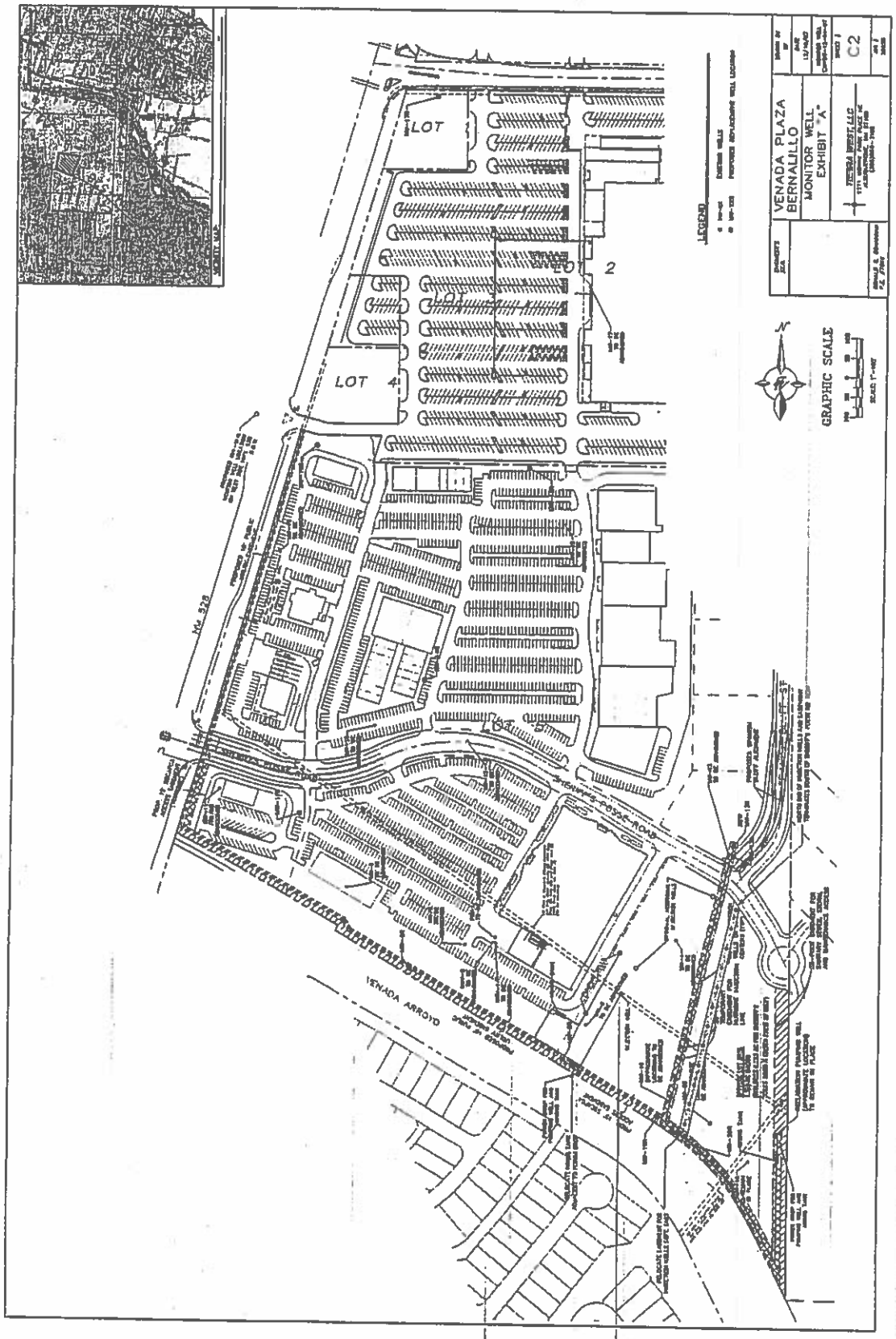
Consulting Surveyors

060418.dwg

Attachment A-6/Pg.1



Attachment A-6/Pg.2



Attachment A-7/Pg.1

NEW MEXICO
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau
1190 St. Francis Drive, P.O. Box 5469
Santa Fe, New Mexico 87502
Phone (505) 827-2900 Fax (505) 827-2965
www.nmenv.state.nm.us

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Cabinet Secretary Designate
BUTCH TONGATE
Deputy Secretary

December 13, 2013

Mr. John Price
email: price@q.com
D & G Price Limited Partnership
P.O. Box 850
Bernalillo, New Mexico 87004

RE: Partial Abatement Plan Termination, Former Price's Valley Gold North Dairy Bernalillo, New Mexico

