NM1 - __39____

TZ
High Cl Soil Isolation and Removal Plan Approval

March 3, 2015

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David Catanach, Division Director
Oil Conservation Division

March 3, 2015

Ms. Monte Carol Madera
Pitchfork Landfarm, LLC
524 Antelope Road
Jal, New Mexico 88525

Re: High Chloride Waste Isolation and Removal and Vadose Zone Monitoring Plan
Pitchfork Landfarm, LLC
Permit NM1-039
Location: NE/4, NW/4, NE/4 Section 5, Township 24 South, Range 34 East, NMPM
Lea County, New Mexico

Dear Ms. Madera:

The Oil Conservation Division (OCD) has reviewed Pitchfork Landfarm, LLC's (Pitchfork) High Chloride Waste Isolation and Removal and Vadose Zone Monitoring Plan, dated February 26, 2015 and received by OCD on March 2, 2015, which proposes a sampling plan to isolate high chloride contaminated soils within treatment zone that exceed the waste acceptance criteria for removal and off-site disposal at an OCD approved facility and a sampling plan to assess the vadose zone to determine if the high chloride contaminated soils discovered in the treatment zone have impacted the native soils.

Based on the information provided in the request, the proposed High Chloride Waste Isolation and Removal and Vadose Zone Monitoring Plan are hereby approved with the following understandings and conditions:

1. Pitchfork shall comply with all applicable requirements of the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), and all conditions specified in this approval and shall operate in accordance with the February 26, 2015 submittal;

2. Upon completion of the High Chloride Waste Isolation and Removal Plan and obtaining the associated laboratory analytical results, Pitchfork shall obtain written approval of the vadose zone sampling locations from OCD prior to implementing the Vadose Zone Monitoring Plan; and

3. Pitchfork shall obtain written approval from OCD prior to implementing any changes to the February 26, 2015 High Chloride Waste Isolation and Removal and Vadose Zone Monitoring Plan.

Please be advised that approval of this request does not relieve Pitchfork of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve Pitchfork of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,

Brad A. Jones
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs
Bruce McKenzie, Enviro Clean Services, LLC, Tulsa, OK 74136

PITCHFORK LANDFARM, LLC
Bert & Montie Carol Madera
524 Antelope Road
Jal, New Mexico 88252
575-390-2861/575-441-8945

RECEIVED OCD
2015 MAR -2 P 12: 17
BAJ

February 26, 2015

Mr. Brad Jones
Environmental Engineer
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: High Chloride Waste Isolation and Removal and Vadose Zone Monitoring Plan
Pitchfork Landfarm, LLC
Lea County, New Mexico
Permit Number: NM1-039

Dear Mr. Jones:

Please find enclosed one (1) copy of the ***High Chloride Waste Isolation and Removal and Vadose Zone Monitoring Plan*** (Plan) for the Pitchfork Landfarm, LLC (Pitchfork) site located in the NE/4, NW/4, NE/4 of Section 5, Township 24 South, Range 34 East NMPM in Lea County, New Mexico. Pitchfork has read the Plan and concurs with the proposed activities. Upon your approval, Enviro Clean Services, LLC, on behalf of Pitchfork, will implement the work scope presented in the Plan.

Sincerely,
Pitchfork Landfarm, LLC

Monte Carol Madera
Agent

Enclosure: High Chloride Waste Isolation and Removal and Vadose Zone Monitoring Plan

ENVIRO CLEAN SERVICES, LLC

RECEIVED OCD

2015 MAR -2 P 12: 17

BAJ

February 26, 2015

Mr. Brad Jones
Environmental Engineer
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: High Chloride Waste Isolation and Removal and Vadose Zone Monitoring Plan
Pitchfork Landfarm, LLC
Lea County, New Mexico
Permit Number: NM1-039

Dear Mr. Jones:

Enviro Clean Services, LLC (Enviro Clean), on behalf of our client Pitchfork Landfarm, LLC (Pitchfork), is pleased to submit to the New Mexico Oil Conservation Division (NMOCD) the following work plan to conduct High Chloride Waste Isolation and Removal and Vadose Zone Monitoring activities at the Pitchfork landfarm site (Site) located in the NE/4, NW/4, NE/4 of Section 5, Township 24 South, Range 34 East NMPM in Lea County, New Mexico. The Site location and topographic features are shown on attached **Figure 1**.