Dear Mr. Price:

Pursuant to 20.6.2.4112.B NMAC, the New Mexico Environment Department (NMED) hereby terminates a portion of the Abatement Plan for the site referenced above. The site is currently owned by D & G Price Limited Partnership and is located at 618 NM Highway 528 in Bernalillo, New Mexico. The termination does not apply to two areas with ongoing exceedances of ground water standards. These two exception areas are identified as monitoring well MW-11R in the Upper Santa Fe Aquifer, legally platted as Lot 5-9-A, and the Valley Fill Aquifer, legally platted as Lot 5-B, Lot 5-A-6, Parcel 1 and contiguous portions of the Venada Plaza Drive. D&G Price will continue to address the exception areas in the manner prescribed by the August 2013 Settlement Agreement.

In a letter dated May 22, 2013, NMED approved the completion report for the site, excluding the two exception areas described above, and required proper plugging and abandonment of site monitoring wells not located within the exception areas. On August 26, 2013 NMED, received a Well Plugging and Abandonment Report, submitted on your behalf by EA Engineering, Science and Technology, Inc., documenting the plugging and abandonment of site monitoring wells outside of the exception areas. No further action at the site, excluding the exception areas, is required at this time.

Please be advised that this partial Abatement Plan Termination does not relieve D & G Price Limited Partnership of its responsibility for compliance with the Abatement Plan and the August 2013 Settlement Agreement for the exception areas, and with any other federal, state or local laws and regulations. If additional information becomes available indicating that the abatement plan actions taken were inadequate, further efforts may be required in the future.

If you have any questions, please contact Bart Faris, Project Manager, at (505) 222-9521 or Pam Homer, Acting Program Manager of the Remediation Oversight Section, at (505) 827-2242. Thank you for your cooperation in this matter.

Sincerely,

Jerry Schoeppner, Chief
Ground Water Quality Bureau

Cc: Pete Domenici, Jr., 320 Gold Ave., SW, Suite 1000, Albq., NM 87102
Jennifer Hower, OGC, NMED
Jay Snyder, EA, 320 Gold Ave., SW, Suite 1210, Albq., NM 87102
Bart Faris, GWQB, NMED, Dist. 1
ROS Reading File

NEW MEXICO
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau

1190 St. Francis Drive, P.O. 26110
Santa Fe, New Mexico 87502-6110
Phone (505) 827-2900 Fax (505) 827-2965
www.nmenv.state.nm.us
William C. Olson, Bureau Chief

BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant Governor

RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

COPY

January 15, 2008

Mr. Ben F. Spencer, Manager
RPS Venada Plaza, LLC
Argus Development Company, Inc.
6300 Riverside Plaza Lane NW
Suite 200
Albuquerque, NM 87120

RE: Transmittal of the Covenant Not to Sue for the former Price's Valley Gold Dairy, North Dairy – North Area (VRP Site No. 53061004) in Bernalillo, New Mexico

Dear Mr. Spencer:

The New Mexico Environment Department (NMED) is pleased to provide you with a Covenant Not to Sue for the former Price's Valley Gold, North Dairy Site – North Area site in Bernalillo, New Mexico.

The Covenant Not to Sue is being issued pursuant to §74-4G-8 NMSA 1978 of the Voluntary Remediation Act and 20.6.3.6 NMAC (New Mexico Voluntary Remediation Regulations). The Covenant Not to Sue document is assignable to and assumable by a new purchaser with title to the real property described in Exhibits "A" and "B" attached to the Covenant Not to Sue document, unless the title is transferred to a party who has contributed to the site contamination, or is an officer, director, parent, subsidiary, affiliate, partner, managing agent, or employee thereof.

COPY

STATE OF NEW MEXICO ENVIRONMENT DEPARTMENT
VOLUNTARY REMEDIATION PROGRAM
COVENANT NOT TO SUE

This Covenant is entered into this **15th** day of **January, 2008** by the Secretary of Environment, the administrative head of the New Mexico Environment Department ("NMED"), an agency of the executive branch of the government of the state of New Mexico, through Mr. Ron Curry, the Secretary's authorized representative, and Mr. Ben Spencer, acting in his capacity as manager of **RPS Venada Plaza, LLC.** ("Recipient").

I. RECIPIENT'S REPRESENTATIONS AND WARRANTIES

Recipient represents and warrants:

A. It is the current purchaser of the real property described in Exhibit "A", attached hereto.

B. It has reviewed and understands the Voluntary Remediation Agreement and Certificate of Completion for **VRP Site No. 53061004 – Former Price's Valley Gold, North Dairy – North Area**, relating to the site described in Exhibits "A" and "B."

C. It did not contribute to the site contamination that is the subject of **Voluntary Remediation Agreement No. 53061004 – Former Price's Valley Gold, North Dairy – North Area** and has at no time been an officer, director, parent, subsidiary, affiliate, partner, managing agent, or employee of a party who did contribute to the site contamination.

II. RECIPIENT'S OBLIGATIONS

Not Applicable

III. NMED'S COVENANT NOT TO SUE

NMED, pursuant to NMSA § 74-4G-8 and 20 NMAC 6.3 Subpart VI, hereby covenants not to sue for any direct liability, including future liability for claims based upon the contamination covered by Voluntary Remediation Agreement for **VRP Site No. 53061004 – Former Price's Valley Gold, North Dairy – North Area** and over which NMED has authority. Except as may be provided under federal law or as may be agreed to by a federal government entity, the Covenant Not to Sue shall not release or otherwise apply to claims by the federal government for claims based on federal law. Except as may be agreed to by another department or agency of the state, the Covenant Not to Sue shall not release or

If you have any questions about the Covenant Not to Sue, please call the project manager, Rick Shean at (505) 222-9550. If you have any problems or concerns, please call Dana Bahar, Acting Manager, Remediation Oversight Section at (505) 827-2908.

Sincerely,

William C. Olson, Chief
Ground Water Quality Bureau

Enclosures: Covenant Not to Sue to RPS Venada Plaza, LLC for the former Price's Valley Gold, North Dairy Site – North Area site w/Exhibit A & Exhibit B

cc: Rick Shean Environmental Scientist, ROS-VRP
VRP Chrono File

COVENANT EXHIBIT "A"
STATE OF NEW MEXICO ENVIRONMENT DEPARTMENT
VOLUNTARY REMEDIATION PROGRAM
DESCRIPTION OF SITE FOR WHICH VOLUNTARY REMEDIATION IS COMPLETE, VRP No. 53061004 – FORMER PRICE'S VALLEY GOLD NORTH DAIRY – NORTH AREA SITE

I. Tract of Land Comprising Site

The former Price's Valley Gold North Dairy – North Area Site (VRP # 53061004), is a 94.1301 acre tract, more or less, out of the total acreage of the former Price's Dairy owned by VG Farms, Inc. Said site is located at 618 Highway 528 in Bernalillo, Sandoval County, New Mexico. Site is more particularity described as follows:

LOTS 1 THRU 7
VENADA PLAZA
(BEING A REPLAT OF LOTS 3, 4, AND 5, LANDS OF PRICE'S DAIRY)
SECTIONS 25 AND 36, TOWNSHIP 13 NORTH, RANGE 3 EAST
NEW MEXICO PRINCIPAL MERIDIAN
TOWN OF BERNALILLO
SANDOVAL COUNTY, NEW MEXICO
FEBRUARY, 2006
(Sandoval County 200623087, Book- 409, Page 23087, 3 page plat, 05/08/2006 03:29:51 PM)

That certain parcel of land situate within Sections 25 and 36, Township 13 North, Range 3 East, New Mexico Principal Meridian, Town of Bernalillo, Sandoval County, New Mexico comprising all of Lots Numbered (3), Four (4) and Five (5), Lands of Price's Dairy as the same are shown and designated on the plat entitled "LOTS 1 THRU 5, LANDS OF PRICE'S DAIRY (BEING A REPLAT OF TRACTS A THRU D; L THRU N AND GEORGE W. THATCHER HOMESITE, LANDS OF GEORGE W. THATCHER AND A PORTION OF THE S1/2, S1/2, SE1/4, SECTION 25, TOWNSHIP 13 NORTH, RANGE 3 EAST, N.M.P.M.), SITUATE WITHIN SECTIONS 25 AND 36, TOWNSHIP 13 NORTH, RANGE 3 EAST, NEW MEXICO PRINCIPAL MERIDIAN, TOWN OF BERNALILLO, SANDOVAL COUNTY, NEW MEXICO", filed in the office of the County Clerk of Sandoval County, New Mexico on April 28, 1998 in Volume 3, Folio 1746-A.

Said parcel contains 94.1301 acres, more or less.

II. Environmental Site Conditions.

This agreement covers nitrogen compounds in surface soils.

otherwise apply to claims of any other office, department, or agency of the State. Except as may be agreed to by a third party, the Covenant Not to Sue shall not release or otherwise affect a person's liability to third parties. This Covenant Not to Sue shall remain in effect unless and until NMED issues a Notice of Rescission in accordance with NMSA § 74-4G-9, 20 NMAC 6.3 Subpart VII, and Section V, below.