You may recall that Enviro Clean contacted the NMOCD to discuss the regulatory needs of the Site. During our telephone conversations, it was discussed that analytical data recently submitted by Pitchfork suggest that oil field waste material exhibiting chloride concentrations exceeding the waste acceptance criteria of 500 mg/kg were present at the Site and that Pitchfork needed to delineate and remove these waste material for off-site disposal at a NMOCD approved disposal facility. During our discussions, it was noted that the permit required quarterly Vadose Zone Monitoring should have been being conducted since operations began at the Site and that this monitoring should continue until the Site undergoes closure. It was further discussed that additional Vadose Zone Monitoring will be required after the Treatment Zone Isolation Sampling has been completed and the oil field waste material

7060 South Yale Avenue, Suite 603 ▪ Tulsa, Oklahoma ▪ 918.794.7828 ▪ fax 918.794.7836
www.EnviroCleanPS.com

exhibiting chloride concentrations exceeding the waste acceptance criteria have been removed and disposed of at a NMOCD approved disposal facility. NMOCD recommended that the additional Vadose Zone Monitoring samples be collected beneath the area(s) of the Site that contained the oil field waste material exceeding the waste acceptance criteria.

High Chloride Waste Isolation

To delineate the extent of the oil field waste material exhibiting chloride concentrations exceeding the waste acceptance criteria of 500 mg/kg present at the Site, Enviro Clean will collect samples of the oil field waste material for submittal to the analytical laboratory utilizing a decontaminated hand-auger or spade. Waste delineation sampling will likely be conducted in two separate rounds depending upon the analytical results of the initial waste samples. The first round of waste sampling will be designed to determine which portions of the Site contain oil field waste material exhibiting chloride concentrations exceeding the waste acceptance criteria, and the second round of sampling will be designed to more tightly delineate the waste material. Attached **Figure 2** presents the proposed initial waste sample locations. As shown on this figure, an initial 50 foot grid has been superimposed on the Site with the initial waste sample locations located in the center of each grid area. Analytical results for each initial waste sample will be considered representative of the material within the grid area the waste sample was collected. Upon receipt of analytical data from the first round of waste sampling, the 50 foot sample grids containing waste material exhibiting chloride concentrations exceeding the waste acceptance criteria may be subdivided into four smaller 25 foot grids and additional waste sampling conducted. During this second round of waste sampling, the waste sample locations will be located in the center of each smaller grid areas and the analytical results for each waste sample will be considered representative of the material within the grid area the waste sample was collected. At each sample location, the thickness of the oil field waste material will be recorded so that the volume of the waste material exceeding the waste acceptance criteria can be estimated for future removal activities. The waste samples collected during each sampling event will be placed directly into laboratory prepared sample containers, labeled as to source and contents, placed on ice for preservation, placed under chain-of-custody control and shipped via overnight courier to the analytical laboratory (ALS Environmental Laboratory, Houston, Texas). The proposed waste samples will be analyzed for chlorides (EPA Method 300).

High Chloride Waste Removal

Once the oil field waste material exhibiting chloride concentrations exceeding the waste acceptance criteria have been delineated these waste material will be removed to native soils and disposed of off-site disposal at a NMOCD approved disposal facility. In general, the excavated waste material will be loaded directly into semi-dump trucks for transportation to the disposal facility. The excavated waste material will be manifested via a Form C-138, transported to and disposed of at the Lea Land, Inc. landfill located approximately 32 miles west of Hobbs, New Mexico.

Upon removal of the oil field waste material exhibiting chloride concentrations exceeding the waste acceptance criteria, Enviro Clean will prepare a report for submittal to the NMOCD that will describe the removal activities conducted at the Site. This report will include a discussion of the field removal activities, a drawing that illustrates the confirmed chloride concentrations and the limits of the excavation activities, the volumes of waste material removed, and the waste disposal manifests.

Vadose Zone Monitoring

Upon completion of the waste removal and disposal activities described above, Enviro Clean will conduct additional Vadose Zone Monitoring in those area(s) of the Site that formerly contained oil field waste material exceeding the waste acceptance criteria. A plan depicting the specific locations of the additional Vadose Zone Monitoring samples will be developed following receipt and evaluation of the laboratory analytical data from the High Chloride Waste Isolation sampling activities. This plan will be submitted to the NMOCD for approval prior to implementing the field sampling activities. It is anticipated that to complete the additional Vadose Zone Monitoring, Enviro Clean will install soil borings to a depth of approximately 3 feet below the native ground surface utilizing a decontaminated hand-auger. Soil grab samples will be collected from these soil borings from the depth intervals of 1.0 to 2.0 feet bgl and 2.0 to 3.0 feet bgl. Upon completion of soil boring/sampling activities the soil borings will be plugged with hydrated bentonite chips. The soil samples collected will be placed into laboratory prepared sample containers, labeled as to source and contents, placed on ice for preservation, placed under chain-of-custody control and shipped via overnight courier to the analytical laboratory (ALS Environmental Laboratory, Houston, Texas). The proposed soil samples will be analyzed for total petroleum hydrocarbons (TPH) (Method 8015B); BTEX (Method 8260), and chlorides (EPA Method 300). The concentrations of TPH, BTEX and chlorides observed in these samples