IV. TRANSFER OF COVENANT NOT TO SUE

This Covenant Not to Sue is assignable to and assumable by a New Purchaser of title to the real property described in Exhibits "A" and "B", above, provided that the New Purchaser executes and delivers to NMED a statement in which the New Purchaser:

A. Represents and warrants to NMED that it:

1. Is the new purchaser of the real property described in Exhibit "A", attached hereto;

2. Has reviewed and understands the Voluntary Remediation Agreement and Certificate of Completion for VRP Site No. **53061004 – Former Price's Valley Gold, North Dairy – North Area**, relating to the site described in Exhibits "A" and "B;"

3. Did not contribute to the site contamination that is the subject of Voluntary Remediation Agreement for VRP Site No. **53061004 – Former Price's Valley Gold, North Dairy – North Area** and has not been an officer, director, parent, subsidiary, affiliate, partner, managing agent, or employee of a party who did contribute to the site contamination; and

B. States that it assumes and agrees to comply with Recipient's obligations set forth in Section II of this Covenant Not to Sue.

Following such transfer of this Covenant Not to Sue, the New Purchaser shall be required to comply with Recipient's obligation's set forth in Section II of this Covenant Not to Sue. NMED's Covenant Not to Sue shall remain in effect unless and until NMED issues a Notice of Rescission in accordance with NMSA § 74-4G-9, 20 NMAC 6.3 Subpart VII, and Section V, below.

V. RESCISSION OF COVENANT NOT TO SUE

A. <u>Grounds for Rescission</u>

NMED may rescind this Covenant Not to Sue if NMED, in its sole discretion, determines that:

1. Based on reasonable evidence, contamination addressed in the Voluntary Remediation Agreement still poses, following remediation, an unreasonable threat to human health or the environment, or that the performance standard described in Subpart I, Section 110 of 20 NMAC 6.3 has not been met;

2. The Voluntary Remediation Agreement was performed in a manner that fails to comply substantially with the terms and conditions of the Agreement or Voluntary Remediation Work Plan;

3. Any monitoring requirements, engineering controls, remediation systems, post-closure care, or affirmation of future non-residential land use upon which the final remedy is dependent are not being implemented satisfactorily;

4. The Voluntary Remediation Agreement is the result of fraud;

5. Contamination was present at the site at the time the Voluntary Remediation Agreement was signed or the Voluntary Remediation Agreement was approved, but the Department was not properly informed of the type, extent or magnitude of the contaminants;

6. One or more of the representations and warranties set forth in Section I or Section IV, above, was false, misleading, or incomplete when made;

7. The Recipient or any transferee has failed to comply with Recipient's obligations described in Section II, above, to NMED's satisfaction.

B. Procedure for Rescission

NMED shall issue a Notice of Rescission by mailing a Notice by certified mail, return-receipt requested, to the last known address of the Recipient, and if applicable, to any transferee of this Covenant Not to Sue. The Notice shall state NMED's basis for Rescission.

C. Effect of Notice of Rescission

A Notice of Rescission shall be effective on the date it is issued by NMED. The Notice of Rescission shall render this Covenant Not to Sue void as of the date of its issue. Following issuance of a Notice of Rescission, NMED may pursue administrative or judicial enforcement actions or other claims based on the contamination that was the subject of this Covenant Not to Sue.

VI. RESERVATION OF RIGHTS

NMED expressly reserves the right to take any action, including any enforcement action, to address any contamination not covered by the Voluntary Remediation Agreement, including any release of a contaminant that occurs after issuance of the Certificate of Completion, or any release of a contaminant not covered by the Voluntary Remediation Agreement. The Secretary's Covenant Not to Sue shall not apply to any such release.

VII. APPLICABLE LAW

This Covenant Not to Sue shall be governed by and construed in accordance with the laws of the State of New Mexico.

VIII. COMPLETE AGREEMENT

This Covenant Not to Sue contains the entire agreement of the Parties.

IX. AMENDMENT

This Covenant may be amended only by a writing signed by both parties. Notwithstanding this section, this Covenant may be transferred through transferee's execution and delivery of a Statement to NMED as described in Section IV, above.

X. AUTHORITY TO SIGN

The persons signing below represent and warrant that they have authority to bind the party on whose behalf they are signing this Covenant.

RECIPIENT

By _____
(Signature)

Print Name Ben F Spencer

STATE OF New Mexico

COUNTY OF Bernalillo

BEFORE ME, on this 11th Day of January, personally appeared Ben F. Spencer, known to me to be the person and agent of said entity whose name is subscribed to the foregoing instrument, and he/she acknowledged to me that he/she executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 11th Day of January 2008

Jacqueline L. Myers
Notary Public in and for the State of New Mexico

My commission expires 4/7/2010
(SEAL)

OFFICIAL SEAL
Jacqueline L. Myers
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 4/7/2010

NMED

By _____
Secretary or Designee
New Mexico Environment Department

STATE OF NEW MEXICO
COUNTY OF SANTA FE

BEFORE ME, on this 17th day of January, personally appeared Ron Curry, known to me to be the person and agent of said department whose name is subscribed to the foregoing instrument, and he/she acknowledged to me that he/she executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 17th day of January, 2008.

Catherine Velasquez
Notary Public in and for the State of New Mexico

My commission expires 12-05-2011
(SEAL)

Attachments: Exhibit "A", Completion Site Description
Exhibit "B", Affidavit of Completion

COMPLETION EXHIBIT "B"
STATE OF NEW MEXICO ENVIRONMENT DEPARTMENT
VOLUNTARY REMEDIATION PROGRAM
AFFIDAVIT OF COMPLETION OF VOLUNTARY REMEDIATION

VG Farms, Inc. (the Participant) has implemented voluntary remediation actions pursuant to the Voluntary Remediation Act, Sections 74-4G-1 et seq. NMSA 1978, and the New Mexico Voluntary Remediation Regulations (20 NMAC 6.3), at the tract of land and for the associated environmental site conditions described in Exhibit "A" to this affidavit that pertains to the Former Price's Valley Gold, North Dairy (the Site), VRP No. 53061004, located at 618 Highway 528, in Bernalillo, Sandoval County, New Mexico. The Site was owned by Dudley Price (owner) at the time the application to participate in the Voluntary Remediation Program was filed. The Participant has submitted and received approval from the State of New Mexico Environment Department (NMED) Voluntary Remediation Program on all plans and reports required by the Voluntary Remediation Agreement. The plans and reports were prepared using a prudent degree of inquiry regarding environmental issues relevant to the Site, consistent with accepted industry standards to identify all hazardous substances, waste and contaminated media of regulatory concern.

The voluntary remediation actions for the Site will achieve a final site condition acceptable for unrestricted land use as determined by the standards, guidelines, and policies of the NMED. Specifically, where applicable standards are prescribed by law or regulation, the voluntary remediation activities have achieved applicable standards. Where applicable standards are not prescribed by law or regulation, voluntary remediation activities have been performed in order to achieve a final site condition such that no contaminant presents a significant risk of harm to human health, safety, or the environment during any foreseeable period of time. Such level of cleanup has been attained by reducing the risk from exposure to individual carcinogens or suspected carcinogens to an individual lifetime cancer risk of less than one cancer incident in 100,000 exposed persons (1 X 10 E-5); and by reducing the risk from exposure to individual noncarcinogenic contaminants to a hazard quotient of less than 1. The Participant has not performed voluntary remediation activities pursuant to the Voluntary Remediation Agreement that were fraudulent nor involved misrepresentation nor knowing failure to disclose material information. Further information concerning the voluntary remediation at this Site may be found at the NMED under VRP Site No. 53061004.

The preceding is true and correct to the best of my knowledge and belief.

VG Farms, Inc.
Participant

By: Dudley Price

Print Name: Dudley Price

STATE OF New Mexico

COUNTY OF Sandoval

BEFORE ME, on this 13th day of September 2006, personally appeared DUDLEY PRICE, known to me to be the person and agent of said entity whose name is subscribed to the foregoing instrument, and he/she acknowledged to me that he/she executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 13th day of September, 2006.

Gabriele Phillips
Notary Public in and for the State of New Mexico

My commission expires 3-11-10

(SEAL) OFFICIAL SEAL
Gabriele Phillips
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires:

HISTORICAL SUMMARY OF EXPENDITURES BY PRICE BUSINESS ENTITIES ASSOCIATED WITH BERNALILLO ENVIRONMENTAL REMEDIATION COSTS

AND

ACCOUNTANT'S COMPILATION REPORT –

William E. Rister & Company, LLC
Certified Public Accountants

William E. Rister, CPA

INDEPENDENT ACCOUNTANT'S
SPECIAL PROCEDURES COMPILATION REPORT

Management
Price Business Entities
Albuquerque, New Mexico

Management is responsible for the accompanying summary of historical environmental remediation expenditures incurred by the Price Family Business Entities at the Bernalillo dairy facility for the years 1999 through 2015. I have performed the compilation engagement in accordance with Statements on Standards for Accounting and Review Services promulgated by the Accounting and Review Services Committee of the AICPA. I did not audit or review the summary of historical environmental remediation expenditures at the Bernalillo dairy facility nor was I required to perform any procedures to verify the accuracy or completeness of the information provided by management. Accordingly, I do not express an opinion, a conclusion, nor provide any form of assurance of these financial statements.