will be compared to the higher of the background soil concentrations or the laboratory Reporting Limits/Practical Quantitation Limits (RL/PQL) observed for the Background Demonstration Samples. The Background Demonstration Samples will be collected in accordance with the NMOCD approved ***Background Demonstration Sampling and Analysis Plan***. The proposed analytical laboratory Reporting Limits (RL) and Practical Quantitation Limits (PQL) are summarized in attached **Table 1**.

Upon completion of the field sampling activities and receipt of the laboratory analytical data, Enviro Clean will prepare a Vadose Zone Monitoring Report for submittal to the NMOCD that will describe the field sampling activities conducted, the results of the laboratory analyses, and a comparison of the vadose zone soil analytical results to the higher of the background soil concentrations or the laboratory RL/PQL observed during the Background Demonstration Sampling.

If the additional Vadose Zone Monitoring sample results indicate concentrations of TPH, BTEX or chlorides exceeding the higher of the background soil concentrations or the laboratory RL/PQL observed during the Background Demonstration Sampling, Pitchfork will notify the NMOCD of the exceedance and comply with the release response requirements of 19.15.36.15E(5) NMAC. Following this initial notification, Enviro Clean will install a minimum of four (4) additional independent soil borings in those areas of the Site previously sampled. The specific locations of the additional independent soil borings will be developed following receipt and evaluation of the laboratory analytical data from the additional Vadose Zone Monitoring sampling activities. It is anticipated that to complete this additional monitoring, the additional independent soil borings will be installed to a depth of approximately 3 feet below the native ground surface utilizing a decontaminated hand-auger, and soil grab samples will be collected from the depth interval of 2.0 to 3.0 feet bgl. Upon completion of soil boring/sampling activities the soil borings will be plugged with hydrated bentonite chips. The soil samples collected during this re-sampling event will be placed into laboratory prepared sample containers, labeled as to source and contents, placed on ice for preservation, placed under chain-of-custody control and shipped via overnight courier to the analytical laboratory (ALS Environmental Laboratory, Houston, Texas). The proposed soil samples will be analyzed for TPH (Method 8015B); BTEX (Method 8260); chlorides and constituents listed in Subsections A and B of 20.6.2.3103 NMAC. A copy of Subsections A and B of 20.6.2.3103 NMAC is provided in **Attachment A**.