William E. Rister & Company, LLC

Fort Collins, Colorado
August 23, 2016

702 W. Drake Road, Bldg. D, Fort Collins, Colorado 80526
(970) 494-7990 • FAX (970) 494-7991
TOLL FREE (866) 494-7990
email: bill@ristercpa.com • www.ristercpa.com

HISTORICAL SUMMARY OF EXPENDITURES
BY PRICE BUSINESS ENTITIES
ASSOCIATED WITH BERNALILLO
ENVIRONMENTAL REMEDIATION COSTS

Year	Amount
1999	3,114
2000	75,355
2001	14,213
2002	51,784
2003	69,865
2004	77,952
2005	11,426
2006	77,697
2007	217,733
2008	148,814
2009	148,571
2010	261,573
2011	181,786
2012	65,820
2013	159,171
2014	54,475
2015	23,425
Total Environmental Expenditures	$ 1,642,774

See Independent Accountant's Compilation Report.

HISTORICAL SUMMARY OF EXPENDITURES BY PRICE BUSINESS ENTITIES ASSOCIATED WITH BERNALILLO ENVIRONMENTAL REMEDIATION COSTS – SUPPORTING NOTES

Note 1. SUMMARY OF HISTORICAL EXPENDITURES

The expenditures summarized in the accompanying schedule include, but are not limited to expenditures for well construction and termination; soil borings; laboratory testing; engineers analysis and representation; legal representation; pond lining for pumping test and removal; injection system construction; oversight and removal (9 wells); site work for "on site" run-off retention; pumping well system construction and oversight for removal of 45 acre feet of water.

NAME OF OWNER (Please Print)
D & G LIMTED PARTNERSHIP

OWNER'S MAILING ADDRESS:
PO BOX 850
BERNALILLO, NM 87004-0850

HOME PHONE: 505.980.4620
BUSINESS/CELL PHONE: 505.350.0930

CONTACT NAME

EMAIL ADDRESS
price@comcast.com

Please print the name of Authorized Representative (if owner will be represented by someone other than self). Letter of Authorization must be attached.

Authorized Representative

☐ Documents Submitted
☐ Other:

Representative Mailing Address

Representative Phone
505.980.4620

I certify that the foregoing statements and information are true, accurate and complete to the best of my knowledge, information and belief. I understand that the County Assessor, upon receipt of the petition, is required to schedule a hearing before the Sandoval County Valuation Protest Board. I further understand that I must provide evidence and /or have witness at the formal hearing.

Signature of Owner or Authorized Representative

FOR OFFICE USE ONLY:

	Land Value	Improve. Value	Misc. Value	Total Value
Assessed Value	1276344			$1,276,344
Corrected Value	(1,100,000)			(1,100,000)
Final Value	176344	0		176344

SANDOVAL COUNTY ASSESSOR
PROTEST PETITION

1500 Idalia Rd Bldg D
PO Box 40
Bernalillo, NM 87004
Phone: (505)867-7562 Fax: (505)867-7596

TAX YEAR 2016

LEGAL DESCRIPTION:
UNIT: LOT: 5-B BLOCK:
SUBDIVISION: VENADA PLAZA
MAP: TRACT:
LANDS OF:
SECTION: TOWNSHP: RANGE:
PROPERTY ADDRESS:

PLEASE FILL IN INFORMATION BELOW COMPLETELY

A: TOTAL ASSESSOR'S VALUE
(As shown on Notice of Value)
$1,276,344

B: TOTAL PROPERTY OWNERS VALUE
$5

C: PROTESTED AMOUNT
(DIFFERENCE BETWEEN A & B)
$1,276,339

REASON FOR PROTEST
☐ VALUE IN EXCESS OF CURRENT AND CORRECT
☐ DUPLICATE ASSESSMENTS ☐ LIVESTOCK

DENIAL OF: ☐ RESIDENTIAL CLASSIFICATION
☐ AGRICULUTRAL STATUS ☐ EXEMPTION

EXPLANATION OF PROTEST:

OVER VALUED

ACCOUNT # R155104

PARCEL # 1018073375283

IMPORTANT INFORMATION

SECTION 7-38-24 NMSA PROVIDES THAT PETITIONS OF PROTEST SHALL BE FILED WITH THE COUNTY ASSESSOR NO LATER THAN THIRTY (30) DAYS AFTER THE MAILING BY THE ASSESSOR OF THE NOTICE OF VALUE IF NOT AVAILABLE AT THE TIME OF FILING. ALL INFORMATION TO BE PRESENTED AT THE PROTEST HEARING MUST BE DELIVERED TO THE ASSESSOR NO LATER THAN THIRTY (30) DAYS FROM THE PROTEST DEADLINE. IF INFORMATION IS NOT RECEIVED, A FORMAL REQUEST FOR DOCUMENTS WILL BE MADE

THE FILING OF A PETITION OF PROTEST WITH THE ASSESSOR IS AN ELECTION TO PURSUE THAT REMEDY AND IS AN UNCONDITIONAL AND IRREVOCABLE WAIVER OF THE RIGHT TO PURSUE THE REMEDY OF FILING A CLAIM FOR REFUND IN DISTRICT COURT.

SETTLEMENT / WITHDRAWL

IF YOU WISH TO WITHDRAW YOUR PROTEST, YOU MAY DO SO BY SIGNING BELOW, DATE AND MAIL TO THE ABOVE ADDRESS.

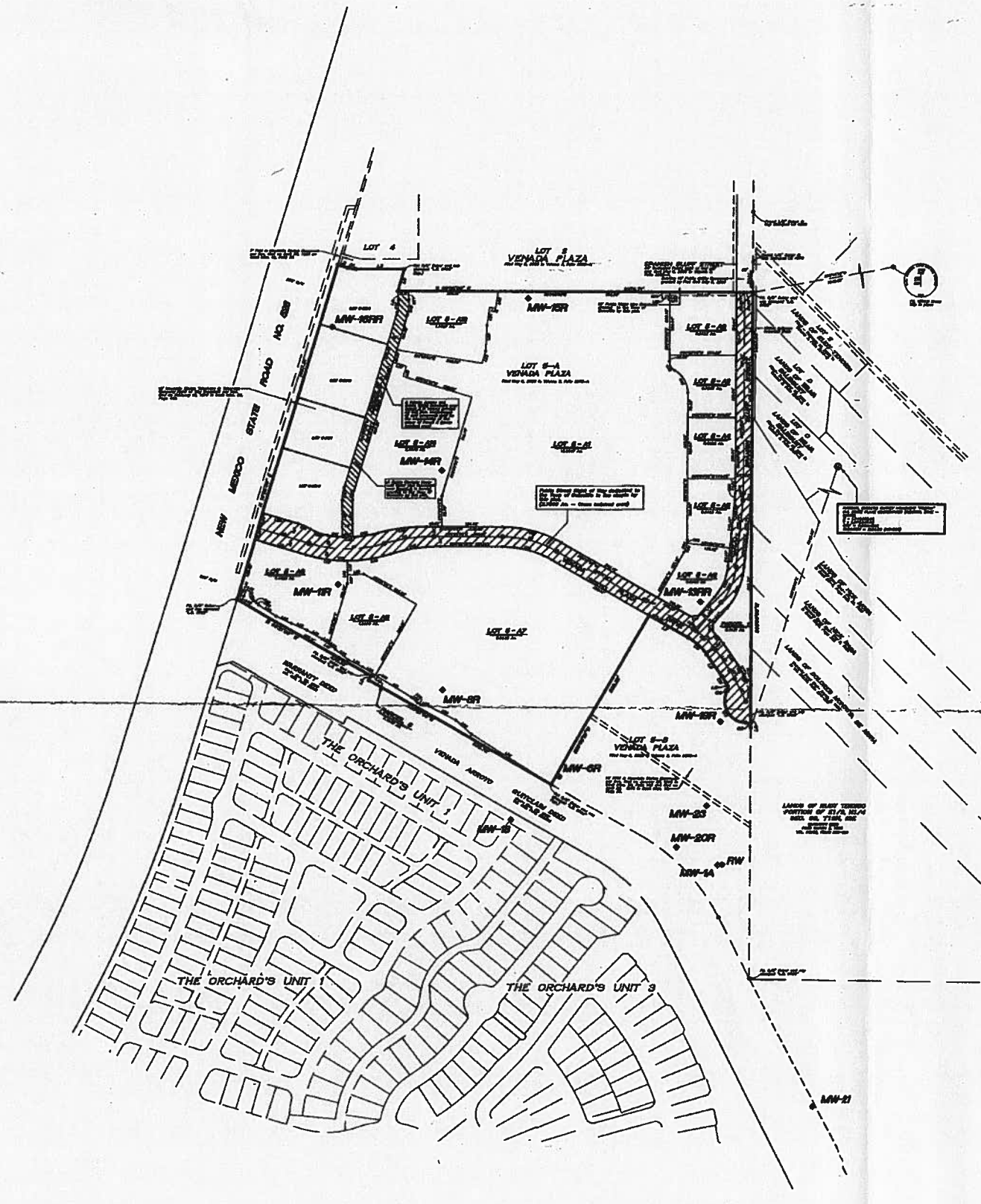
I HEREBY WITHDRAW/ACCEPT THE ABOVE PROTEST.