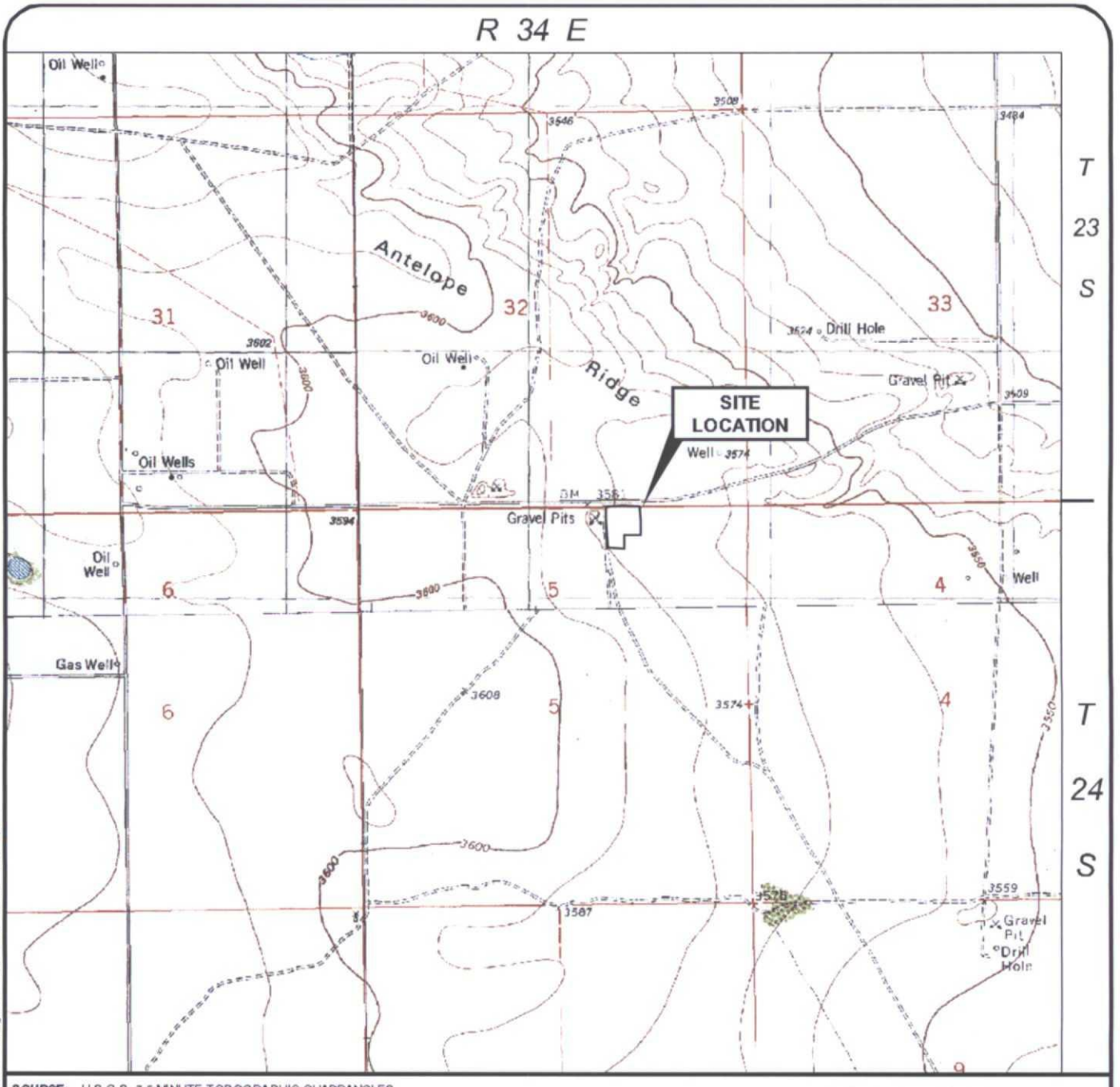
Upon completion of the field sampling activities and receipt of the laboratory analytical data from the resampling event, Pitchfork will submit to the NMOCD the analytical results of the re-sampling event and a response plan within 45-days of the initial notification. The response plan will present Pitchfork's changes in operation to prevent further impacts to the Site and, if necessary, a plan for remediating the existing impacts.

If you have any questions regarding the proposed activities, please do not hesitate to contact me at (918) 906-6780.

Sincerely,
Enviro Clean Services, LLC

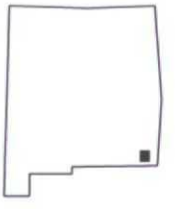
Bruce E. McKenzie, P.G.
Senior Project Manager

Attachments: Figure 1 - Site Location and Topographic Features
Figure 2 - Proposed Treatment Zone Isolation Sample Locations
Table 1 - Summary of Laboratory Reporting Limits
Attachment A - Subsections A and B of 20.6.2.3103 NMAC



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES
BELL LAKE, NEW MEXICO 1973
SAN SIMON SINK, NEW MEXICO 1984
TIP TOP WELLS, NEW MEXICO 1984 AND
WOODLEY FLAT, NEW MEXICO 1973

NEW MEXICO



SCALE
0 1/2 1 MILE

N

CLIENT: PITCHFORK LANDFARM, LLC	FIGURE TITLE: *SITE LOCATION AND TOPOGRAPHIC FEATURES*
LOCATION: NE/4 NW/4 NE/4, SECTION 5, T24S, R34E LEA COUNTY, NEW MEXICO	DOCUMENT TITLE: HIGH CHLORIDE WASTE ISOLATION AND REMOVAL, AND VADOSE ZONE MONITORING PLAN

ENVIRO CLEAN SERVICES, LLC

Enviro Clean Services, LLC
7060 South Yale Avenue, Suite 603
Tulsa, Oklahoma 74136
918.794.7828
www.EnviroCleanPS.com

		DESIGNED BY	BEM
DATE	2/18/2015	APPROVED BY	BEM
SCALE	AS SHOWN	DRAWN BY	SKG
PROJECT NUMBER		FIGURE NUMBER	
PITHLAND01		1	

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LEGEND

- PROPOSED WASTE SAMPLE LOCATION
- SAMPLING GRID – 50 FOOT SQUARE
- LANDFARM BOUNDARY

SOURCE: AERIAL PHOTOGRAPH DATED FEBRUARY 13, 2014 - GOOGLE EARTH PRO SCREEN CAPTURE

N

75 0 75 150

SCALE FEET

CLIENT: PITCHFORK LANDFARM, LLC	FIGURE TITLE: *PROPOSED TREATMENT ZONE ISOLATION SAMPLE LOCATIONS*
LOCATION: NW/4 NE/4 SECTION 5, NM T24S R34E LEA COUNTY, NEW MEXICO	DOCUMENT TITLE: HIGH CHLORIDE WASTE ISOLATION AND REMOVAL, AND VADOSE ZONE MONITORING PLAN

ENVIRO CLEAN SERVICES, LLC

Enviro Clean Services, LLC
7060 South Yale Ave, Suite 603
Tulsa, Oklahoma 74136
918.794.7828
www.EnviroCleanPS.com

		DESIGNED BY	BEM
DATE	2/18/2015	APPROVED BY	BEM
SCALE	1"=150'	DRAWN BY	SKG
PROJECT NUMBER		FIGURE NUMBER	
PITHLAND01		2	

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Table 1 : Summary of Laboratory Reporting Limits
Pitchfork Landfarm, LLC
Lea County, New Mexico

Analyses	Method	RL mg/kg	PQL mg/kg	MDL mg/kg
Select VOCs:				
Benzene	8260B	0.00500	0.005	0.000500
Toluene	8260B	0.00500	0.005	0.000600
Carbon Tetrachloride	8260B	0.00500	0.005	0.000600
1,2-Dichloroethane	8260B	0.00500	0.005	0.000600
1,1-Dichloroethene	8260B	0.00500	0.005	0.000500
1,1,2,2-Tetrachloroethene	8260B	0.00500	0.005	0.00080
1,1,2-Trichloroethene	8260B	0.00500	0.005	0.00050
Ethylbenzene	8260B	0.00500	0.005	0.000700
Xylenes (Total)	8260B	0.01000	0.01	0.002400
Methylene Chloride	8260B	0.0100	0.01	0.001000
Chloroform	8260B	0.00500	0.005	0.000500
1,1-Dichloroethane	8260B	0.00500	0.005	0.000500
Ethylene Dibromide	8260B	0.005	0.005	0.000500
1,1,1-Trichloroethane	8260B	0.00500	0.005	0.000500
1,1,2-Trichloroethane	8260B	0.00500	0.005	0.000500
1,1,2,2-Tetrachloroethane	8260B	0.00500	0.005	0.000800
Vinyl Chloride	8260B	0.00200	0.002	0.00080
PAH:				
Includes Total Naphthalenes plus Monomethylnaphthalenes (2)	8270D	0.0033	0.0033	0.00100
Benzo(a)pyrene	8270D	0.0033	0.0033	0.00060
Select Metals:				
Arsenic	6010B	0.50	0.5	0.100
Barium	6010B	0.50	0.5	0.08
Cadmium	6010B	0.50	0.5	0.050
Chromium	6010B	0.50	0.5	0.090
Lead	6010B	0.50	0.5	0.050
Mercury (Total)	7471B	0.003325	0.003325	0.000470
Selenium	6010B	0.50	0.5	0.18
Silver	6010B	0.50	0.5	0.080
Copper	6010B	0.50	0.5	0.10
Iron	6010B	50.0	50	10.0
Manganese	6010B	0.50	0.5	0.10
Zinc	6010B	0.5	0.5	0.25
Total Petroleum Hydrocarbons:				
TPH	8015B	3.40	3.4	0.50
Miscellaneous:				
Chloride	9056A	5.0	5	2.00
Cyanide	9012B	2.00	2	0.600
Fluoride	9056A	1.00	1	0.300
Nitrate as N	9056A	1.00	1	0.300
Uranium	6020A	0.50000	0.5	0.500000
Ra-226 & Ra-228 (4)	RA-06-RC	---	---	---
PCBs (3)	8082A	0.0167	0.0167	0.0167
Phenols	9066	2.50	2.5	1.00
Sulfate	9056A	5.0	5.0	2.00

Notes:

1. RLs, PQLs, MDLs presented are provided by ALS Environmental Laboratory in Houston, Texas.
2. Total Naphthalenes: Reported highest limits. Individual compound limits will vary.
3. PCBs: Reported highest Aroclor limits. Individual Aroclors limits will vary.
4. Radium 226 & 228: Subcontracted to ALS Ft. Collins, CO laboratory. Samples are reported with MDC (Minimum Detected Concentration). MDC's are will vary by sample.

ATTACHMENT A
SUBSECTIONS A AND B OF 20.6.2.3103 NMAC

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.]