☐ *WITHDRAW* ☒ *ACCEPT SETTLEMENT*

X
Signature of Owner or Authorized Representative / Date

PROPERTY TYPE: NON-RESIDENTIAL
☐ RESIDENTIAL ☐ COMMERCIAL
☐ MULTI-FAMILY(APARTMENT) ☐ VACANT LAND
☐ AGRICULTURE ☐ PERSONAL PROPERTY
☐ MANUFACTURED HOME

FOR OFFICE USE ONLY:
PROTEST #: 2016-41951
DATE RECEIVED: 04/22/2016
DATE MAILED:
SCHOOL DISTRICT: 101SH_NR 11 - BERNALILLO
APPRAISER: CGRAHAM



MONITOR WELL LOCATIONS

LOTS 5-A1 THRU 5-A14

AND PARCELS 1 THRU 3

VENADA PLAZA

SITUATE WITHIN
SECTION 36, TOWNSHIP 13 NORTH, RANGE 3 EAST
NEW MEXICO PRINCIPAL MERIDIAN

TOWN OF BERNALILLO
SANDOVAL COUNTY, NEW MEXICO

MARCH, 2009

REVISED JULY, 2009
REVISED DECEMBER,. 2009

MONITOR WELL DATA

MODIFIED (SURFACE) COORDINATES

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
MW-18	1570382.24	1544478.23	5080.80	North Rim
			5080.80	Concrete
MW-21	1569514.95	1545391.13	5056.05	North Rim
			5056.05	Concrete
MW-11R	1571095.38	1543950.88	5110.54	North Rim
			5110.54	Concrete
MW-18RR	1571878.21	1543829.28	5129.08	North Rim
			5129.08	Concrete
MW-15R	1571965.04	1544523.39	5119.81	North Rim
			5119.81	Concrete
MW-14R	1571441.33	1544264.34	5116.27	North Rim
			5116.27	Concrete
MW-13RR	1571048.49	1545045.61	5090.20	North Rim
			5090.20	Concrete
MW-19R	1570879.69	1545107.42	5072.69	North Rim
			5071.03	Concrete
MW-23	1570426.60	1545068.60	5073.13	North Rim
			5070.75	Concrete
MW-20R	1570299.74	1544978.03	5072.57	North Rim
			5070.86	Concrete
MW-1A	1570245.63	1545100.29	5072.28	North Rim
			5070.46	Concrete
RW	1570246.79	1545113.42	5073.10	North Rim
			5070.48	Concrete
MW-6R	1570513.09	1544823.06	5078.31	North Rim
			5078.31	Concrete
MW-8R	1570774.57	1544269.55	5101.17	North Rim
			5101.17	Concrete

GENERAL NOTES

1. The coordinates for the Monitor Well locations on the above mentioned site are modified (surface) New Mexico State Plane Coordinates, Central Zone, NAD83 and have been adjusted to the NGS Monument " PILGRIM ". To obtain true state plane grid coordinates, multiply the coordinates above by the project combined ground to grid factor of (0.99968516).

2. Elevations are referred to sea level, NAVD29, and have been adjusted to the NGS Monument " PILGRIM ", the coordinates and elevations are expressed in U.S. Survey Feet.

3. Elevations of the wells were taken on the north or high sides of the Steel Rim Cover (North Rim / West Rim), coordinates are taken on the north side of the PVC Pipe.

SURVEYORS CERTIFICATION

I, Robbie T. Hugg, New Mexico Professional Surveyor Number 11808, hereby certify that this "Site Map" was prepared from an actual ground survey performed by me or under my direct supervision; that I am responsible for this survey; that this survey does not represent a boundary survey or property survey as defined in the New Mexico State "Minimum Standards for Land Surveying" and that this survey is true and correct to the best of my knowledge and belief.

Robbie T. Hugg, NMPS No. 11808
December 16, 2009

PROFESSIONAL SURVEYOR
STATE OF
No. 11808
NEW MEXICO
ROBBIE T. HUGG

SURVTEK, INC.
Consulting Surveyors
8224 Valley View Drive, N.E. Albuquerque, New Mexico 87114
Phone: 505-897-3366
Fax 505-897-3377